Wave as Tool,

Performance Lecture, given at Central St Martin’s College for Sensinsite’s Composting Estate

John Hartley November 2019

We

Then

Dynamic

Summary

Repetition

We see

Multiple estates.

Oscillating stability

Including the Apparatus

Edge of increase

Diffraction and interference.

What falls away?

Layer and stacking

A model of change

Nested change: cascading collapse

The inertia of populations.

The literature of Virginia Woolf

A bit uncertain and wobbly

There are other cultural technologies.

Electricity, metal, worms and stem cells.

POLITICAL CHANGE (Chase-Dunn & Inoue) 2011

Energy load (and other equipment listed)

A picture that this equipment makes.

The breaking point of populations .

'Human being and thinghood overlap' (Bennet: 4).

The edge of the sea is indeterminate

The edge of universities and creative practices

Existing over multiple historical and spatial scales.

Non-human ecosystems, but also human and social ones.

Multiple, stacked, distributed, multiscale, nested, bleeding, ever changing

Distractions and things that didn’t make it into this.

The movement of matter can be seen within fluids.

Definitely in the sea now. Definitely not about the land.

Intensive waves of change in social, environmental and economic conditions.

...picture is constructed that includes rapid, diverse growth and changes:

Uncertainty which questions the pre-eminence of human control or planning.

An infrastructure of technical expertise including laboratories, corporations, research and education.

Fractal geometry describes structures that replicate over many scales. They are self-similar

The art apparatus has a vibrancy like that of other material conditions.

The work's scale begins around a few centimetres to half a metre or so.

...complex systems in order to describe how they persist or become fragile and collapse.

Following Foucault's reading, the apparatus is a producer of subjects. It can be anything with

The artwork changes in vibrant ways, and has the potential to show emergence and collapse.

People and systems and living things and non living things. Populations and clusters with their own elasticity

Nokia 6210 navigator, Announced 2008, February. Released 2008, July. Status Discontinued. 2008 price £255, 2019 ebay price £21.95

a material apparatus dependent upon factories, advertising campaigns, international investment vehicles and monetary exchange. Extraction of rare metals. Oil.

The agency of a physical system acts diagrammatically to show us what Yorque calls a 'disturbance panorama' (ibid: 432).

The process from accumulation and collapse to reorganisation is a spatial aspect of Gunderson and Holling' model of ecological change.

The boundary of the apparatus is indeterminate and the edge of its environmental impact may be equally hard to determine.

A materialist perspective that collects examples of distributed, or connected, agency as opposed to an atomised view of the non-human world.

In the middle of this arms and legs cause their own displacements as a swimmer is moved around among many changes.

And I realised how the tools that are used to look at something can often change the thing you're trying to look at.

I became interested in how the work's own production and presentation was implicated in wider industrial and economic processes that contribute to dynamic conditions.

Reading 'Panarchy' this spatial ecological model of change alongside art processes can lead to a discussion of different scales and different realms of relevance.

I have entitled this talk wave as tool. I expect the wave shape - or at least the cloud or cluster shape is emerging.

The centre of a sustained investigation allows the most space for arguments that draw together multiple ideas, controlling their order to establish more coherent points.

Hi, yes, this was a film I made in the Walpole Bay seapool in Margate, using a discarded, low-value mobile phone, strapped to my arm in a plastic bag. And the text I'm reading is pulled together from a range of sources, including my own doctoral research, and recent lectures. It has been edited and distributed in a way that I hope will highlight the indeterminate edge of wave shapes and the nested multi-scale overlay of change within moving waves.

Wave-like structure, growing, teetering at a point of maximum potential, then collapsing, only to reorganise and start to grow again (maybe in a different way or scale).

'On the one hand, destabilizing forces are important in maintaining diversity, resilience, and opportunity. On the other hand, stabilizing forces are important in maintaining productivity and biogeochemical cycles'

The conditions of the sea includes wave shapes, chemical composition, plant and animal populations, economic systems dependent upon the sea. All are producing changes and interactions that are extensive and intensive.

The accumulation and release considers 'potential' (ie resources), such as biomass and nutrients in biology. But it is also applied within economics and social organisation, to market share, or expertise among companies (ibid: 34-35).

If you have ever tried meditation, you will recognise that when tryingn to still your mind you battle with many minor distractions and niggles before being able to obseve wider slower thoughts and feeling.

So, I'm not referring specifically to an estate such as those discussed in the event 'Approaching Estate', which included work places, religious communities, research environments, forests, allotments, the electomagnetic milieu of urban centres, places of incarceration.

And I realised I was making art from a land based mindset. So often a seascape is made from the land, looking out into the sea. But really you're making art about the ideas of the land.

Apparatuses are part of how social relations enact their discipline and produce subjectivities. And The art institution is an apparatus that extends into multiple economies and global brands. Any independence of voice is 'consumed, merchandised and spectacularised' (Beech, 2006).

If you are only interested extensive conditions, such as this wildlife reserve, or that work group... then this way of thinking is about models and metaphores, but paying attention to intensive change offers a glimmer of the life of processes.

multi-scale fields include institutions and their rules; economies and the preferences of individuals, nations and their markets, governance and infrastructure and knowledge systems including local knowledge, management practices and worldviews (Holling, Gunderson and Peterson, in Gunderson and Holling 2002: 75).

Connections are important to trace or map, but not all connections are equal. They can be fast or slow, brittle or strong. They can be enacted immediately or with delay and elasticity. They can damp down and absorb change or amplify it.

Opportunity becomes embedded for the strong and successful (whether they be species or habits of social policy). This is displaced by disruption and then collapse and renewed opportunity can follow. The whole process exhibits a wave-like shape which the authors demonstrate with a drawing.

Stochastic change can trigger spasmodic collapses or new ways of acting, especially when they 'encounter vulnerabilities' at another level of the whole nested system (ibid 91). Changes can be creative or destructive. 'Productive novelty can cascade up the levels, or ...destructive catastrophes cascade down' (ibid: 88).

So this text is a single wave. within it there are other elements, moments of emergence and collapse. Inscribed upon this text by conditions that it observes or attempts to register. But also derived from the texture of process itself. These combine and subtract together rhythmically.

A wave is a travelling disruption.The 'travel' may be yours as you pass into the disruption and out of the other side. Most likely it’s the case that both you and it are moving in different ways and it will change you and you will change it.

These ripples and waves of many scales sit on top of, or within, each other. The multiple scales of waveform coexist and interact to make connected semi-irregular patterns. They combine and subtract from each other to make peaks or troughs which are complex and uncertain across many scales.

The ecological model of Panarchy describes and names changing *stages* within complex systems. Some of these stages are already established in ecological theory while others are new to this theory. For instance *exploitation* and *conservation* are established concepts in ecosystem theories, describing stages where organisms compete to acquire and then accumulate 'potential' (Gunderson, Holling, 2002: 33).

I started swimming in the sea. And it's hard to make images while you're swimming. And in fact the thing I was aware of wasn't necessarily the light or what you sea. More than anything it was the movement. And that movement isn't just one wave up and down. It's a combinations of ripples and waves and tides and all sorts of movement.

‘The question of the objective existence of problems (and their defining diagrams) is a crucial issue in Deleuze’s philosophy of matter and form, a philosophy which attempts to replace essentialist views of the genesis of form (which imply a conception of matter as an inert receptacle for forms that come from the outside) with one in which matter is already pregnant with morphogenetic capabilities, therefore capable of generating form on its own.’ (De Landa, 2000: 34)

Following Foucault's reading, the apparatus is a producer of subjects. It can be anything with [the] ‘capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviors, opinions, or discourses of living beings. Not only, therefore, prisons, madhouses, the panopticon, schools, confession, factories, disciplines, juridical measures, and so forth (whose connection with power is in a certain sense evident), but also the pen, writing, literature, philosophy, agriculture, and – why not- language itself...' (Agamben, 2009: 14). However, this interpretation appears to be constrained to the human. It produces subjectification or, when failing to do so, ‘becomes a tool of mere violence’ (ibid: 19)

An artwork contributes to and affects social, intellectual and material systems of larger scales. Like the waves of a Panarchy, the small scale acts of this work depend upon larger cycles of emergence and collapse (all of which may be changing independently at different speeds). And it may conceivably affect those processes if they are in a state that is receptive to change. Those cycles of change could be in ideas, or they could be in the infrastructures that produced the artwork (its material footprint). If the institutions or arrangements that led to the production of this work were in a precarious situation with

its finances or reputation for instance, the investment and disruption of even a small artwork could tip larger systems into crisis or opportunity (be that a conceptual, departmental or within other systems of wider scale).

The largest sea waves are vanishingly slow, determined by continent formation and the orbit of heavenly bodies (we start to see how oscillations within the sea are connected with very distant events). The longest waves are generated by fluctuations in the Earth's crust and atmosphere. Tides, generated by interaction of seas, Moon and Sun take place over hours and have a wavelength of hundreds, to thousands, of kilometres (Holthuijsen, 2010: 3-5). The sloshing undulations of vast bodies of water cause changes in the seabed and coastal folds with which they interact. The forms of the of the waves themselves are configured by the depth of the water and shape of the seabed, the interplay of currents and rebounding backwash resonating off landmass or sea walls. Ripples (which oceanographers refer to as capillary waves) (Ibid: 3-5) ride on and confuse the pattern of these waves, as they are pulled and thrown by the movement of moon and sun, washing planetary volumes of water around a bumpy and irregular surface. Storm surges caused by low pressure of storms (patterns of rising and falling atmospheric pressure) take place over a few hundred kilometres and a few days. Other intensive oscillations include unpredictable seiches; standing waves which develop within partially bounded 'resonant basins' (such as a harbour, or bay). The features of the basin surface bubble up and wear away over geological time, becoming ground down, dug into ridges or silted up over non-human time scales. (Ibid: 3-5). More noticeable on a human scale are waves generated by wind, and the water's own earthly gravity. These include surface gravity waves, wind sea and swell between 1⁄4 and 30 seconds in periodicity. Groups of these waves generate surf beat over a few minutes.

This talking and arrangement of text is a report of sorts. It reports on some of my own doing. On some doing of other people and some doings or thinking between myself and others. It reflects on lived movement and activity including swimming, writing, collective thinking. But having said that, having used the easy word reflect, I must fold back, eddy, and rework that. Reflection is not a useful word, though it may be easy. Diffraction is more appropriate. Karen Barad (2007) develops the idea of diffraction as opposed to reflection. Building on the work of Dona Haraway and Trinh Minh-ha, she talks about using tools (both material devices and social practices) to interact with and be changed by something as a way of registering it. Haraway says 'Diffraction is a mapping of interference, not of replication, reflection, or reproduction. A diffraction pattern does not map where differences appear, but rather maps where the effects of difference appear' (Haraway,1999: unpaginated). Diffraction can be seen as a term that describes the interference of multiple waves. An argument against what Barad terms the fixed referent.

Holling and Gunderson developed an interdisciplinary and cross-scale dynamic model 'Panarchy'. This name is coined to suggest the antithesis of hierarchy (which literally means sacred rules) and instead inserts a reference to the Greek god of nature and chaos, Pan (Holling, Gunderson and Ludwig, 2001: 21). Instead of being shaped by top down forces, Panarchy addresses change occurring across many levels and scales. Their theory is developed to

describe ecological dynamics in habitats of a range of scales, as well as the history of human populations and the behaviour of social systems like bureaucracies and industries (ibid: 55).

The apparatus of the academy produces value for and is supported by nested shapes of energy and change-production. It has its own dependencies and within these broad structures smaller peaks of disciplines and schools of thought emerge and collapse. Fortunes rise and fall. Careers, courses, modules. None of these scales is more true than any other. Finer still, are moments of contact and reflection, communicating and imprinting more distant shapes or distractions upon specific conditions, causing ripples and echoes that may be quickly absorbed, or rebound and combine to result in a sudden crest or trough.

The concept of apparatus is a critical tool for sociologists of science and also within cultural theory (as Foucault's dispositiv (Agamben, 2009)), to describe variously a tool or process that is changed by conditions notionally external to it, so that we can read something of those conditions, or a process which produced subjectivities. Art practices have been described using either application of this term. Their entanglements with the world talk about it for us. These two uses both have their restrictions and the overlap is not clearly considered.

Euclidean geometry Worked well in engineering of building sized objects.but Doesn’t work well in engineering of city sized objects, made of residents, historical and environmental contexts, changing economic factors and the actions of investors and underlying capital reserves. It works well in an electric circuit. Doesn’t work well in a telephone network, or the behaviour of the world wide web, or social use of mobile technology and its downstream environmental impacts beyond the intended limit of the project.

What I'm doing here today is attempting a diffractive reading of a water-based arts practice against different theories of systems change, taken from ecology and material systems, but in a way that shows the art apparatus as being part of and dependent upon all sorts of things and also shows how it changes. That shows the changes of the sea as the changes of the art apparatus.

Technology such as mobile phones is released onto the market as waves of fashion and it becomes dominant and everyone buys one and it changes the possibilities for how people act and also what else might get made, then it loses popularity, or fashion capital, or potential, and no one wants it anymore and the next wave comes along.

The theoretical physicist Per Bak, researched the movement of piles of sand as a model for complex behaviour saying that 'The behaviour of the critical sandpile mimics several phenomena observed across many sciences, which are associated with complexity' (Bak, 1999: 3), and he includes earthquakes, mass extinction and stock market crashes as relevant examples (ibid: 14-17).

The complex entanglements of apparatus involve tools and processes which look at the world (as science does for instance). And the apparatus is configured by the world (as where social conditions support or allow tools or processes making up the apparatus). Both directions of change act upon each other.

Waves aren't a surface, nor a substrate. They're movement within a substrate. An interesting thing I found out was that the water doesn't move along within a moving wave. The water is lifted up, circles around, then goes down. It's just the energy that moves along...

Euclidean geometry describes distinct and isolated figures that can be treated alone. When you are engaging with multiple factors and agents that interrelate and interact (at different rates, to different degrees, with different rates of delay or latency or immediacy), this is not appropriate.

There is no point of fixed reference. Other than the milieu in which events occur. How do we register that, or orientate and engage with it, especially when it is fluid and elusive. Maybe by addressing shapes of movement. intensive movement.

Emergence and collapse in material conditions (even on a small, table-top scale) are able to speak about emergence and collapse on wider scales, including those of long-term resilience in socio-economic systems and large collections of species.

When a local system goes through a collapse stage, that collapse can add to wider instability if the larger system it belongs to is in a precarious state. Effects can pass to the next scale.[i]

The phone might still work just as well as it did before, but people and fashion have moved on. Just like how water doesn't move forwards when a wave travels; only an energetic signal.

The behaviour of one cycle (for instance at leaf scale) can influence other cycles at different scales (for instance within a whole tree, a patch of trees or a forest (ibid: 87)).

This event is dependent upon this university, its rooms, its finance from multiple sources of state and individual, its energy infrastructures and the expertise to connect them from source to user.

Acknowledge the role of an apparatus as an agent for change in the environment in which it operates, … make the material aspects of the apparatus more visible.

For Jane Bennett, both chemicals and fictional characters display emergent properties that are derived from the vital materiality of the matter from which they are made (ibid: 11).

A thalassacentric perspective is not looking from the land out to the sea. It is the perspective of the sea that may address the land.

In other words it is not enough to recognise the materiality, we must also recognise how it, moves, shivers, echoes and resonates.

Physicists such as as Per Bak see similarities between the way sand collapses and the way economies, species and geologies collapse.

Two sorts of complex changes. Those taking place within material structures and those within energetic systems such as ecology, or politics

This is a shape of change that repeats over different scales. To some degree this could be said to be 'fractal'.

The artwork sits on top of a conceptual sand pile, an apparatus in the terms described by Beech or Foucault.

Slow percolation of perception. A thought ripples and connects, redefining what it sits amidst and everything it goes through.

Should/can conditions and relations in the world at large be reduced to the production of subjects, of subjectivity?

Fractal structures are found in apparatuses, in waves of water and in waves of changing environmental ecologies.

Seminar room, projector, laptop, discarded mobile phone, neoprene wetsuit, plastic bag and gaffer tape, writing time, thinking time

An art apparatus acts upon an estate to reveal it, or help produce the estate.

Presented in an innovation hub contributing to the university's growth strategy and University Corporate Plan,

Relevance for changing environments and it describes resilience as an oscillating process of balance.

A tool for policy makers and environmental managers, business organisation and cultural practices

Waves of innovation bring about transformation and disruption in different, connected realms.

Bennett describes movement and change within the material world as *Thing-power*

Be clear, distinct, or take risk and engage the marginal to feed a future centre

Processes of construction, service and powering, are part of the work.

Intensive conceptual space within which wave shapes move and communicate

Multiple events acting in unpredictable ways with emergent properties

Material structures, considered by a range of practices

The apparatus undergoes its own emergence and collapse.

Waveforms interacting and building over different scales

Common movement in different changing systems.

The shape of the change is what I’m looking for.

Trace impact in some limited ways.

Connections emerged tangentially from the artwork

Emergent organisation pitted against collapse

The trailer, leading edge, margin

(Burkes and Folke, 2001)

Whether human or non-human

(Gunderson and Holling: 26).

Periphery, long tail, margin

Culture is a technology.

The elasticity of populations

The damping of change

Mass potential and tension

Clutter, junk, flotsam

Shapes of movement

Reconsidering the Artworks

Edge of decrease

Non-linear disequilibrium systems

Practice as site

Whimsy and hunch

Nested shapes

Multiple scales.

Many layers.

Snippets, sentences

Transparent.

Fractal

Distraction

Texture.

Pattern

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