CHAPTER 11

Data's empire: postcolonial data politics

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Abstract

The chapter examines the various ways that data captures and colonizes minds, souls, bodies and spaces and makes data subjects through practices of production, accumulation, aggregation, circulation, valuation, and interpretation. We draw attention to how these practices operate together yet differently in the metropole and postcolony and produce different data subjects. By first describing how European empires in the nineteenth century invented various data collection and analysis methods for producing colonial populations, the chapter outlines how postcolonial practices build on these imperial infrastructures and logics. Through the example of the UN's Global Pulse initiative as an instance of postcolonial data politics, the chapter argues for decolonising data politics.

Keywords: big data, census, colonial, postcolonial, empire

Postcolonial data politics

This chapter addresses a question that is rarely, if at all, raised about the ways in which data politics plays out differently in colonial, postcolonial, and imperial states and their respective force in international relations (Kumar 2017, Burbank and Cooper 2010, Muldoon 1999, Gilroy 2004). The chapter makes a case for a distinct 'postcolonial data politics' to draw attention to how data politics plays out differently in the Global South than the Global North. We develop this case by first examining its conditions of possibility: the colonial power and knowledge (institutions, disciplines, objects and subjects) that constituted and continue to shape postcolonial states and their relationships with imperial states. One such condition that we exemplify is how the quest for a British imperial census in the nineteenth century and its technologies of colonial government of counting, categorising, and ordering were inherited, reshaped, and reused by postcolonial governments. Understanding the constitutive force of this genealogy is key to interpreting how the vast amounts of data collected through the internet and devices continues yet reconfigures colonial logics and objects of knowledge.

In the second edition of Imagined Communities (1991) Benedict Anderson concludes that he was 'hasty' and 'superficial' in the original edition (1983) in assuming that twentieth-century postcolonial states were modelled after modern nineteenth-century European states (2006, 163). He suggests that to understand nationalism in postcolonial states, its genealogy should be

traced to colonial governments instituted by imperial powers before the nineteenth century. He thinks that it is necessary to understand 'imaginings of the colonial state'. He admits that 'this conclusion may seem surprising, since colonial states were typically anti-nationalist, and often violently so. But if one looks beneath colonial ideologies and policies to the grammar in which, from the mid nineteenth century, they were deployed, the lineage becomes decidedly more clear' (2006, 163). For students of colonialism and imperialism, neither the proposition that postcolonial states inherited practices from colonial institutions nor that imperial states transplanted practices from colonial governments – something that Michel Foucault (2003, 103) had identified in 1975 as a 'return' effect – would come as a surprise.

Anderson argued that this genealogy was expressed and deployed most prominently in three colonial institutions: the census, the map, and the museum: 'together', he says, 'they profoundly shaped the way in which the colonial state imagined its dominion – the nature of the human beings it ruled, the geography of its domain, and the legitimacy of its ancestry' (2006, 163). His analysis of each institution in imperial states that colonised Southeast Asia have been widely discussed as well as his claim that its lessons should have comparative value as it includes territories colonised by the all 'white' imperial powers of Britain, France, Spain, Portugal, The Netherlands, and the United States (Cordell, Ittmann, and Maddox 2010, Christopher 2009, 2008, Appadurai 1993).

Anderson's analyses of the census (population), the map (territory), and the museum (memory) are pertinent for the argument we want to make in this chapter. As modes of knowledge, especially the census and the map, were not merely descriptive exercises that represented populations and territories but were performative technologies that literally produced them. As James Scott says, maps 'were … not just maps. Rather, they were maps that, when allied with state power, would enable much of the reality they depicted to be remade. Thus a state cadastral map created to designate taxable property-holders does not merely describe a system of land tenure; it creates such a system through its ability to give its categories the force of law' (J.C. Scott 1999, 3). If the map was not merely a representation of a given territory, it came to constitute territory as an object of power: possession and dominion were synonyms of the colony. The same can be said about both the census and the museum. They were not merely representations of 'population' and 'memory' but practices through which they became objects of power. This was of course compellingly developed by Bernard Cohn (1996) in his studies of British imperial government in India. On the census Anderson largely focused on the production of ethnic and racial categories and how they helped shape the imagination of the nation constituted by the very categories imperial powers instituted.

It should be said that it is not only that the will to power and knowledge mobilised the census but also the constitutive performative force of that which it produced: population. The enormous amount of data collected, collated, interpreted, analysed, and disseminated about the colonies provided the ways in which the dominions and possessions were imagined in the sense Anderson always maintained: as produced. This is the performative sense in which the data produced about an object at the same time exceeds its will to power and attains constitutive powers in shaping and forming that object. This is certainly the sense in which Edward Said's (2003) critique of orientalism as a discourse – practical, academic, and literary – constituting

the orient specially but the colony generally highlighted. As Young puts it 'Said's use of the notion of a discourse to demonstrate the way in which forms of knowledge were constructed within a particular kind of language, which in turn was replete with all sorts of cultural assumptions, enabled Orientalism, and colonialism more generally, to be analysed as an ideological production across different kinds of texts produced historically from a wide range of different institutions, disciplines and geographical areas' (Young 2016, 385).

The most important lesson we have learned from political sociology and anthropology of empires is that while an empire that embodies a will to power may come to pass and its mode of dominion or possession may become postcolonial, the constitutive powers of knowledge (institutions, disciplines, objects and subjects) continue to shape postcolonial states and their relationships with imperial states. Conversely, modern European empires never developed knowledge-power practices in isolation from their metropoles. Thus, we use the terms colonial, postcolonial and imperial states to highlight their genealogy and insist on using 'empire' neither as ubiquitous and omnipresent nor as a geographically contiguous and historically homogenous form of rule (Kumar 2010). Rather, we use 'empire' to signify a form of rule whose performativity constitutes power relations between dominant and dominated institutions and as such can be geographically dispersed and historically heterogeneous (Bourdieu and Wacquant 1999).

Our argument is that the continuing and constitutive powers of knowledge (of population, of territory, and of memory) should have significant bearing on how we now think about the vast amounts of data collected through the internet and devices that are said to usher in a new era of data politics. We argue in this chapter that postcolonial data politics should be a distinct domain of analysis by focusing on how colonial dominions and possessions are now being reconfigured as objects of knowledge. We develop this argument in three stages. In the following section, we focus especially on the British Empire and its massive efforts to establish an imperial census beginning from the 1840s to the 1940s. This is to illustrate how the census represented a mode of data politics that produced colonial populations as objects of power. Then we will focus on two cases from contemporary data politics where postcolonial states are being increasingly brought under the orbit of massive data collection, collation, and interpretation regimes by new kinds of authorities whose mode may not be imperial yet whose form of rule distinctly is. Then we will conclude with some thoughts on resistances to data's empire and possibilities of decolonising data politics.

Governing peoples: biopolitics and empire

There has been a lively debate on empires over the last twenty years. There is no doubt that this debate owes a great deal to Said's Orientalism (2003) and Culture and Imperialism (1994) – two books that shaped and framed the subsequent field of postcolonial studies (Young 2016). Perhaps counterintuitively, postcolonial studies opened up, amongst other things, the possibility of understanding the continuity between colonial and postcolonial states and the role of imperial states (those states that established conquered or settler colonies and dominions). What Anderson called his oversight – that he did not originally see the relation between colonial and postcolonial states, regarding the latter's nationalism as the negation of

the former – is indeed an insight that arises strongly from postcolonial studies. It has been now widely debated that rather than 'disappearing' especially European empires have taken on new forms. Jane Burbank and Frederick Cooper (2010) have, for example, entirely shifted the ground by comparatively investigating empires as ongoing forms of rule for governing peoples and populations. Similarly, Krishnan Kumar (2017) focused on five world empires and their continuing presence in the contemporary world. To be sure, the conclusion to draw from this burgeoning debate and the shifting ground is not that 'empires are alive and well' but that empire is a changing form of rule that shapes global population management and creates evolving forms of subject peoples (Hevia 2012, Ittmann, Cordell, and Maddox 2010, Pagden 2001, Steinmetz 2013). Within postcolonial studies the terms metropole and postcolony or 'the Global North' and 'the Global South' are used to indicate a deterritorialised geography where 'Souths in the geographic North and Norths in the geographic South' are entangled (Mahler 2018, 19, Mbembe 2001). It is in this deterritorialised sense that we adopt the terms metropole, colony and postcolony when referring to empire as a form of rule.

There is so much more to say than we can in this chapter about this debate but we will briefly draw out its significance for our argument for a postcolonial data politics. We want to illustrate this by first returning to Michel Foucault who not only influenced figures such as Edward Said and postcolonial studies but also inaugurated 'population' as an object of modern government – understood as a broad concern with the administration of things and people. Yet, as Anne Stoler (1995) famously argued, with the exception of a brief note on the 'return effect' that we have mentioned above, Foucault did not concern himself with colonial government let alone colonial technologies of power such as the census, the map, or the museum in the colony (D. Scott 1995). One would have expected that studies on 'colonial government' and especially the colonial census and the production of colonial populations would have flourished, but this happened only to a limited extent and there are not many studies of colonial populations and their principles of production especially in the context of imperial government (Cordell, Ittmann, and Maddox 2010, Christopher 2008, Ittmann, Cordell, and Maddox 2010). Early studies have not been followed through with detailed investigations especially outside India (Cohn 1996, Appadurai 1993, Ludden 1993, Kalpagam 2000b). It is well worth then revisiting Foucault (albeit briefly) on population, draw out the relations between biopolitics and 'data politics' as we see it, and provide an overview of the British Empire's attempts at creating an imperial census as a prologue to postcolonial data politics.

In his Collège de France lectures on Society Must be Defended (1975-1976) and Population, Security, Territory (1977-1978), Michel Foucault (2007, 2003) outlines what he sees as the specificity of modern government. The publication of these lectures (in English) nearly twenty years after their delivery has been a revelation for those who took the last chapter of his History of Sexuality (1978) as a ground-breaking attempt to identify the specificity of modern government. In these lectures he more clearly outlines how he thinks the concept of government acquires a broad meaning in the sixteenth century when the verb 'to govern' functions in a wide range of domains to indicate any benevolent or prescriptive activity to command the movements and subsistence of people (2007, 122). Foucault concludes that 'one thing clearly emerges through all these meanings, which is that one never governs a state, a territory, or a

political structure. Those whom one governs are people, individuals, or groups' (2007, 122). The target and object of government is always a people, individuals, or groups. Yet, at this point, in the sixteenth and seventeenth centuries, governing peoples is a sovereign exercise: it is direct, violent, and unforgiving.

Foucault argues that by the second half of the eighteenth century a new form of power adds another meaning of government, which he eventually calls 'disciplinary'. He does not think that 'sovereign' and 'disciplinary' mechanisms of power are to be juxtaposed against each other. Rather, these two mechanisms of power work with different rationalities. Still, this is probably not the most original argument of Foucault. It is when he becomes aware that toward the end of the eighteenth and early nineteenth centuries a new mechanism of power emerges. In a much-quoted statement Foucault says 'unlike discipline, which is addressed to bodies, the new non-disciplinary power is applied not to human-as-body but to the living human, to human-as-living-being; ultimately, if you like, to human-as-species' (Foucault 2003, 242). If disciplinary power is concerned with the function, movement, and fitness of the body, regulatory power is concerned with the birth, death and health of the species-body. Foucault calls this emerging regime of regulatory mechanisms of power that are concerned with the species-body as biopolitics—so-called because of its concern with natality, mortality, and fertility (Foucault 2003, 243). If then the body is the problem of disciplines, then population becomes the problem of regulation (Foucault 2003, 245). The key argument Foucault makes is that although population was an object of power and knowledge before the late-eighteenth century, it became an object of management that required new techniques of data collection (e.g., census) and new methods of analysis (e.g., demography, statistics). Although Foucault is not always consistent, we do not think that he offers these three logics of government – sovereignty, discipline, and regulation – as supplanting or displacing each other but that the specificity of modern government consists in their multiple and intersecting deployments appropriate to each target of government.

Of course, much has been debated over Foucault's lectures especially on territory, population, and security over the last decade or so and we do not aim to discuss the main issues of agreement and disagreement. From our perspective we want to note that despite the substantial debate over Foucault's claims about early modern and modern European states when European empires were also accumulating territories, creating populations and advancing competing claims over (and warring for) sovereignties in the colonies, his claims remain crucial for understanding the development of colonial government (Curtis 2004, Kalpagam 2000a, 2001, D. Scott 1995, Wilson 2011). What Ian Hacking (2015) identified as the avalanche of printed numbers between the 1820s and 1840s when 'population' was invented is precisely the period in which British imperial government identified its colonial populations differently. We want to illustrate this briefly with the efforts to conduct an imperial census during the British Empire.

Consistent with Foucault's claim that population becomes a new kind of object of government in the late-eighteenth and early-nineteenth centuries, the British Empire had a renewed interest in its colonial dominions and possessions and news ways of accounting for them. As Foucault would also emphasise, this was not the first time states had an interest in their populations but their modes of accumulating data about them signalled something different. A.J. Christopher

traces the quest for a census of the British Empire from 1840 to 1940. He argues that mapping and the census were the two most important enquiries undertaken by the empire. The quest for an imperial census actually starts somewhat earlier, in 1801, when a decennial enumeration of the United Kingdom was instituted and when a question emerged about how to count colonies in this enumeration. How to act at a distance to govern unfamiliar events, places, and people for the empire was eventually resolved with the census as a technology of knowledge production. As Christopher says 'as such it represents a significant attempt by the state to number and assess the population and its characteristics and so obtain a view of the society it seeks to govern' (Christopher 2008, 269).

This idea of an imperial census was put forward in the 1840s and remained an objective for a hundred years (Christopher 2008, 271). It followed the introduction in 1800 of 'An act for taking an Account of the Population of Great Britain, and the Increase or Diminution thereof', which directed the taking of a census of England and Wales in 1801. It involved the first comprehensive, systematic and centralized collection of information on households and individuals. Previously, numerous local and central institutions and officials linked to the central state, such as ecclesiastical courts, justices of the peace and overseers of the poor, regularly collected information about people in their jurisdictions (Higgs 2004). The census, along with civil registration, replaced that which had been largely carried out by local administrations and dispersed across thousands of archives (parish chests, diocesan registers, estate papers). However, until 1841 censuses did not list individuals but instead provided simple head counts (numbers of men, women, families and houses) and information about household characteristics such as occupations and ages. The schedules were also completed by officers of the established church or of the poor law system who calculated totals from parish registers. The first nominal census was not conducted until 1841 by the newly established General Register Office (GRO), which initiated 'the practice of instructing enumerators to hand out schedules to household heads for them to supply details of the members of their households on Census night' (Higgs 2004, 72). However, while individuals were counted, unlike parish records the object was the population (Ruppert 2012) where individuals 'are no longer pertinent as the objective, but simply as the instrument, relay, or condition for obtaining something at the level of population' (Foucault 2007, 42).

It is in relation to the centralised collection of data on individuals within the British state that the idea of an imperial census was enacted in 1821 with a Colonial Office requirement that each colonial government produce an annual statistical and informational Blue Book (Christopher 2008, 271). The same request specified that population be divided into white, free coloured, and slave categories. After the abolition of slavery in 1833 the categories were simplified into white and coloured. Although by the 1840s virtually all colonial governments had taken annual statistics, each developed divergent practices and produced incompatible annual Blue Books. To solve this fragmentation of information the Colonial Office in London developed the concept of a unified census of the British Empire. With the establishment of the General Register Office and the appointment of William Farr as Superintendent of Statistics, who served from 1839 to 1879, the idea of an imperial census was articulated (Christopher 2008, 272). The General Register Office with the Superintendent of Statistics served as the

'centre of calculation' for the analysis, interpretation, collation, compilation and presentation of the imperial census. This is also when the quest began for dividing the colonies into coherent and comparable enumeration districts by following administrative divisions and boundaries, enumerating both settled and mobile populations, standardizing enumeration periods, counting indigenous populations differently, establishing a person's name as a unique identifier, and enumerating not only age and race but also occupation according to categories originally developed by William Farr (Christopher 2008, 273-274).

The quest produced various censuses throughout the rest of the nineteenth century with myriad fits and starts and problems as well as resistances and non-compliances based on different grounds. Colonial Governors were required to explain not only divergences but also resistances. Regrettably, there is no systematic study of these divergences and resistances in the British colonies but an event in 1861 attests to such resistance and perhaps provides evidence of imperial responses. Ceylon avoided conducting the 1861 census and when asked an explanation the Governor simply gave that it was seen as a precursor to taxation, a response that was common in both metropole and colony (Ruppert 2014). Ten years later when Ceylon did conduct a census, its Governor was apparently compelled to reassure the power elite of the colony by stating that 'the Census has no connection whatever with taxation but is taken solely for the purpose of ascertaining the number, ages and occupations of the inhabitants of the island. The information is required in order to ascertain whether or not the population of Ceylon are prosperous and increasing in number, and to enable the Government to devise measures for promoting the improvement of the country and the welfare of the people' (Christopher 2008, 276).

As Christopher notes 'the quest for a systematic synchronised population census of the British Empire lasted for a hundred years. It represented an attempt by the Colonial Office to obtain a view of the Empire as a whole as an aid to its efficient administration, although the precise use of the census was never explicitly stated' (Christopher 2008, 284). He concludes that 'nevertheless, only one official integrated Report on the Census of the British Empire was ever published (2008, 284). Christopher thinks two significant factors contributed to this 'failure'. First, although successive Registrars General of England and Wales periodically monitored the development of the project, the colony was always secondary to metropole. As such, the colony received only limited resources especially for processing the data collected (2008, 284). Second, which is important from our point of view, was that British Empire found it difficult to co-ordinate diverse, multiple, and relatively autonomous colonial governments (Christopher 2008, 284). This is worth investigating further. To what extent colonial governments resisted an imperial census and to what extent this constituted on the part of colonial authorities gaining power-knowledge over their 'own' populations are questions that arise from the quest.

Nonetheless, the quest for an imperial census that lasted a century attests to how counting, categorising, and ordering worked as technologies of colonial government and how these technologies were inherited, reshaped, and reused by postcolonial governments. We suggest that the transition from colonial to postcolonial governments involved considerable continuity of technologies of government, especially the use of data for counting, categorising, and ordering. The quest for a unified census of the British Empire between 1840 and 1940 produced

vast amounts of data but eventually became a failed project in the sense that James Scott defined the emergence of the state. Even if it eventually failed to accomplish its stated objectives the quest, with its trials, tribulations, ridges and troughs, produced an emerging logic of imperial government. Additionally, the quest led to myriad other intentional or collateral effects such as the invention of new governmental practices, and bureaucratic and technological infrastructures. Furthermore, although Christopher considers the census as 'stocktaking' – as governments typically do - it is well to remember James Scott's conclusion (1999, 3): quests of mapping territory or enumerating population were not merely description exercises but are technologies of government that '… give [their] categories the force of law'. Moreover, it is well to remember Hacking's distinction between overt and 'subversive' effects of the census. He says that the overt amassing of gigantic amounts of data rarely results in its intended effects. For Hacking '[t]he fetishistic collection of overt statistical data about populations has as its motto "information and control," but it would more truly be "disinformation and mismanagement"' (Hacking 2015, 281). Yet, Hacking says, 'there is a quite unintended effect of enumerating, and I call this subversive. Enumeration demands kinds of thing; or people to count. Counting is hungry for categories. Many of the categories we now use to describe people are by-products of the needs of enumeration' (Hacking 2015, 280). He concludes that '… biopolitics as the transition from the counting of hearths to the counting of bodies' (which we noted above) follows from this. Thus, 'the subversive effect of this transition was to create new categories into which people had to fall, and so to create and to render rigid new conceptualizations of the human being' (Hacking 2015, 281).

We see a century of quest to produce a census of an empire therefore not so much as a quest to describe it but as a quest to govern people in a different way. What drives the will to knowledge – the insatiable accumulation of data, classifications (race, ethnicity, language, religion), categorisations (caste, tribe, kin), interpretations (normal, abnormal, deserving, underserving, dangerous, useful), inferences, relations, processes, identifications – is the will to power: a force to maintain, nurture, sustain, and encourage capacities that are useful for the purposes for which there is an interest in the object. The census and its practices – collecting, collating, and presenting data and drawing conclusions about the population as an object – were not only for creating a coherent and consistent method – which always failed – but the will to know that satisfied the will to power. The more difficult it was to establish a coherent or consistent system the more driven was the will to know. Yet this will to know was bound to exceed the technologies that afforded it: the census was increasingly surrounded by and indeed gave rise to various knowledge practices: ethnographies, comparisons, theories, interpretations, disagreements, and debates that veritably began creating an image of the colonial state and society. Census, or the attempts to create an imperial census, generated various forms of data and knowledge as well as agents and authorities who subsequently as experts developed autonomous interests and practices in data that created a condition of possibility for the birth of the postcolony.

The development of the modern census throughout the nineteenth century is often told through methodological nationalism: a survey of nation-by-nation developments where each nation develops its legislative authority and administrative machinery and conceived of populations

as contained within national boundaries (Chernilo 2011, Dumitru 2014, Scheel et al. 2016, Wimmer and Glick Schiller 2002). Yet the articulation of census standards is also an imperial development of a different order. Almost at the same time when European imperial states began to develop census practices an international field of data politics emerged where newly developed methods and techniques and their experts began to establish and compete in the development of protocols for international co-operation and standardisation. The First International Statistical Congress was held in Brussels in 1853 which adopted formal international recommendations for conducting a census urging comparability amongst various national censuses. In 1872, the International Statistical Institute met in St. Petersburg and adopted not only standards for conducting censuses but also methods and data (Goyer and Domschke 1983, 8). When the same institute met in 1897 the idea of a census of the whole world was articulated. Shortly after its formation following the second world war, in 1950, the United Nations (UN) defined one of its urgent tasks as the development of census methods and data standardization. Practically, this involved tweaking standards developed since the 1850s. It was not until 1970 that the UN developed its World Population Census Program (Goyer and Domschke 1983, 9). Since then the United Nations has progressively developed census guidelines to achieve greater standardisation across all states and regional organisations such as the European Commission have enacted statutes and regulations that comply with and extend these to achieve harmonised European data statistics. Despite these efforts, the interpretation and implementation of standards has been uneven and variable due to a combination of political, technical and historical differences. As we noted in relation to the quest for an imperial census, effects of governmental logics are not reducible to their stated intentions and objectives but give rise to myriad collateral strategies, responses and effects.

Notwithstanding this variability the will to know through censuses has performative effects including the emergence of its agents within a transnational field of statistics (Scheel et al. 2016). The emergence of guilds of experts and star figures of statistics such as William Farr (1807-1883) signals only a glimpse of a veritable structure of expertise about both metropole and colonial populations and the interests of experts that were related yet by no means reducible to the interests of the old European empires and perhaps constituted a different empire – data's empire – that secured and maintained its hold on colonial populations long after they had become postcolonial. As Hacking mused thirty-five years ago 'it will be salutary if some of us go on noticing mutations within the more gradual expansion of the biopolitical empire' (2015, 281).

This still remains a hypothesis, as it were, since there are not many studies on the attempt to create a British imperial census let alone relate it to imperial government. But new studies such as those by Karl Ittmann, Dennis Cordell, Gregory Maddox (Ittmann, Cordell, and Maddox 2010) and their colleagues on attempts in Africa and by Jen Emigh, Dylan Riley, and Ahmed Patricia (Emigh, Riley, and Ahmed 2016) in Asia already indicate that Foucault's hypotheses about government and population are bearing fruit – albeit with modifications and enhancements – for studying the imperial and colonial government of populations. We expect that these studies will grow and will form part of what we call 'postcolonial data politics' and enable us to better understand the relation between the production of colonial populations

through the accumulation of data and imperial government. Meanwhile, we also think there is an urgent need for studies that examine contemporary data politics and its postcolonial implications. We now want to illustrate what we see as emerging areas of investigation in postcolonial data politics, which Hacking calls 'biopolitical empire' and which we recast as 'data's empire'.

Governing postcolonial peoples

It is within the historic amassing of data that we approach the current 'deluge' of data (Hey and Trefethen 2003) – which now has come to be named 'big data' – to consider what bearing the constitutive powers of knowledge (of population, of territory, and of memory) has for this new era of data politics. The range and volume of data about populations and other objects being generated through the internet and myriad digital devices by organisations, agencies, corporations and governments is unprecedented. But beyond volume, data is also being remade in standardised forms that traverse national borders and with qualities that are increasingly granular, immediate, varied, and detailed. From Facebook claims that it can make a map of everyone in the world (Meyer 2016) and that it 'reaches more people than the U.S. Census data says exist' (Swant 2017) to Google Street View being proposed as an alternative for generating census statistics on socioeconomic characteristics (Gebru et al. 2017), there is no shortage of claims to knowledge. Arguably, no kingdom, state, empire, government, transnational or global organisation or corporation has ever held such command over the production, storage and analysis of data. The implications of these developments associated with big data have been mostly debated in relation to privacy, anonymity, security, speech and other concerns that are cast in terms appropriate to Euro-American metropoles. As we have argued above, just as metropole-colony relations were configured through the invention of biopolitics, we expect that new developments in big data are reconfiguring not only metropole-postcolony relations but also biopolitics. To put it differently, not only do the issues of concern such as privacy and security play out very differently in the metropole than in the postcolony but also agents of power-knowledge and their targets of government are also being constituted differently. Moreover, data politics are also playing out differently in the metropole and postcolony precisely because of different trajectories through which certain rights are protected, developed, or violated.

All this is most evident in big data projects in Africa. African postcolonial states are said to face a longstanding 'knowledge problem' because of flawed development data on metrics such as Gross Domestic Product (GDP) and economic development (Jerven and Johnston 2015). Some African national statistical departments have more resources and stronger capacity and experience than others, such that development problems include the unevenness and often absence of 'good' statistical data (Jerven 2013). It is in this context that big data is imagined as an opportunity to know Africa and other postcolonial states in unprecedented ways, which are critical for decisions about development in areas such as healthcare, security, economic productivity, and disaster and resource management, and so on (Hilbert 2016).

That is the promise reflected in the United Nations Global Pulse initiative, which is principally focused on adopting big data for monitoring and reaching sustainable development goals and

managing humanitarian action. The initiative was established based on the recognition that big data offers the opportunity to gain a better understanding of changes in human well-being, and to get real-time feedback on how well policy responses are working (United Nations 2018). It is 'intended as a Call to Action to inspire development agencies and particularly evaluators to collaborate with data scientists and analysts in the exploration and application of new data sources, methods, and technologies' for 'programme monitoring, evaluation and learning' (Bamberger 2016, 22). Global Pulse is only one of several initiatives involving projects that engage with either publicly available or big data donated by 'large multinational corporations such as Orange and Twitter for purposes of monitoring and evaluating social or economic dynamics in LMICs' (Low and Medium Income Countries) (Taylor and Broeders 2015, 231). The initiative engages with and is part of a broad network of international researchers and organisations working with big data on development projects and who publish, discuss and circulate results, and share knowledge about interventions.

More generally, Global Pulse is part of a 'field of study' referred to as 'Information Communication Technologies for [international] Development' – ICT4D – described as 'an interdisciplinary practice that combines tech with international development, human rights, and public health' to collect, store, process, analyze and share data for development (Anonymous 2016). The kinds of data vary and can include everything from health care data to mobile phone metadata, sensor and biometric data and survey data.

Projects involving big data analytics are undertaken as part of Global Pulse have included numerous experiments with mobile phone data such as the mapping of poverty in China using call data records and mapping population displacement in Nepal following the April 2015 earthquake (Bamberger 2016, 41). Others include using social media to explore HIV-related stigma in Rio, guiding emergency services in the aftermath of the Haiti earthquake, and detecting and managing forest and peat fires in Indonesia. One 2013 project involved the analysis of anonymised mobile phone data to visualise population movements in Senegal (Global Pulse 2015). Through the use of visualisations, a series of mobility profiles were produced for different regions to identify how changes in patterns of mobility could indicate changes in livelihoods or coping strategies, or exposure to new shocks. Monitoring such changes for vulnerable groups in 'real time' was identified as potentially offering a 'powerful humanitarian early warning mechanism for informed decision-making and rapid response' (Global Pulse 2015, 1). These are just a few amongst a large number of big data projects.

While much has been made about the potential of these various forms of big data to finally 'know' postcolonial populations, critics rightly point to the 'politics, power dynamics and ongoing patterns of privilege and marginalization on a global scale' of ICT4D initiatives and especially the lack of ethical processes such as informed consent and opt-out procedures that 'continue the legacy of colonialism within aid work' (Anonymous 2016). They argue that many projects in the postcolony lack data protection for personally identifiable data, which would be unacceptable in the metropole where the governments or corporations that own and control data are located. These practices mean 'there is a danger of setting up a form of imperialism based on personal data. Just as the royal powers of old reached far into the lives of distant colonized people, technology companies gain immense control with every terabyte

of personal data they store and analyze' (Simmons 2015). For Simmons, technology companies that are predominantly owned and located in the United States are colonial in their actions as they perform like sovereign nations and increasingly operate across borders.

The reach of these practices, however, extends to both metropole and postcolonial populations and thus they need to be understood, as we argued above, in relation to each other. That is, technology companies operate transnationally to harvest the data people generate in their day-to-day lives through a form of 'accumulation by dispossession that colonizes and commodifies everyday life in ways previously impossible' (Thatcher, O'Sullivan, and Mahmoudi 2016, 990). Thatcher et al. interpret this through the metaphor of 'data colonialism' to highlight 'the power asymmetries inherent in contemporary forms of data commodification.' However, just as censuses and other forms of state produced data were uneven in their colonisation, big data are leading to a 'new kind of digital divide' in 'data-based knowledge' due to the unevenness of technological diffusion as a result of 'lack of infrastructure, human capital, economic resource availability and institutional frameworks' (Hilbert 2016, 135). Beyond these 'contextual' variables, just as in colonization, the varying assemblages of experts, methods, technologies, data, organisations, guilds, associations, practices, authorities, and other interests are constitutive of uneven effects beyond the control of the technology companies.

For these reasons, while these critiques are apt the situation is more complex. Importantly for our argument, they do not capture what we suggest is the continuity and discontinuity from the regulatory logic of biopolitics that characterised data politics of the last two centuries and was concerned with population as a species-body. We thus refer to 'data's empire' to signal an emergent regime of government that involves new as well as existing mechanisms of domination between the metropole and postcolony that is producing a species-body with different characteristics and with heterogeneous effects. These characteristics are yet to be fully investigated. What we offer below is thus a preliminary outline of emergent mechanisms that are distinct and overlapping and have continuities and breaks from past ones. We then discuss their potential implications for the biopolitics of our present.

The species-body is re-assembled. Numerous actors and arrangements (technologies, practices, data, methods, agencies, authorities, professions, and so on) make up data's empire. Beyond the 'public–private partnerships' and 'growing agency of corporations as development actors' (Taylor and Broeders 2015, 229), various combinations of actors that traverse both national borders and public-private sectors are engaged in the production of the species-body. They involve states, agencies, organizations, corporations, and institutions that come together to process data for different purposes of government. ICT4D projects, for example, are funded by governments and nongovernmental organizations (e.g., UN), corporations, private foundations, and private individuals. Many involve collaborations between government and non-government organisations and various professions such as statisticians and data scientists. Examples include a project that analysed financial transaction data of the BBVA bank to measure the economic resilience of populations to natural disasters in Mexico and another used satellite imagery data produced by various governments to track poverty trends in Uganda (Bamberger 2016). Significantly, the agents of these assemblages occupy relative positions within the transnational field that includes professionals such as data scientists, statisticians,

programmers, software developers, methodologists and so on who traverse transnational and national borders (Scheel et al. 2016). Rather than state authorities being replaced or superseded by corporations or private sector actors, the fields of power and knowledge and the agents and practices that make them up are being diversified and recomposed. Furthermore, numerous projects such as those of Global Pulse are not separate from but part of this transnational field that engages with big data in the metropole. Just as a quest for an imperial census happened simultaneously to the development of national modern censuses, so too are quests to know populations through big data happening transnationally.

This is one reason we suggest that the species-body is re-assembled. Its production includes various combinations of technologies such as the hardware of computers but also sensors, satellites, antennas and mobile devices and beyond software to include analytics such as algorithms, AI, machine learning, and cloud computing. These different combinations of sources and technologies traverse borders and fields as do the data they produce. Mobile phone data, for example, is produced in myriad contexts and taken up and combined with other data to enact phenomena such as migration flows, disaster responses, and economic well-being (Tazzioli 2018). More generally, millions of data points can be assembled on several hundred variables related to a topic of interest such as an individual's transactions, weather patterns, and social media postings. Many data sources can be brought together into a 'high-dimensional space' that envelopes and flattens differences between data (Mackenzie 2015, 434). In these ways, rather than replacing existing data regimes, myriad data are combined from a 'continuum' that includes 'big data' (digital transactions, social media, sensors, etc.), 'large data' (census, survey, administrative, etc.) and 'small data' (qualitative interviews, focus groups, etc.) (Bamberger 2016, 39).

So, while the imperial quest for a census sought to colonise through standardised and pre-defined methods and data organised and managed principally by imperial states, data's empire consists of a proliferation of data that is produced in ways that are dispersed and distributed (Ruppert, Law, and Savage 2013). Data can move and circulate between different sites of production and be 'repurposed', that is, used for generating knowledge to serve governing objectives sometimes far removed from that for which the data were originally produced. Call data records of mobile phone operators for instance are repurposed to know changes in the livelihoods of a population and can be done so across spaces not confined to territorial borders and in relatively standardised, comparable and interoperable formats. That is, the data of the transnational field is standardised in ways not previously attained or even attainable by previous data regimes.

The species-body is multiple. This multiplication does not merely constitute 'new' representations of 'old' populations. The multiplication of assemblages also multiplies the object, the species-body. To understand the species-body as multiple is to first understand data as a performative entity: it does not merely describe but produces the objects it represents. It is for this reason data can be understood as an actant within assemblages for what they might perform changes depending on the relations they enter and through which they have agentic qualities. What data perform is brought into being by assemblages of experts, methods, technologies, data, organisations, guilds, associations, practices, authorities, and other interests

but it is never under the strict control of any of them. It is through its circulation and repurposing that data are detached from the assemblages that make them up and come to act on and colonise objects as well as subjects in myriad ways.

The species-body is performed. Multiplication engenders subversive effects. If the massive efforts of the British Empire over a century failed to produce an imperial census it did succeed in producing colonial populations and institutionalising ways of representing, measuring, counting, and acting on them. And as Hacking argued, a subversive effect of such enumerations was the making of categories that rendered 'rigid new conceptualisations of the human being.' The subversive effects of data's empire today supplement this logic of categorisation as a governing strategy to colonise individual and population bodies but differently. Conventional population statistics typically involve sociodemographic categories and then collecting data through usually self-elicited accounts that use various methods to fit people into them. While this logic persists, the repurposing of big data involves analytics that identify categories and classifications of populations rather than imposing them in advance. Categories on mobility or economic health are generated as a consequence of analytics such as machine learning that do not identify associations between a limited set of existing variables, but explore multi-dimensional patterns amongst 'hundreds and in some cases tens of thousands of variables and sample sizes of millions or billions data' (Mackenzie 2015, 434). Differences are not understood as 'variables' as in classical statistics, but derived from combinations of attributes or 'features' from myriad 'forms of data (text, images, video, transactions, sensors), not just the variables measured using classical statistical tabulations of surveys, polls or random sampling' (Mackenzie 2015, 433). For these reasons, Mackenzie argues these analytics involve a different mode of knowing differences through classification, which involves 'the generalization of prediction'. That is, while predictive modelling is not new and indeed part of all regimes of power/knowledge, the innovation is its expansion to incorporate not only large volumes of data but a wide range of features or attributes (e.g., transactional data, social media posts, weather readings) within a generalised space to find 'useful approximations' (Mackenzie 2015, 435). In development projects, this is expressed as the creation of 'standardized data categories into which many different types/sets of information can be fitted so that data are comparable over time and space' (Bamberger 2016, 38).

While features or variables can be diverse, a key difference from the conventional statistical production of population is the registering of multiple forms of conduct or what people do such as their movements and actions (transactions, choices, statements, interactions) where the focus of inquiry is not on the individual factors that affect conduct, but on aggregate patterns and connections: contagion, influence, association, etc. (Ruppert, Law, and Savage 2013). It is the continuous tracing of the conduct of the species-body that analytics of mobility, sentiment or transactions are based. The species-body is thus a performing body that is not stable but always becoming. For example, in the Senegal project, an algorithm grouped individuals within different livelihood zones according to their movement trajectories throughout a year to reveal distinct mobility patterns and groupings (Bamberger 2016, 1).

The species-body is visualised. The species-body is not only multiple and enacted. It is also visualised. As Edward Tufte (1983) famously insisted, visualisation can be a technique 'for

reasoning about statistical information' (9) that 'reveals data' and can be more 'precise than conventional statistical computations' (13). Now with millions of data points, visualisation has become a key technique of making data visible and forms 'part of the toolkit that data miners and data scientists employ to navigate, transform or otherwise explore data' (Mackenzie 2015, 437).

Visualisations can identify patterns previously unseen and include interactive elements and dashboards that enable seeing the effects of combining different data on features of a population (Bamberger 2016). In the Senegal project, data on monthly rainfall for each livelihood zone could be incorporated at 'different geographical and temporal resolutions using remote sensing data from NASA' to visualise the impact on population movements (Global Pulse 2015, 2). Beyond representation, visualisation is thus also an analytic that makes it possible to detect and observe the species-body. Unlike the maps documented by Anderson, visualisation reveals populations as patterns, trends and tendencies immanent in the species-body as a changing being.

The species-body is alive. Combined together, the multiplicity, performativity, agency and subversive effects of data render it uncontrollable by a central authority yet manageable because of the possibilities of detecting the species-body and then calibrating the conduct of the individual body. It is this last aspect of data that best signifies what we mean by 'data's empire'. Rather than the periodic 'stocktaking' of conventional statistics, populations are living bodies that have pulses, flows, and patterns. In turn, data serves a dual function: for identifying attributes or features (e.g., sentiments about the economy) but then monitoring and evaluating those features over time (e.g., daily changes in sentiments about the economy) and then intervening through specific governing projects. The former engages data in much the same way as classical data regimes: populations as entities to be measured. However, the latter is what big data makes possible: the potential to monitor and evaluate the performance of the species-body on a more continuous basis. It is a logic captured in four stages of data analytics: descriptive and exploratory analysis (what is happening, often in real-time); doing predictive analytics ('what is likely to happen'); detection ('tracking who is likely to succeed and who will fail'); and evaluation and data diagnostics ('how to improve programme performance') (Bamberger 2016, 60-61). What these four stages capture is how data performs the relation between sovereign, disciplinary and regulatory logics. In the Senegal project, rather than evaluating using historic survey data, real-time information of trends and changes in mobility provide 'early warning of emerging vulnerabilities' thereby enabling rapid response (Bamberger 2016, 1). Response then is at the project level and involves humanitarian interventions to address shocks to livelihoods, for example. In other cases, it can involve targeting conducts (mobility, violence, education) to discipline and regulate individual bodies. Furthermore, the relation between stages is understood as cyclical and involves complex relations and 'feedback loops' between monitoring, evaluation and interventions. In relation to prediction, Mackenzie (2015) notes that big data analytic models are based on the assumption that relatively stable classifications exist. Yet, the performativity of prediction means that these are mutable and thus models must frequently be changed to maintain their predictive power (Mackenzie 2015, 442). For these reasons, the species-body is not measured

but calibrated where governing programmes and projects need to be 'smart, agile and adaptive' (Bamberger 2016).

Decolonising data's empire

When placed within both longer and shorter series of developments in biopolitics and its allied technologies (statistics, demography, census), more recent developments in predictive analytics, algorithms, machine learning and the like begin to appear in a different light. The latter are not recent or simply technical developments but belong to a series of long- and short-duration transformations since the end of the eighteenth century that inaugurate, supplant, and supplement ways and logics of governing peoples. It is important to place these ways and logics into historical series to understand what is enduring and what is changing. If indeed modern logics of governing the Euro-American metropoles were implicated in governing colonial populations in ways that we have yet to understand, how is the species-body performed today by a combination of technologies of big data, large data, and small data? If the species-body is now reassembled, multiple, performed, visualised, and alive in ways that were inconceivable a generation ago how does this inaugurate new logics of governing peoples? How does it reconfigure metropole-colony and metropole-postcolony relations? And in turn, with what governing effects?

Like the 'failed' British imperial census, the will to know the species-body of the world by organisations such as the United Nations and its regional commissions experience resistance through the uneven interpretation and implementation of standards, and varying practices and data production regimes in both the metropole and the postcolony. In part this is a consequence of practices being caught within national approaches and contexts and their variable capacities and investments. What does this mean for the regulatory logic of biopolitics and with what subversive effects for how people are categorised and how populations are constituted as objects of governing? We articulated this question through a discussion of some contemporary practices of international organisations and how they are mobilising big data to address limitations in past efforts to produce data about and to know postcolonial populations. We argue that the continuity between these efforts and quests to do an imperial census of the British Empire becomes more prominent and apparent in postcolonial states that have been drawn into the orbit of 'development' discourses with the increasing involvement of technology companies that both spur and produce data needs for government. Unlike conventional empires, however, which are still in operation through various practices, data's empire functions through assemblages of actors, arrangements, technologies, and logics that are transversal: neither their practices nor objects of government are confined or limited a given territory and its security. That the species-body is multiple, performed, visualised, and alive means it has acquired qualities that, unlike conventional vital statistics, measure vital signs of populations, as the increasing use of the terms 'pulse' and 'sense' indicate.

We are not yet ready to name and add these mechanisms as a fourth regime to Foucault's trilogy – sovereignty, discipline, and regulation. We suggest these mechanisms indicate an emergent logic of how population knowledge about the species-body is being enacted. While these mechanisms have been variously identified by other researchers, we have sought to bring them

together in relation to identifying them as part of an emerging logic. We don't think this logic supplants or displaces sovereignty, discipline, or regulation but it is a key logic that is emerging within contemporary data regimes. For us data's empire is unlike early modern and modern Euromerican empires yet it inherits logics of government from them and institutes these new mechanisms of power and principles of knowledge.

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