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The Age of Surveillance Capitalism - A Review Essay

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Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, London: Profile Books, 2019. ISBN: 9781781256848 (cloth); ISBN: 9781781256855 (paper); ISBN: 9781782832744 (ebook)

Some books feel like they may be significant, others have a distinctly epochal feel. Shoshana Zuboff's *The Age of Surveillance Capitalism* is certainly in the latter category. While conscious of the twin dangers of hyperbole and prediction, I suspect that Zuboff's monograph will come to be seen as one of the most significant publications in the social sciences in the first decades of the 21st century. In this essay I distil the core tenants of Zuboff's theory of surveillance capitalism, before offering some critical reflections on both the significance and potential limitations of her analysis. Throughout this review I draw attention to the geographical connotations of *The Age of Surveillance Capitalism* and seek to bring Zuboff's analysis into conversation with geographical thought and theory. Ultimately, I claim that *The Age of Surveillance Capitalism* embodies a form of Marxist geography for the digital age. I also claim that it represents a satisfyingly nimble Marxist analysis, which is able to deploy the holistic strengths of Marxist thought while avoiding of its totalising pitfalls.

Definitions and Contexts: From the Californian Ideology to Austerity

The Age of Surveillance Capitalism serves both to expose the nature of a new regime of *surveillance-based capital accumulation* and to understand the social and political conditions of *the age* that has facilitated the emergence of this regime. Zuboff defines surveillance capitalism in both descriptive and normative terms. Descriptively, it is characterised as a “new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales” (p.ix). More normatively, Zuboff states that surveillance capitalism is a “rogue mutation of capitalism marked by concentrations of wealth, knowledge, and power unprecedented in human history” (ibid.). In more explicit terms, surveillance capitalism can be understood as the digital capture of online, and increasingly offline, human actions in order to facilitate the commercial

modification and exploitation of behaviour in the future. While surveillance capitalism is perhaps most closely associated with digital technologies – such as smart phones, social media platforms, and wearables – that monitor behaviours, Zuboff’s emphasises that it is actually best thought of as an *economic logic in action*. I will say more about the principles and consequences of this economic logic in action in the following section.

These provisional definitions of surveillance capitalism indicate that it operates as both an ontological and theoretical category for Zuboff. Ontologically, surveillance capitalism serves to expose and describe a fragment of reality which, due to its covert nature and evolving form, we remain collectively uncertain about. Theoretically, surveillance capitalism (and its allied categories of analysis) becomes for Zuboff an original framework for critically scrutinising the socio-economic form of our digital age. The development of a new theoretical vocabulary (spanning instrumentarianism, behavioural rendition, Big Other, and the uncontract, *inter alia*) is necessary, according to Zuboff, because of the unprecedented nature of the developments associated with contemporary forms of digital surveillance. Ultimately, the ontological and theoretical aspects of Zuboff’s analysis are significant because as an economic logic surveillance capitalism tends to outrun our ability to comprehend and resist it. According to Zuboff, the “digital realm is overtaking and redefining everything familiar even before we have had a chance to ponder and decide” (p.4). The speed of the deployment of surveillance capitalism reflects an unusual form of *applied utopistics*. Unlike conventional forms of utopianism, where the lag-time between the theory and practice enables critique and resistance, different modalities of surveillance capitalism tend to be rolled-out before social comprehension can be established. Even when we witness eruptions of awareness (as with the Cambridge Analytica scandal), the dependencies that people have with regard to surveillance capitalism platforms tends to mean critique and resistance are limited.

The rise of surveillance capitalism as a form of *economic logic in action* is the result of a varied set of emerging path dependencies within cultural, social, political, economic, and technological systems. One of the first key developments was the rise of Web 2.0 platforms.

Tapping into late modern desires for self-authorship and human evolutionary impulses for sharing and social connection, Web 2.0 spawned the emergence of digital platform that were based on user-generated content (Bartlett 2018; Lanier 2018). When combined with the knowledge of existing browsing behaviours of people on the internet, Web 2.0 technologies provided unprecedented quantities of data which could be used to describe and predict human behaviour (Beer 2019). Web 2.0 platforms have more recently been joined by a bewildering array of data surveillance devices that have come to be known as the Internet of Things. From personal health trackers, to smart TVs, fridges, and even vacuum cleaners, the emergence of the Internet of Things has given rise to an apparatus of ubiquitous monitoring from which the very logic of surveillance capitalism has been derived.

A second set of developments that were vital for the emergence of surveillance capitalism are more political and ideological in nature. Following the 9/11 terrorist attacks and the subsequent War on Terrorism, Web 2.0 technologies and the Internet of Things have emerged with only limited governmental regulation and oversight (Zuboff 2019). In some ways this lack of regulation is a product of the aforementioned speed of technological change, but it is also a more deliberate consequence of the co-ordinated interactions between governments and tech companies. According to Zuboff, tech companies benefitted from a form of *surveillance exceptionalism* in the wake of 9/11, as government authorities allowed the growth of digital surveillance to support their own anti-terrorism activities. Following the financial crisis of 2008, and the subsequent wave of austerity measures in many Western states, governments also actively supported the movement of more services to online environments – that could be most easily accessed with smart phones – as a way of making public sector spending savings. The state promotion of the smart tech revolution – through both active support, and non-regulation – reflects the synthesis of two prevailing political ideologies. The first is neoliberalism, with its legacy of anti-regulation and governmental spending cuts. The second, is the less well-known *Californian Ideology*. According to Barbrook and Cameron (1996: 45), the Californian Ideology “promiscuously combines the freewheeling spirit of the hippies and the entrepreneurial zeal of the yuppies”. In suggesting

that everyone could be both bohemian and rich, the Californian Ideology offered a form of cultural economic justification for the non-regulation of the tech sector that was able to appease both the political right and the left (Ohanian 2013). While Zuboff does not refer directly to the Californian Ideology, it was clearly central to the hegemonic forms that surveillance capitalism takes.

The final context which frames Zuboff's analysis is the rising influences of the behavioural sciences. In my own work on notions of neoliberalism, I have charted the ways in which psychological and behavioural insights are informing government tactics in novel and often troubling ways (Whitehead et al. 2017). But in the context of surveillance capitalism, the behavioural sciences are being given a new lease of life. The fusion of the behavioural with the big data sciences means that the scope for behavioural modification at scale is now reaching unprecedented levels. Within the economic logics of surveillance capitalism, the fusion of behavioural and data sciences would become crucial to the ability of smart tech companies to not only predict behaviour but also to change it. As we will discuss at greater length in the next section, the fact that surveillance capitalism deploys a behaviourist ontology and methodology has significant implications for the forms of society it envisages and humanities' role within it.

It is important to note that in addition to the political, ideological, technical, and economic contexts that have given rise to surveillance capitalism, as a theoretical creation it is uniquely tied to Shoshana Zuboff's own biography. As a 19-year old student at the University of Chicago, Zuboff had listened to Milton Friedman's teachings on neoliberalism (surrounded by Chilean doctoral students), and undoubtedly came to understand the deregulatory logics of this economic project. While completing her doctoral studies in psychology at Harvard she was exposed to the ideas of B.F. Skinner and his acolytes and came to comprehend the likely form that a behaviourist society could take. In 1988 Zuboff published *In the Age of the Smart Machine: The Future of Work and Power* and demonstrated her pioneering interest in the impacts of information technology on the modern workplace. Apart from a short piece in the *Frankfurter Allgemeine* newspaper in 2016 ("The Secrets of

Surveillance Capitalism”) and a thought-provoking article entitled “Big Other: Surveillance Capitalism and the Prospects of an Information Civilization” in the *Journal of Information Technology* in 2015, there was, however, little to indicate what was to come in *The Age of Surveillance Capitalism*. Ultimately, it appears that Zuboff’s biographical experiences in the 1960s and 1970s, and her research interests in the 1980s and 1990s, meant that she was uniquely placed to diagnose and articulate what surveillance capitalism is, and could become, at a relatively early stage of its development.

Unpacking Surveillance Capitalism

Ground Zero: Googlenomics and the Commodification of Behavioural Surplus

In an interview Zuboff gave to John Naughton in the *Guardian* she identifies 2001 as the year that surveillance capitalism was invented. Its Ground Zero was at Google. According to Zuboff, in the first instance surveillance capitalism was,

... the solution to a financial emergency in the teeth of the dotcom bust when the fledgling company faced the loss of investor confidence. As investor pressure mounted, Google’s leaders abandoned their declared antipathy toward advertising. Instead they decided to boost ad revenue by using their exclusive access to user data logs (once known as “data exhaust”) in combination with their already substantial analytical capabilities and computational power, to generate predictions of user click-through rates. (Naughton 2019)

The *data exhaust* mentioned here refers to the traces of online behaviour we leave on the internet. This is more than just our search words: it is our web site selection, our dwell time, and even our spelling errors. It was Google’s recognition that this behavioural surplus was not just waste material, but actually a valuable commodity that became the defining moment of the era of surveillance capitalism. Googlenomics is predicated on the fact that the “collateral data” that is gathered around every search (and had previously been stored but not

used) provides a “broad sensor of human behaviour” (p.68). To put things another way, when collected together in great enough quantities, over long enough periods of time, Google realised that our data exhausts could provide fairly reliable indicators of our moods and behavioural proclivities. And so a new model of capitalist accumulation was born, which utilised human behaviour (indeed human nature) as its raw material. As Zuboff observes: “That surplus, a behavioural surplus, was the game changing, zero cost asset that was diverted from service improvement [search quality] towards a genuine and lucrative market exchange” (p.81).

Google’s regime of accumulation would ultimately generate the basis for a new epistemological as well as economic regime. This new epistemological armature was based on the combined accumulation of user search and profile information. As data was gathered at increasingly large scales, Zuboff argues that it became possible for Google to “transform the natural obscurity of human desire into scientific fact” (p.82). This new epistemological regime was, of course, identified long ago. In his sanguine 2008 reflections on “The End of Theory”, the *Wired* editor-in-chief Chris Anderson reflected on the impacts of Google’s deployment of applied mathematics to big behavioural data:

Out with every theory of human behaviour, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity.
(Anderson 2008)

Through the notion of surveillance capitalism Zuboff demonstrates how this post-theoretical condition supports not only a new economic paradigm, but, in its advanced forms, also leads to the diminishment of the human condition.

The principles of Googlenomics and the epistemological implications of big data were, of course, established before Zuboff’s interventions (see Beer 2019; Keen 2015). What marks Zuboff’s analysis out is her articulation of the associated practices of *data rendition*

that have flowed from Google's economic paradigm. The notion of rendition is central to Zuboff's analysis, and the conditions of data *sur-render* reveals some of the most troubling geographical aspects of surveillance capitalism's interventions into human experience. If Googlenomics relies on the flow of data, the expansion of this regime of accumulation has depended not only on the exploitation of existing data exhausts, but also on the opening-up of new channels of data flow. According to Zuboff, the expanded regimes of contemporary data rendition have seen a shift from so-called *web crawling* to *life crawling*. This regime of data rendition is the realm of the aforementioned Internet of Things, where Zubuff argues smart becomes a euphemism for surveillance (p.238). At one point, Zuboff reflects on the growth of the smart home industry, which was valued at approximately \$14.7 billion in 2017, but is estimated to be worth \$101 billion by 2021. When combined with the monitoring devices of smart cities and wearable technology, this is the hardware of surveillance capitalism.

While there is a growing body of work on life crawling technologies, particularly in the context of wearables (see Lupton 2016; Schüll 2016), Zuboff expertly exposes the particular conditions that inform our era of expanded data rendition. According to Zuboff, contemporary life crawling technologies are based upon two principles: the *dictatorship of no alternative*; and trespass. The notion of the *dictatorship of no alternative* relates to the ways in which leading an effective life in the 21st century, and opting out of smart tech, are becoming increasingly difficult to reconcile. Even using smart technology while deactivating surveillance capitalist options comes with a significant cost. As Zuboff observes in relation to Google's smart home thermostat, the consequences of opting-out of surveillance functionalities could be significant indeed:

Should the customer refuse to agree to Nest's stipulations, the terms of service indicate that the functionality and security of the thermostat itself will be deeply compromised ... The consequences can range from frozen pipes to failed smoke alarms to an easily hacked internal home system. (p.38)

The notion of trespass is a geographical term which is of particular significance within surveillance capitalism. Trespass is important to data rendition because it enabled surveillance capitalists to expand their data reach rapidly without have to gain legal authority or personal consent. Based on the principle that it is always easier to say sorry than to ask permission, trespass has become a go-to tactic evident in Google's Street View surveillance cameras and Pokémon Go's location of gyms on people's properties. Within surveillance capitalism notions of place, territory, property and other socio-jurisdictionally meaningful forms of place are thus effaced in the pursuit of rendition:

Google rendered the Earth, its streets and its dwelling places, bypassing our consent and defying our protests. Facebook rendered the social network and its limitless details for the sake of the company's behavioural futures markets. Now the ubiquitous apparatus is the means to the ubiquitous rendition of human experience. (p.241)

Notions of trespass help to reveal how the digital capture of actual spaces can affect the geographical parameters of everyday life and undermine the places that have long been associated with sanctuary.

While the tactics of trespass have facilitated a broader *scope* for data rendition, Zuboff also draws attention to the increasing *depths* that are associated with personal data extraction. In the context of the aforementioned ambient monitoring potentials associated with the Internet of Things, surveillance capitalists are now able to reach more deeply into the details of our everyday life. In a particularly instructive reflection on the emergence of digital home assistants (such as Amazon's Alexa), Zuboff argues that on the basis of our voice tone and choice of words surveillance capitalists will increasingly know our moment-to-moment moods. The extended depth and scope of surveillance capitalist data rendition practices in part explains the peculiar diversification of digital companies into seemingly tangential fields of operation:

If Google is a search company, why is it investing in smart-home devices, wearables, and self-driving cars? If Facebook is a social network, why is it developing drones and augmented reality? This diversity sometimes confounds observers but is generally applauded as visionary investment: far-out bets on the future. In fact, activities that appear to be varied and even scattershot across a random selection of industries and projects are actually all the same activity guided by the same aim: behavioural surplus capture. (p.129)

For Zuboff, then, the seemingly innocent *technological drift* of smart tech companies is a product of the economic logic of surveillance capitalism. While the rise of digital home assistants may seem like the zenith of data rendition, one of the numerous digital tech insiders Zuboff interviews notes that approximately 98% in the world is currently not connected to the internet (or, put another way, is essentially “dumb real estate”). There is, in other words, an awful lot of new terrains from which to capture ever greater depths of raw human experience.

From Behavioural Data to Behavioural Actuation

If privacy is central to freedom, then it is clear that the data rendition practices of surveillance capitalism are likely to result in modifications in our everyday behaviours. But within surveillance capitalism the potential for behavioural modification moves from self-reflective government, to more commercially orchestrated registers. Within surveillance capitalism the same architecture that can be used for data extraction offers everyday vectors for what Zuboff terms *behavioural activation*. The architecture of ubiquitous monitoring thus becomes a system that is well equipped for ubiquitous intervention. It is in relation to behavioural activation and so-called nudges that we see the fusion between data and behavioural sciences taking purposive form. The behavioural nudges that have become popular within many governments around the world have developed in isolated parallel to surveillance capitalism (see Whitehead et al. 2017). These nudges are generally based upon the insights of behavioural economics into the psychological biases and frailties of humans and the need to

build suitable choice architectures to guide behaviour in the direction of socially and individually beneficial actions (savings for retirement, reducing carbon emissions, improving personal health, etc.) (see Jones et al. 2013). The architectures of behavioural actuation operating within surveillance capitalism facilitate the mobilisation, at scale, of the same levers of psychological power that have been identified by behavioural economists. Thus, the power of social influence is relatively easy to activate within social media platforms, while the resetting of default options and the editing of choice is very easily achieved within digital environments (see emerging reflections on micro- and hyper-nudging [Schüll 2016; Yeung 2016]). In addition to enabling the rapid scaling of behaviour change, however, surveillance capitalism also involves the large-scale privatisation of the nudge. Zuboff reflects:

Surveillance capitalists adapted many of the highly contestable assumptions of behavioural economics as one cover story with which to legitimate their practical commitment to a unilateral commercial programme of behavioural modification. The twist here is that nudges are intended to encourage choices that accrue to the architect, not to the individual. The result is data scientists trained on economies of action who regard it as perfectly normal to master the art and science of the “digital nudge” for the sake of their company’s commercial interests. (p.295)

Ethical concerns over analogue nudges have generally be rebutted on the basis of their paternalistic intentions: nudges may subconsciously manipulate behaviour, but they do so to enable you to live longer and more secure lives (see Jones et al. 2013). The effective privatisation of the nudge removes this paternalistic justification. In previous work on early manifestations of nudging, my co-authors and I have sought to develop a critical analysis of their impacts on human autonomy and dignity (see Jones et al. 2013; Whitehead et al. 2017). In truth, while our critiques were theoretically sound, they have proven to be largely empirically unnecessary. The fact that analogue nudges tend be relatively short-lived interventions into peoples’ lives (the kind of “nudge and leave” interventions that might be

found in a government letter that uses peer-pressure to encourage you to pay your tax on time), has meant that concerns over their impacts on human dignity and autonomy have been largely overstated. Within surveillance capitalism, however, Zuboff demonstrates that the nudge can take a much more sinister form. Uncoupled from its constitutional control within government programmes, and embedded within the complex architectures of algorithmic code and smart devices, nudges become the basis for a new science of large-scale human behaviour modification (p.296). What Zuboff's analysis is able to demonstrate is that within surveillance capitalism nudges are no longer just about easy to resist forms of behavioural paternalism but are much more pervasive forces for behavioural manipulation in the political, social, and economic interests of smart tech clients.

An important additional dimension of the forms of "massively engineered human behaviour" associated with digital nudging, are the new opportunities for social experimentation it affords. While analogue nudgers had to rely on labour intensive, and ethically validated, randomised controlled trials to confirm the impacts of their behavioural interventions, surveillance capitalists are able to deploy automatic forms of experimentation on a moment-by-moment basis. In addition to learning of the direct impacts that a nudge may have on an individual's behaviour, surveillance capitalists can run mass online experiments, with various control and treatment groups without the knowledge or consent of the people under scrutiny. As Zuboff points out, these perpetual experiments break the Common Rule of academic research, which requires researchers to gain informed consent from those under study, while also protecting those under study from various forms of harm (p.303). Failures to obtain consent for, and to provide transparency about, online behavioural experimentation could be interpreted as a practical necessity for large scale studies like those routinely conducted by Facebook. For Zuboff, however, the breaking of the Common Rule of academic research by surveillance capitalists is much more sinister. In one context, it is argued that for behavioural experiments to be effective participants cannot be aware of the intervention. Surveillance capitalists would thus argue that they need access to human experience *in the wild* if behavioural data is to provide true insight. In another context, however, keeping

research participants in the dark could actually be interpreted as part of a broader attack on human consciousness by surveillance capitalism. As Zuboff observes: “human consciousness itself is a threat to surveillance revenues, as awareness endangers the larger project of behaviour modification” (p.308). To put things more bluntly, the less people know about commercial attempts to change their behaviours the less likely they are to try and resist them.

The relationship between surveillance capitalism and human consciousness opens up an interesting line of distinction with ideas of behavioural economics that first informed the nudge movement. Behavioural economists sought to draw attention to the important, if often pernicious, role of the automatic/unconscious in guiding human behaviours, and to militate against its worst effects by deploying counter strategies (which often operated in the unconscious realm). In contradistinction, surveillance capitalists actively pursue strategies that move their activities into the unconscious realm and see the preservation of unconsciousness as central to the political and social functioning of their economic project. Within Zuboff’s analysis, the social production of unconsciousness is part of a broader *social division of learning* that characterises surveillance capitalism. The neo-Durkheimian notion of the *social division of learning* is deployed by Zuboff to describe the ways in which the behavioural data generated in the information age is being disproportionately channelled into the servers of surveillance capitalists. Zuboff argues that this monopolization of knowledge is at odds with human flourishing, autonomy and, ultimately, democracy (p.191). It is also interesting to consider how this social division of learning tends to move in the opposite epistemological direction of neoliberal self-awareness and self-government that has been described and analysed within Foucauldian theories of governmental power.

Instrumentarianism

In the final third of the book – entitled “Instrumentarian Power for a Third Modernity” – Zuboff provides an analysis of the modes of power and government that are associated with surveillance capitalism. For me, this proves to be the most thought-provoking and original section of the volume. According to Zuboff, despite the totalizing qualities of surveillance

capitalism, it is wrong to equate it with the totalitarianisms of the 20th century. Zuboff states: “Totalitarian power cannot be achieved by remote control. Mere conformity is insufficient. Each inner life must be claimed and transformed by the perpetual threat of punishment without crime” (p.359). In contrast, surveillance capitalism has no interest in our souls or desire to involve itself in the labour-intensive styles of government typical of totalitarianism. In the absence of historical precedent, Zuboff develops the notion of instrumentarianism. Instrumentarian power is characterised by Zuboff as the “instrumentation and instrumentalization of behaviour for the purposes of modification, prediction, monetization, and control” (p.352).

Instrumentarian power is based upon a behaviouralist view of humanity, which is derived from the work of Planck, Meyer, and, perhaps most significantly B.F. Skinner. The “massively engineered human behaviour” of surveillance capitalism is thus not achieved through military or police power, but through the digital application and testing of behaviouralist prompts. What emerges tends to be a distinctly disinterested form of government, which is not concerned with what we might believe, but just with what we do, and how what we do can be made to conform with certain instrumentalist designs.

Instrumentarianism may seem much less of a threat to liberal political and social institutions than digital totalitarianism (such as that which appears to be emerging in certain parts of China). Zuboff argues, however, that despite its apparent compatibility with liberal norms instrumentarianism “erodes ... [democracy] from within, eating away at the human capabilities and self-understanding required to sustain a democratic life” (p.381). For Zuboff, the behaviouralist understandings of the human condition, which are encoded within the operations of surveillance capitalism, reinterpret (normally in unspoken ways) higher order forms of human experience, such as freedom and autonomy (p.364). For Skinner (1972), for example, ideas of freedom and autonomy are misleading notions, which falsely associated human behaviour with the organising influence of the inner-self. In the place of inner-self explanations of behaviour, Skinner (and instrumentarianism) suggests that human action should be interpreted in relation to observable external stimulations. On these terms,

instrumentarianism suggests that as the knowledge of actually observed and measured human behaviour increases, our collective need to explain it through “antiquated” notions of freedom recedes (p.368).

Two things derive from this instrumentarian application of power. First, behaviour replaces the human spirit as the target of government. This is associated with a shift in government policies from ones which promote forms of human flourishing (associated with the development of the capacities required to enact freedom and autonomy) to ones more narrowly focused on behavioural modification. Second, is the growing imperative to know more about human behaviour, so that instrumentarian power can be most effectively applied to the task of behavioural modification. In this context, freedom comes under attack from a different direction in relation to the necessary erosion of privacy. It is, of course, in the attack on privacy that the epistemological needs of the behavioural sciences sync most directly with the commercial needs of surveillance capitalism. On these terms instrumentarianism erodes human capacities to act autonomously and the conditions within which freedom is most likely achieved.

One of the most striking aspects of instrumentarian power is the fact that it seeks to operate under *regimes of certainty*. Gone are the old theories as to why things may or may not happen, to be replaced we certainty concerning how people act and what causes those actions (see Pentland 2014). This notion of certainty is at odds with the assumed governmental ignorance that is embedded in neoliberal models of society. In the neoliberal world view an inability to monitor and process socio-economic activity means that governments must use markets to produce stability. This, of course, has the ostensible benefit of fusing freedom and stability, as only free market actors can enable the market to function as it must. Within instrumentarian visions of society uncertainty and ambiguity are greatly reduced, and as such regulation can be applied more directly in the pursuit of social stability, often to the detriment of personal freedom. Zuboff provides us with an insight into what the practices of instrumentarian government might look like. In a common refrain, Zuboff reflects on the introduction smart cars and how they will enable car insurance providers to shut down motor

vehicles should schemes not be renewed or stipulations of a policy infringed. For Zuboff this is an expression of the *uncontract*, or where agreements can be monitored and enforced in binary terms, without the need for wiggle room or human sympathy and understanding. This situation can leave to troubling social consequences:

... what happens to the driver? What if there is a child in the car? Or a blizzard? Or a train to catch? Or a day-care centre drop-off on the way to work? A mother on life support in the hospital miles away? A son waiting to be picked-up from school?
(p.219)

In this context, Zuboff argues that instrumentarian power is “less immoral than amoral” (p.220). What is clear, however is that the increasing removal of uncertainty is another basis for the potential erosion of human autonomy and judgement.

The Limits of Surveillance Capitalism

In truth, I find it hard to be critical about *The Age of Surveillance Capitalism*. It is a thoroughly researched, rigorously argued, and ultimately compelling piece of work. There are, however, certain areas of the volume that do stimulate critical reflection. Some of these areas are fairly technical and do not impact directly on the overall arguments presented in the book, but others are more substantive. I will start with these more substantive issues.

The Techno-Dystopian Vortex

I am struck when reading contemporary work on digital capitalism and surveillance how quickly one of two forms of analysis quickly emerges. On the one hand you have techno-utopianism, and a kind of assertion that digital technology is a force for good, which will inevitably liberate the human spirit and facilitate the production of empowering knowledge systems (see Ohanian 2013; Pentland 2014). On the other, you have the techno-dystopian worldview, within which we all appear to be going to hell in an algorithmically selected

handcart (see Keen 2015; Morozov 2011). While *The Age of Surveillance Capitalism* displays more nuance than many of the analyses that sit on either side this dichotomy, there is a characteristic narrowness in its techno-dystopian perspective. In establishing the totalising logics of surveillance capitalism, little in the ways of hope or optimism is able to escape Zuboff's vortex of analysis. The problems with Zuboff's particular brand of techno-dystopian perspective are two-fold. First, it can lead to an overstatement of the empirical case. Take the following reflection from early in the book:

Entanglements of knowledge, authority and power are no longer confined to workplaces as they were in the 1980s. Now their roots run deep through the necessities of daily life, mediating nearly every form of social participation. (p.4)

Acknowledging that information and communication technology is now more widespread than electricity is one thing, but the suggestion that nearly every form of social participation is mediated by these technologies is surely overreaching. It is here, as with many sections of the book that Zuboff's arguments appear sound, but slightly (sometimes only ever-so-slightly) ahead of their time. Second, this can lead to a neglect of the undeniable benefits that participating in the surveillance capitalist universe brings to many people. Yes, these benefits could be conceivably facilitated by non-surveillance capitalist means, but at present they are not. Nonetheless, to understate these benefits is clearly problematic. When comparing *The Age of Surveillance Capitalism* with Tufekci's (2017) *Twitter and Teargas*, for example, it is clear that Tufekci is more successful in balancing the pros and cons of using social media than Zuboff; Tufekci's analysis benefits greatly from the space this acknowledgement opens-up.

It is difficult to know whether the empirical focus of the Zuboff's analysis is shaped by the dystopian analysis she develops, or whether the empirics are themselves a reflection of a pre-existing critical mindset. What is clear is that in predominantly focusing on interviews with industry insiders, and the public pronouncements of prominent surveillance capitalists,

The Age of Surveillance Capitalism offers little space for an account of the user experience of smart tech. If surveillance capitalism is a multifaceted and evolving complex system, then analyses that focus predominantly on expert opinion and representations will only ever be able to provide us with a partial view of this new phenomenon. In the famous terms of Henri Lefebvre, Zuboff primarily offers an account of the (expert) *representations of the spaces* of surveillance, and not the varied (user) *representational spaces* that are emerging from within the systems. In her recent geographical reflections on smart cities and platform systems, Barns (2019) – in a quote that could have been written in direct response to Zuboff’s work, but actually wasn’t – emphasises the importance of deploying more user-oriented perspectives on the digital age,

... negotiating the influence of platforms demands multiple epistemological strategies for the interpretation of urban life, in ways that recognise diverse sites of socio-spatial encounter, beyond ontologies of control, transaction and appropriation.

The Behaviouralist Paradox

A second line of more substantive concern I have with *The Age of Surveillance Capitalism* relates to its critique of the behaviouralist ethos of surveillance capitalism. While I agree with Zuboff that surveillance capitalism is inherently behaviouralist in its orientation, I see this as a potential a source of hope rather than despair. My point is that the more the digital apparatus and e-nudging techniques of surveillance capitalism relies on a behaviouralist view, the less likely they are to be successful in actually diminishing the human condition. My point is that there is a form of behaviouralist paradox at heart of the Zuboff’s analysis. Either the surveillance capitalist deployment of a behaviouralist understanding of the individual is effective in some ways but is ultimately wrong and thus unable to achieve its behaviour change goals. Or, surveillance capitalists are using a paradigm of the human that is accurate and is likely to succeed at shaping our long-term behaviours. But cannot it really be both?

The behaviouralist paradox within Zuboff's analysis is perhaps captured best of all in this quote:

I recognise my direct experience of freedom as an inviolate truth that cannot be reduced to the behaviourists' formulations of life as necessarily accidental and random, shaped by external stimuli beyond my knowledge or influence and haunted by irrational and untrustworthy mental processes that I can neither discern or avoid. (p.321)

So, Zuboff's critique of surveillance capitalism's behaviouralist gestalt is premised on the existence of a form of irrational human condition than Zuboff herself rejects. I, along with Zuboff (I think), believe that humans have intentional capacities that enable us to override the immediate temptations and stimuli of the world around us. It may, of course, be possible for Zuboff to eat her behavioural cake and have it. There is an argument to be made that the more people are treated as behaviouralist subjects, and banally denied opportunities for autonomy, the more they will conform to Skinner's vision of the human subject. While such conditions may be perceivable within the totalising logics of surveillance capitalism, we are clearly not there yet, and Zuboff's analysis I feel fails to articulate this reality clearly enough.

Minor Quibbles

There are more minor quibbles I had with *The Age of Surveillance Capitalism*. The first relates to Zuboff's notion of instrumentarianism. Instrumentarianism is a stentorian concept for Zuboff, a term that both critically captures the essence of surveillance capitalism, but also seeks to connect it to broader theories of power. My concern is not with the theory of instrumentarianism per se, but with the term itself. According to the Oxford English Dictionary the instrumental refers to the use of instruments/measuring devices as a means of achieving something. In addition to instrumentarianism just being an awkward term, it tends to convey the sense of using instruments (a key feature of surveillance capitalism for sure)

much more than it does the politico-economic logics of surveillance capitalism (although the notion of “achieving something” does indirectly convey the pragmatic logics of surveillance capitalism). To these ends, I wondered whether the term actually hindered Zuboff’s analysis, conveying as it does much more the technologies of surveillance capitalism than its economic logic. It is clear that instrumentarianism lacks the immediate cogency of the term totalitarianism and, I fear because of this, is much less likely to enter into the popular lexicon.

Finally, when it came to questions of how best to respond to surveillance capitalism I was surprisingly underwhelmed by what Zuboff had to say. While her description and analysis of surveillance capitalism is comprehensive and exhaustive, her suggestions of what can be done feels under-developed. While there are passing references to emerging regulatory endeavours and the need to curtail the peculiar freedoms of tech giants, most of the discussion of response strategies are contained within a five-page section of the book entitled “Every Unicorn has a Hunter” (p.488-492). This section largely discusses various practices of hiding (including *glamouflage*) and artistic responses to the worst effects of digital surveillance. While I would agree that art has a role to play in addressing the problems of surveillance capitalism this can clearly only be one part of the solution. It is interesting in this context to compare *The Age of Surveillance Capitalism* with the conclusion to Jamie Bartlett’s (2018) recent volume *The People Versus Tech*. While Bartlett provides a generally less comprehensive, if no less readable, analysis of the political tensions of the smart tech revolution than Zuboff, his concluding reflections on the rise and potential of crypto-anarchism offers far more insight into what a more progressive, less surveillance-oriented digital futures may entail (as well as the problems that are themselves generated by a lack of digital transparency).

* * *

But these are truthfully minor quibbles. OK, Zuboff may not have all the answers to the problems of surveillance capitalism – who possibly could? But to an extent that has not been,

and is unlikely to ever be, surpassed, *The Age of Surveillance Capitalism* diagnoses the nature of our current digital afflictions. It exposes the economic logics of the digital society that we are complicit in building and its deleterious impacts for human nature and society. It is, quite simply, essential reading for anyone who cares about the future.

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