

BIG DATA, AFFECT THEORY FOR ARCHITECTURE IN THE ANTHROPOCENE

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The concept of the Anthropocene postulates a new geological epoch defined by overwhelming human influence upon the earth and the biosphere, such that environmental problems such as global warming or extreme weather events can be understood as far from natural processes but as anthropologically driven: as the unintended consequences or feedback loops of the modes of design of our modern everyday existence. Architectural design in the Anthropocene is thus becoming increasingly aware of the limits of modernist framings of nature as fixed or immune from our activities in the world and fundamentally questions forms of knowledge generation that seek to externalise or universalise knowledge or to apply it on the basis of linear causal assumptions. The process of knowing ourselves and our world thereby needs to become more interactive, fluid, multiple, generous and open. This much is clear from climate scientists and from critical theorists working with a variety of approaches and intellectual traditions.

As Lindsay Bremner notes, the Anthropocene forces architectural designers to consider the wider ontological, epistemological, political, methodological and representational questions which the problematisation of the human/environment divide raises. There is seeming agreement upon the vital question facing humanity: How can we develop new ways of designing, compatible with being in a world of multiple feedback loops and complexity? But, as yet, there has been little in the way of conceptual approaches offering a way forward. Key to the answer to this question is the multi-sided and recursive relationship between design and knowledge: awareness of processes of change and emergence and its consequences for design as both the outcome of this process and, crucially, for enabling it. Key to this problem is the question of how computational tools, Big Data and the Internet of Things can be used to enlist, visualise and enliven data in the service of design.

McKenzie Wark's latest book, *Molecular Red: Theory for the Anthropocene*, captures well the need to rethink forms of knowing and acting in ways which are sensitive to the impacts of human being in the world as a complex process of interaction with secondary effects and unintended consequences "beyond any master-thinker or grand plan, beyond the magic of the market or computer modelling." ⁽⁰¹⁾ Key to the book's title is the need to

move beyond the molar world of representational thinking and fixed entities and causal connections and towards knowledge of a molecular order of “flows, becomings, phase transitions and intensities.” (02) Design practices thus have to be reorganised closer to the flux of reality rather than being abstracted from its flows of becoming; knowing has to become more akin to sensing than modernist views of causal understanding. Similar themes have been pursued by many authors in recent years, perhaps foremost amongst them has been William Connolly, who has raised the question of how we might theorise the power of affect “in a world of becoming”; affect working at the subliminal level of bodily senses before being organised into conscious perceptions, feelings and reactions. (03) Affect is here seen as a way in which the human body is sensitive to and absorbs the energy or vitality of its environment as part of the process of interaction with the world at a preconscious level.

Connolly’s point, and the one which I wish to expand upon in this short piece, is the role of architectural design in enhancing the power of affect to enable a greater sensitivity to the multiple possibilities of the virtual, the emergent, the world of becoming. The key aspect is that this sensitivity of affect is not so much attuned to prediction or seeing the future but rather, in Gilles Deleuze’s phrase, the capacity to “grasp it at the time”, the cultivation of a sensitivity of our being in the world. (04) Unlike the focus of many theorists concerned with complexity and emergent causality (seeking preventive or predictive uses of technological innovation), the problem here is seeing or being sensitive to what already exists but cannot be easily grasped by representative and conscious forms of thought (trapped in cultural and ideological modes of thinking informed by past habits and experiences). Affect theory for architectural design in the Anthropocene would thereby involve a consideration of how the ability to be sensitive could be enhanced to enable better forms of knowing and acting in the world in which both human and non-human agencies interact with uncertain effects.

Affect theory, particularly as expanded in the work of Brian Massumi, Nigel Thrift, Patricia Clough and others, has been vital in opening up the understanding of bodies as mediated through the experience of the world rather than as autonomous entities mediated only through culture

and representation. These approaches have fundamentally challenged modernist binary constructions of the material and the immaterial, the integrity of the individual and the externality of its environment, the living and the non-living, and constructions of the natural and cultural. As the editors of *The Affect Theory Reader* note, affect is an inter-relational capacity: in this field of sensory mediation between the body and its environment: “lie the real powers of affect, affect as potential: a body’s capacity to affect and to be affected.” (05) Other authors, such as Bruno Latour, also focus on the body as an “interface” through which it is possible to “learn to be affected”, to be “moved by” and to be “sensitive to” more and more of the human and non-human processes we are embedded within. (06)

As Clough has famously pointed out, however, affect theory often focuses on the capacity of the human body to be open to the world in embodied, experiential ways while neglecting the ways in which affect enables us to understand matter itself as more interactive, communicative and lively; often giving affect theory a problematic subject-centeredness which seems to limit the development of these approaches to human emotional capacities and the potential of non-representational forms of responsiveness. (07) Clough, in following Hansen, focuses on how technology depends upon and enhances the human body’s capacity for indeterminate and contingent responses to affect and to be affected. Humans thus are becoming transformed through technology into being more sensitised to the world. However, Clough as much as those preceding her, focuses on the powers of affect as inherent capacities of the body or of matter itself: the focus is upon “the human body’s experience of technology generally and the specific importance of bodily experience to digital technology.” (08) This is unfortunately typical of biologised understandings of information and communicative system interactions, which were heavily influential in affect theory in its development through work inspired by Silvan Tomkins’ psychobiology of bodily drives and Deleuzian takes on Spinozan vitalism.

However, the individual human body as interface with the world would leave little room for the wide scale transformations in design and social organisation necessary to address the global feedback loops of the Anthropocene. As Wark argues, any new forms of knowledge need to work up to multiple levels to capture the complex interactions of

global humanity. If affect theory is to be developed for the Anthropocene it needs to go beyond the critical positions focused on understandings of how technology and science relate to embodied experience and consider how affect (as a relation of being in-between and beside others) can be artificially enhanced to enable the collectives of humanity to be sensitised to their environments at every level. Rather than focusing on the body as the productive and disruptive interface of affect, affect could be articulated in terms of a wider network of human/non-human assemblages of mediation between the body and its environment.

The 'interface' would then no longer be the body itself but the relations through which the human access to the world is extended and transformed through digital and technological means, which have much less to do with either psychobiology or vitalist views of the interchange and communicative capacities of matter or of life per se. The interface understood not as the (digitalised) body itself but as multiple digitalised assemblages sensing both humans and the non-human environment would enable affect to become an important aspect of knowledge production without the subject-centeredness of either early affect theory's focus on the biological underpinnings of conscious thoughts and feelings or the modernist concern with cognitive processes and with representational forms of being. Thus, affect theory could become a project of future-orientated forms of design for interactive being and becoming.

The discussion of the rise of affect in the form of sentient objects or 'sense-ables' offers a way forward as an example of artificially enhanced assemblages of mediation, where the body itself can no longer be described as the interface with the digital or the environment. As Ravi Sawney argues: "Senseables are, in essence, devices that enable the merging of self, the world, and data about one's place in that world." (09) Whereas wearable technology – such as health-trackers, watches, glasses and clothing with biosensors - provide little information about the self, and become more like a 'glorified notebook,' sensors embedded throughout the environment can technologically mediate human interaction within society and the environment without the need for cognitive decision-making. Here, the devices – or, in fact, the ever growing network of digitalised technology, the Internet of Things – become the sensing mediation between the quasi-human and the quasi-environment. The interface between the body and the external world can neither be grasped as a momentary fragment of time before conscious thought kicks in nor as a micro-level piece of tissue or nerve-ending but rather is an enormous technological network of sensors and computational power.

Of course, shaped by the concerns of neoliberal corporate capitalism, sense-ables - sensing cities, buildings,

homes, furniture, cars and other everyday appliances - are concerned with how our world can become more time-saving and efficient at the same time as providing new products and markets for capitalism in crisis. For Sawney, it is market productivity and bodily efficiency which will drive these technological transformations: "When distracting quotidian decisions are removed thanks to sensors, think about how our minds will be freed up—fewer petty worries and concerns will put us on the track to becoming healthier and happier people." (10) However, the real time feedback that enables sensor-driven technological assemblages to adapt to human moods or being (location in a house for heating and light use or in traffic streams for adaptive approaches to congestion problems), indicates that affect – less mediated forms of interaction based on real-time embodiment – actually enable greater interactive sensitivities to both human, societal and environmental needs. This less mediated form of real-time responsivity is obviously – as Latour has long argued - premised on the greater strings of mediated attachments of human and non-human assemblages of sensors, screens, code etc.

Sense-ables work the other way too, as authors like Noortje Marres and Annika Skoglund have drawn out, everyday environments can be digitalised or datafied to enable human users to be sensitised to broader economic, social and environmental needs. (11) Thus, affect, understood as the capacity of human and nonhuman assemblages to be sensitive to our embeddedness in the world, need no longer be seen as separate to rather than as a transformation of modernist ways of knowing and being. The Anthropocene is doubly a product of modernist science and technology, in both the production of its conjunction of both human and non-human futures and, importantly, in the scientific discovery of its impacts and the urgency of new forms of organising knowledge and designing social practices. It has been the natural scientists as much as the critical theorists who have brought the importance of affective sensitivities rather than cognitive responses and decisions to the forefront of social and political concern (as noted by Latour). (12)

Affect theory seems to underlie the fascination with Big Data approaches as a way of generating increasingly sensitive real-time responses to problems in their emergence. Here modernist forms of knowledge, involving chains of causal understanding, and the modernist binaries and separations involved in governance as decision making from above appear outmoded: problems, from environmental degradation to humanitarian crises, are increasingly reinterpreted as emergent processes which need to be sensed and responded to through ongoing forms of localised knowing and agency. (13) Big Data, as a methodology for the Anthropocene, has become central to policy and academic discussion of urban governance

and urban planning: in discourses of ‘smart’, ‘intelligent’, ‘resilient’ or ‘sentient’ cities. (14) The increasing focus on cities that understand themselves and thereby govern themselves is driven by the technological possibilities of Big Data, where cities are understood as industrial and social hubs of complex interconnections, which through datafication can produce real-time knowledge of themselves. This reflexive awareness of cities’ own ‘vitality’ – their own ‘pulse’ – then enables a second order of reflexivity or of artificial intelligent ‘life’: “Perhaps one way in which we might consider this question is precisely through looking at how vitality develops when computational things are explicitly included in the contours of experience. Then it becomes clear that it has only gradually arisen, line by line, algorithm by algorithm, programme by programme. Cities are full of a whole new layer of emergent entities which, because they are underpinned by code using data as fuel, might be thought of as akin to sentient beings, in that they are able to produce some level of transference through correlation and measurement.” (15)

The view of Big Data as empowering and capacity-building relies upon the reconstruction of society as self-governing, as self-reproducing or autopoietic. (16) However, this approach to self-government appears to be very different to modernist approaches of top-down governance, based on cause-and-effect understandings of policy interventions. In this framework, in which Big Data methodologies and understandings are central, the power of self-governance and autonomy does not stem from a development of liberal forms of power and knowledge but from their rejection. ‘Smart’, ‘resilient’ or ‘sentient’ cities, for example, are not successful because of a development of cause-and-effect understandings, which can then be operated upon by centralised authorities. The ‘conscious’ or ‘cognitive’ self-awareness of the ‘sentient’ city is understood to be very different from that of human cognition or self-awareness.

Here, Big Data materially changes the way the world is and how it is understood and governed. For Thrift, new technologies ‘make this kind of relationality easier to initiate and conjugate’, they are enfolded within emerging processes and essentially turn abstract constructions of relational ontologies into a perceivable social reality. (17) Bruno Latour’s work points in a similar direction, where he suggests that Big Data enables access to a much ‘flatter’ reality, where the modernist divisions between quantitative and qualitative methods no longer needs to apply and that the ‘statistical shortcuts’ that constituted the ‘fictive division’ between the two levels of micro-interactions and macro-structures are no longer necessary. (18) This two-level or dualist approach, which has traditionally dominated social theorising, worked well, according to Latour, to describe emerged phenomena but not for grasping phenomena in

their emergence, in real-time. The need for abstractions at the higher level of the ‘general’, ‘collective’ or the ‘social’ disappear as the real-time interactions and connections can be assembled to enable the study of the concrete and the individual to encompass ever larger collectivities or assemblages (both human and non-human). (19)

If we are to accept the need for a new theory of design for the generation of knowledge and the reorganisation of social practices in the epoch of the Anthropocene then the starting point cannot be the body as interface but the technological extension of our sensory boundaries not merely to the human collective (the experiential viewpoint of labour, advocated by Wark) but also to the extension of sensory experience to the human and non-human assemblages of mediation which begin to transform the thin and fleeting interfaces of affect theory into interfaces which can increasingly blur and disassemble modernist categories and divides and enable new forms of transformative agency. Big Data approaches with their focus on the importance of molecular interfaces and mediations rather than grand schemas of causal knowledge and molar forms of representation would seem an ideal starting point for an understanding of the limits and possibilities of these new forms of sensory knowledge production.

Notes

- (01) M. Wark, *Molecular Red: Theory for the Anthropocene*, London, Verso, 2015, p. xv.
- (02) M. Wark, 2015, p. xvi.
- (03) W. Connolly, *A World of Becoming*, London, Duke University Press, 2011, p. 150.
- (04) W. Connolly, 2011, p. 158.
- (05) G. J. Seigworth and M. Gregg, ‘An Inventory of Shivers’, in M. Gregg and G. J. Seigworth (eds.), *The Affect Theory Reader*, London, Duke University Press, 2010, p. 2.
- (06) B. Latour, ‘How to Talk About the Body? The Normative Dimension of Science Studies’, *Body & Society*, vol. 10, no. 2-3, 2004, 205-206.
- (07) P. Clough, ‘The Affective Turn: Political Economy, Biomedica and Bodies’, *Theory, Culture & Society*, vol. 25, no. 1, 2008, pp. 1-22.
- (08) P. Clough, 2008, p. 6.
- (09) R. Sawney, ‘Note to Designers: Forget Wearables, Tackle Senseables’, *FastCoDesign*, no. 22, April 2015, <http://www.fastcodesign.com/3045304/note-to-designers-forget-wearables-tackle-senseables> (accessed 1 July 2015).
- (10) R. Sawney, 2015.
- (11) N. Marres, *Material Participation: Technology, the Environment and Everyday Politics*, Basingstoke, Palgrave Macmillan, 2012; A. Skoglund, ‘Homo Clima: the overdeveloped resilience facilitator’, *Resilience: International Policies, Practices and Discourses*, vol. 2, no. 3, 2014, pp. 151-167.
- (12) B. Latour, *Facing Gaia: Six Lectures on the Political Theology of Nature*, *The Gifford Lectures 2013*, pp. 77-8, <https://docs.google.com>.

