Urban surveillance after the end of globalization

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The Planetary

The era of globalization is over.

This process, that was always fractured, contested and incomplete, has neither succeeded nor been beaten but now there is undoubtedly a scale of human sociospatial activity that is unavoidably and increasingly irreversibly global. However, to argue that the era of globalization is finished also implies that the concept of *the global* is descriptively and theoretically inadequate. The idea of the global has both an aspirational and representational sense to it and feels both overly abstracted and all too perfect. In the emerging era that is being termed the Anthropocene, in order to emphasise the deep physicality of the impact of humanity on planet Earth, the materiality, the environmentality, of the situation demands a focus on *the planetary*.

Prediction is fraught with dangers. However, Neil Brenner and Christian Schmid (2015) have already made a strong case that the urban can now be seen as a planetary condition, such are the interconnections with, and effects of, the global urban network (Taylor 2004). However, this network is neither a simple and generalized nor an entirely familiar form of urbanism. Using the computing architecture metaphor of 'the stack', Benjamin Bratton (2016) has recently issued a massive and persuasive call for thinking of computing as a planetary condition too. Enabled both by conditions of urbanism and pervasive networked communications, the planet is becoming a

cybernetic system, with computing overlaying and interpenetrating existing social and ecological systems.

However, the initial inspiration for this chapter did not come either from Brenner and Schmid, or from Bratton but, via an interest in science fiction, from exobiology – from the perspective of astronomers interested in the possibility of life on planets other than earth. In particular, it came from a speculative 1964 piece by the Russian astronomer, Nikolai Kardashev, who proposed a typology of possible alien civilizations. The typology was largely based on energy use and had a hierarchical 3-stage model: Type 1 civilizations were able to harness the energy available on their entire planet; Type 2, their solar system; and, Type 3, their galaxy.

In the spirit of J.G. Ballard's famous 1962 argument that Earth is the true alien planet, the American astronomer, Carl Sagan, made some crude calculations in the early 1970s of where Earth might stand on the Kardashev Scale. In order to do so, a 'Type 0' civilization had to be understood, one that stood below the planetary scale. Given that the total solar energy from the sun hitting the earth is approximately 174 Petawatts (1.74×10^{17} watts), Sagan calculated that human civilization stood at about 0.7 in 1973. However, crucially, Sagan added another variable. Drawing on Claude Shannon's Information Theory (Shannon 1948), he created a logarithmic scale of information processing capacity, with each order of magnitude defined by a letter, starting with a level A informational civilization with access to 10^6 bits (1 megabit) of information. In 1973, Sagan estimated that Earth was at level H (10^{13} bits).

Sagan's calculation and its sociopolitical context are highly symbolic. Massive social, political and economic upheavals were shaking both nation-states around the world and the international economic system that had persisted since the end of WW2. This was the time of the Oil Shock, international recession, and the final collapse of the fragile post-war truce between Capital and Labour that had resulted in what Eric Hobsbaum (1995) called the 'golden age of Capitalism'. It was the end of Fordism and the beginning of the era of neoliberal restructuring, and the contemporary globalization of capitalism. It was the time when a sense of the planet as a single thing, that was first made visible in the famous 'earthrise' picture taken by astronauts on the moon, had started to be part of the collective (un)conscious, and when the first steps towards

international environmental management began with the World Conference on Environment and Population in Stockholm. It was also, according to Gilles Deleuze (1992), in his short piece, 'Postscript on the Societies of Control', the end of Foucault's 'Disciplinary Society' beginning of the era of 'Control Society' with computing and databases starting to afford new kinds of subjectivity and modes of ordering. In this regard, this period also saw the beginning of two extensible forms of networking, both of which had begun in military experimentation in WW2: first, modern logistics and the advent of global container systems of distribution; and then the earliest form of networked computer communications, ARPANET, which eventually would become the Internet.

In other words, it was in multiple ways, the beginning of the planetary era, or in geological-environmental terms, the Anthropocene, an era which remains imminent rather than present, but whose imminence must now be foundational for any social or political theory. Now, with organisations like the US Department of Defense allegedly aiming at Yottabyte $(9.671406556917^{24}$ bits) storage capacities[1], in the big data age human civilization is at a much higher informational level. It has also, more modestly, increased its energy mastery, measured through the proxy of total world energy consumption, which in 2012 stood at 17.54 Terawatts, equating to nearly 0.725 on Sagan's version of the Kardashev scale. Importantly, I do not refer to this here in a crude quantitative or a predictive way, let alone a moral way – not least because energy consumption is not actually a good proxy for civilizational control of planetary energy resources when the production of that energy is undermining the ecological bases of human civilization leading to the horrific possibility of civilizational extermination (Thacker 2011) – but rather as a heuristic, to help get a sense of the extent of planetary urbanism and planetary computing.

Theorizing Planetary Urban Surveillance

What I want to argue in this short chapter is that surveillance is crucial to this new planetary urban condition, and consequently, to propose specific research directions. In this, I will build

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[1] Although opinions and estimates vary wildly (Novet 2013), Yottabyte storage capacity is at least now a realistically conceivable scale of data storage for the very near future.

not only on Brenner and Schmid, and Bratton, as well as Gilles Deleuze, Michel Foucault, Giorgio Agamben, Achille Mbembé and Simone Browne, but also on the recent recasting of historical materialism by Japanese philosopher, Kojin Karatani, work in urban geography by Steve Graham and Rob Kitchin, and my own previous work in which I have tried to put the pieces together in slightly different and inevitably less successful ways – since they were both produced before Brenner and Schmid's and Bratton's more recent work.

In the first piece, in *Geoforum*, I outlined a theory of global surveillance, (re)combining work on social complexity and global assemblages with political economy to argue that neoliberalization was producing a global surveillant assemblage which worked not simply in the obvious way, to monitor and control people, groups and things at the global scale, but also to secure the global itself as the seemingly 'natural' scale of neoliberal capitalism. In this sense, global surveillance is not panoptic (Foucault 1977), but oligoptic (Latour 2005) – incomplete, fractured and particular – and perioptic (Lianos 2010) – self-regarding and reinforcing. In the second, in the collection, *Global City Challenges*, I argued, based partly on a case-study of Rio de Janeiro, that the global city network exists between the biopolitical and necropolitical, and that urban surveillance operates in both modes simultaneously depending on the identification of the subject population as one to be protected and marked for life, or excluded and marked for death.

Here I wish to combine these and go beyond them, to argue that this early stage of the age of planetary urbanism is marked by a constant modulation of the biopolitical and the necropolitical and that surveillance operates not only to mark all kinds of people and places for life or death, but also to give the impression of completeness, effectiveness and necessity to this mode of ordering, even while it continually fails and remains incomplete in practice. I want to expand on this first of all by disposing of three critiques of the general theory that I am deploying here. These criticisms are often made in a banal or automatic way, but answering them is essential as it necessitates strengthening the underpinnings of the theory.

The first critique is that of technological determinism and/or teleology. It would seem quite clear that this is a situation with multiple causes: it is one of complexity, whether one calls the ongoing results an actor-network, a hybrid collective or an assemblage of heterogeneous elements.

However, that is not to say that either in general, or certainly not in specific cases, that particular elements or causes or forces or dispositions might not predominate. It seems clear that the economic, in other words, Capital, remains a powerful driver. But we have also seen how the particular situations from which Capital seeks to gain advantage are not entirely determined by relations of production in the way that Marx, and more significantly, Marxists, claimed. I share much of Kojin Karatani's (2014) concern with re-emphasizing the role of the Mode of Exchange over the Mode of Production, and understanding that the current situation is evolving out of what he calls the triple "Borromean knot" of Capitalism-Nation-State. Each of these components represents very different Modes of Exchange and facets of human existence – economic, communal-societal and military-bureaucratic, without any being 'structural' or 'superstructural' in relation to the others[2].

At the same time, Karatani's critique is still not cognisant enough of the environmental and technological. I would never go as far as Heidegger in claiming that technology has some kind of 'telos' or destiny, nor more recently, Silicon Valley cheerleader, Kevin Kelly (2010), in arguing that we should follow "what technology wants". However, it would seem undeniable that we are enmeshed in relationships with multiple technologies, that go far beyond dismissing technologies as either simply tools or McLuhan's "extensions of man" (McLuhan 1994), but rather, after Langdon Winner (1980) and Bruno Latour (2005), these are sociotechnical hybrids which afford certain openings and restrictions of possibility. It is still useful to consider planetary surveillance from the viewpoint of 'surveillance itself', that is the functionality of the socio-technical-environmental collective that constitutes the surveillant assemblage, neither to endorse the trajectories described, nor to assume a vitalistic approach or consider such things as expressions of any conscious will to act of such an assemblage. The accurate description of the potential functioning of any surveillant assemblage aids in the construction of a critical challenge to such trajectories while they are process. This is especially important because while these relationships are not teleological or destined or simply 'linear', they sometimes appear so, particularly in retrospect, as path-dependencies emerge within assemblages that create trajectories that are increasingly irreversible over time, but which also generate new trajectories that were

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2 Karatani's Modes of Exchange are, briefly: Mode of Exchange A (reciprocity – gift and counter-gift); Mode of Exchange B (plunder and redistribution – domination and protection); Mode of Exchange C (commodity exchange); Mode of Exchange D ('X' – or the return of Mode of Exchange A on a higher level) (Karatani 2014).

unavailable before, often writing over or erasing their own histories of emergence that would have allowed us to see the non-linearity of sociotechnical history, and that the conditions for other possible trajectories which had existed (see: Delanda 2006).

This leads to the second critique, the idea that a 'grand narrative' style of theoretical intervention such as this must somehow lack a place for understanding difference, distinction and identity. Largely a product of New Social Movement critiques of the supposedly failed class-based Mass Movement politics of the mid-C20th, such critiques contributed from the 1970s to a reaction against 'big theory' in general. We all know the story from innumerable graduate social theory classes. It should be clear already that I reject such binaries at the outset. In many ways, the argument is over, we just don't know it. In practice, identity politics and intersectional theories of oppression continue to be vital - and I mean that in the powerfully material sense of giving life to people and things that Capital-Nation-State, collectively or individually, would otherwise necropolitically cast out, reduce to bare life or eliminate (Agamben 1998; Mbembé 2003). However, deriving more general theories of historical change from such vital and immediate politics is fraught with dangers, and are often in danger of producing new determinist forms of analysis, merely replacing 'class' or 'the economic' or 'technology' with, for example, 'whiteness' or 'cis-heteronormativity.' In contrast, what I would argue is that we can hold all of these ideas at the same time, bring them into conversation, and open up new avenues of explanation through those conversations. A superb example of this is Simone Browne's electric work, *Dark Matters* (2015) in which, amongst many other insights, she shifts the focus of diagrammatic histories of surveillance away from notional white bodies of prisoners under surveillance but marked for productive life in Bentham's inclusionary, biopolitical Panopticon reformatory scheme, to the real back bodies under surveillance and marked for exploitation and death in the diagrams of exclusionary, necropolitical slave ships. At every stage of its development, deployment and existence, planetary surveillance is involved in relationships which shape, refine or produce sociotechnical possibilities and reduce or eliminate others. It (re)produces relationships, and it also separates. It empowers some people, groups and things, and disempowers, dehumanizes and oppresses others.

The third critique, which relates more specifically to urban geography and urban studies is that there is nothing particularly 'urban' about surveillance. Previous work I have conducted showed that surveillance did indeed originate as a mode of ordering from the building of early cities which, far from acting as merely defensive systems, were in fact designed as devices to concentrate, monitor and order otherwise unruly populations for a whole variety of reasons (Coaffee et al. 2008). This reasoning included, as with the way the global surveillant assemblage operates to justify the global as the 'natural' scale of neoliberalism, the justification of the city in itself. Further, as Karatani (2014) and Peter Taylor (2013) both point out, the early city did not just mutate into the city-state but from its inception was already the first form of state. The city was the exemplary spatial diagram of the mode of ordering (Law 1994) associated with Karatani's Mode of Exchange B[3] and the rise of Empires, which resulted in the conquest but subsequent simultaneous domination and protection of populations. In other words, the city represented a kind of offer that people could not refuse without harsh consequences, but whose acceptance entailed an increasingly irreversible integration into a subordinate role in emerging hierarchical class systems. And, of course, arguing that surveillance is urban does not exclude it also having many other characteristics.

Planetary Urban Surveillance: an agenda for research

What will an era of planetary surveillance mean for individual cities and urban places? The idea of a planetary urbanism does not necessarily mean one city-planet, and for the foreseeable future, recognizable individual cities, city-regions or clusters of cities will continue to exist as will identifiable urban places. So, attention to empirical detail and all manner of individual and comparative studies are still essential. Furthermore, the differences within cities will increase as urbanity as a homogenizing general condition spreads to a genuinely planetary condition, so one might be speaking of different types of individual and comparative study, and not simply those based on categories like 'city' and 'nation-state'.

Surveillance certainly plays a role in the maintenance of certain kinds of standard global urban places as meeting expectations of safety and predictability. One of the key surveillance processes

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3 See Note 2 above

to be studied in such a planetary urban society is the role of surveillance in territoriality: the making, maintenance, breaking and remaking of boundaries and borders. As new kinds of urban spatial conditions and territorial entities emerge, their identities as well as frequently their virtual and material boundaries will be contested. Surveillance, in its strange but important perioptic capacity - in its monitoring for self-justification, to ensure the continuance of the conditions which gave rise to the surveillance – is crucial in these processes.

With urbanity as a planetary condition, it no longer makes sense to exercise control via the protection of the city against external forces, indeed that has been an approach that has been obsolete for some time. Instead, technologies and practices of surveillance must be scalable, that is similar wherever it is deployed and across whatever area, and compatible systems must be able to function at all scales. In other words, surveillance must be an intimate property of every level of the stack and also function between the levels. Scalability can mean nesting, hierarchies, distributions and many other configurations.

The most obvious conjunction of computing, surveillance and urbanism right now is in the networking of ordinary objects and existing infrastructures in what is broadly called the 'Internet of Things', defined by global standards body, the International Telecommunications Union, as "a global infrastructure for the Information Society, enabling advanced services by interconnecting things based on, existing and evolving, interoperable information and communication technologies" (ITU 2012), but which has its specific urban utopian instantiation in the concept of the 'Smart City'. Smart Cities, the latest in a long line of efforts to recombine the digital and the material. Technocentric Smart City visions are characterized by depictions of pervasive wireless networks and distributed sensor platforms from video surveillance to meteorological stations, monitoring flows from sewerage to traffic to criminal activities and providing information in real-time or in anticipation of risks. Smart city initiatives vary in their depth and breadth worldwide. One of the most advanced whole-city projects is Rio de Janeiro's Smart City project, directly sponsored by US computing firm, IBM, with a central control room bringing in data from multiple sources, and lauded by current Mayor, Eduardo Paes, in a widely-viewed TED presentation, as providing him the ability to manage the city from anywhere in the world (Paes 2012; for some analysis see Murakami Wood 2013). Rio is only one of many branded IBM

Smarter Cities projects, and their extent and relative smartness varies considerably, often being far less impressive when examined more closely. As with many such programs, it may be that securing involvement is in itself viewed as a marker of success in the competition for status in the world city network (Taylor 2004).

Smart city initiatives constitute surveillant assemblages (Haggerty and Ericson 2000), wherein a complex arrangement of people, technologies and processes permeate everyday urban life in often invisible, unreadable and incomprehensible ways. Relying on increasingly opaque software operations, they encode urban life and replay the results of those encodings onto urban spaces and people (Kitchin and Dodge 2011). As many commentators have pointed out such initiatives have the potential to change the way in which both space and subjectivity are produced towards a more automated and standardized model. Of particular concern is the way in which in an anticipatory logic something that has its roots in military cybernetics (Graham 2008) is embedded in automated urban control systems, leading to processes of social and spatial sorting on the basis of possibilities (Amoore 2013). Kitchin and Dodge (2011) refer to the resulting city as 'code/space', which occurs "when software and the spatiality of everyday life become mutually constituted, that is, produced through one another".

As Deleuze (1992) pointed out in his seminal essay on contemporary surveillance logic, the control society is based on flows. It is not so much that a discipline is imposed for moral reasons, rather flows are modulated based on organizational efficiency. As IBM say: "Smarter cities of the future will drive sustainable economic growth. Their leaders have the tools to analyze data for better decisions, anticipate problems to resolve them proactively and coordinate resources to operate effectively" (IBM).

The general conditions outlined by Deleuze for the 'Society of Control', which he saw emerging from the general social and technological conditions of early neoliberalism, are already starting to break down. Flow, the defining feature of Deleuze's schema, is problematic. Alex Galloway (2004) has already pointed out the relatively short lifespan of the society of control vision, for rather different reasons. However, in the planetary urban context, it is not so much that everything must flow and be merely modulated, *governed* (in the machinic sense), but that new

forms of spatial blockage and division take the place of both the historical city walls and current national borders. Wendy Brown has also observed how boundary-making practices seem to be increasing with the imminent demise of the nation-state, and while she attributes this to the fact that borders are one of the few things that an increasingly powerless nation-state has to control, it could in fact be an emerging feature of the combination of planetary urbanism and planetary computing. Internal micro-division becomes pervasive and ever more complex precisely because of the embedding of technologies of pervasive surveillance, quantification and anticipation in the urbanized environment.

Some of this is reinforces existing socio-spatial class divisions and boundaries in the manner identified by Teresa Caldeira (1999) and often termed 'enclavism'. In this continuously 'splintering urbanism' (Graham and Marvin 2001), those able to enclose themselves, and to monitor those boundaries, for their own protection, will do so, and those who cannot, will be expelled, as Saskia Sassen (2014) recently argued. But Sassen is hardly the first to observe this. In many ways, the urban legacy of globalization has been the generalization of a colonial model of the city, as detailed by Anthony King (1990). Back in the 1990s, Scott Lash and the late, much lamented, John Urry, observed an emerging pattern of that they called 'tame and wild zones", and International Relations scholar, Barry Buzan identified a similar transformation of the geopolitical situation, something that was made very clear in the US Department of Defense's so-called 'new map' of the world in the late 1990s. And in the late 1990s, the Giorgio Agamben (1998, 2005) observed what he attributed to the horrors of the Holocaust and the Nazi extermination camps, the extension and hardening of 'states of exception', which allowed extralegal management of populations to take place, marking some for life and others for what he called 'bare life' or conditions where only death and survival could be considered.

This division between those spaces (at every scale) can be understood as a dual form of governmentality, with one zone managed through what Foucault called biopolitics, the production of life, and the other through what Achille Mbembé called necropolitics, the production of death. The role of surveillance, in this context, is a constant process of sorting to determine the destination of particular bodies. Because this process is again, nested, bodies in particular contexts can be marked for life in City A, but for bare life / death in City B or at a

global scale, or can be similarly contextually marked in particular spaces within any given city. The body's attributes in urban space are not remain fixed but the more precarious one's conditions of existence and one's class, racial, gender etc. identity, the more uncertain and changeable such attributes become.

However familiar the outcomes, the methods used to produce them will not all be so recognisable. In physical urban space, the eyes and ears of police and security guards, and video surveillance cameras on walls and gates and doorways are already known to us. Then there are the rarer but emerging surveillance systems, such as handheld body-scanners, biomimetic robot surveillance drones that look like birds or snakes or insects, sensor nets of microscopic RFID powder. Finally, there are the currently very strange: hybrid biotechnological systems, currently only expressed in examples like genetically-modified plants which change colour in the presence of particular chemical cues. However, in a planetary urban society, even one with significant 'restoration' of natural ecosystems or 'rewilding', what is left of 'nature' will be increasingly subject to forms of surveillance for our and 'its' own good, and could become integrated into the planetary stack. This blurring of boundaries will grow as cities and urban technologies become increasingly biological and the distinction between what is natural and what is urban begins to disappear. This is as true in computing as in anything else. We are only just beginning to understand how data can be encoded in living systems, in cells and complex molecules like DNA, and its seems that for all the hope for quantum computing, it is actually in biological computing that major advances in the storage of bigger and bigger data may well be made. Ironically, perhaps it is only when the entire biosphere becomes urbanized and is recast as a reservoir of data that we might acknowledge its essential, already existing, but so often unconsidered, value to humanity.

However, planetary computing may render such surveillant sorting only accessible or comprehensible to human beings insofar as there the information gathered can be understood and interpreted and there are technical-legal regimes to enforce rules in favour of the common good. Instead, the rise of ever bigger data means that the systems of monitoring themselves must be automated and programmed and thereafter increasingly left to learn for themselves, and as Kitchin and Dodge observed of the code/space of the city, the results of such informated

exchanges are increasingly only interpretable to other automated systems and may never be 'translated' for humans. This will be urban surveillance – but not as we know it.

Urban surveillance specialists therefore should probably swallow their fear of being accused of technological determinism and spend more time attending, infiltrating or haunting the fringes of industry technological expos and conferences. Researchers will as a result have to become more familiar with technologies of surveillance, without losing sight of the fact that all such technologies are bio-socio-technical systems which are produced within, and which serve to variously challenge, undermine, produce, and reproduce particular political-economic systems, governmentalities and environmentalities.

On the other hand, researchers should simultaneously pay attention to what Shelton et al. (2015) call "the actually existing smart city", in other words the reality of utopian presentations of always on, always connected city beyond the prototypes, plans and glossy brochures. However, it is not necessarily about 'exposing' failures or secret exclusionary plans. In increasing numbers of cases, the utopian is in reality openly about creating exclusive enclaves for an emerging technologically-enabled, if not actually technologically-savvy, class. One key case, which is threatening to serve as a bad example to others, is the 'hundred smart cities' promise of Indian Prime Minister Modi, which, as Ayona Datta (2015) has shown, it rooted in a strange but increasingly common combination of belief in free trade, high technology, and an intolerant and hierarchical social and/or religious order.

Like all utopian schemes, or trajectories amongst others, what will result are oligoptica - islands of intense and effective operation – surrounded by seas of partial coverage and partial functionality – and a fringe of entirely broken and malfunctioning operation. These will most likely correspond to the human distinction between those included and managed biopolitically, and those excluded and managed necropolitically. For a useful analogy, one might consider mobile phone systems now, and the overlapping and incompleteness of their coverage. If one imagines such 'coverage maps' multiplied many layers deep for all kinds of networked things, one can get some sense of how connectivities afford multiple forms of surveillance, but not the same surveillance, or the same levels of surveillance everywhere. However, perhaps the intensity of the combination planetary urbanism, planetary communications, planetary computing and

planetary surveillance will come to be defined by the depth of these layers – itself a representation of the stack - in particular places. Urbanity will become something more modular and variable than can be defined by current conceptions of city / urban – rural / countryside - wild / wilderness. Thus, what Taylor calls 'cityness' could be increasingly supplemented by considerations of 'stack depth'.

Planetary urbanism and computing will not mean a frictionless, homogenous modernity, but an often atavistic and divided set of visions of superiority, ironically rooted in the same kinds of intelligent technologies of control. In such cases, the role of the academic is inevitably political and activist. Here, I return to Kojin Karatani, who shares with the Italian Autonomous Marxists, not of the old Marxist idea of a single and massive revolutionary moment but the idea of an 'escape' from Capitalism, through the discovery of what Deleuze would call 'lines of flight'. Many such lines might exist, ranging from which favour of a more just and empowering kind of urban surveillance and smart urbanism, new varieties of 'right to the city', to those which in rejecting this kind of technocentric urbanism *tout court*.

Conclusion

Urban surveillance as we have known it is already mutating into forms which are at once familiar and unfamiliar. On the one hand, we see familiar in new spaces and at new scales such that its familiarity might be masked by extent and depth. On the other, we encounter the genuinely unfamiliar and new, that might still post similar and familiar problems, and exacerbate existing socio-spatial inequalities, or indicate something much stranger. This strangeness will be perhaps not simply some combination of capitalism, urbanism, computing or surveillance on a planetary scale, but something post-capitalist, post-urban, post-computational and post-surveillance. These combinations will require new theoretical development and methodological considerations.

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