Introduction: Rhythm and Vigilance

Vita Peacock

The delivery driver in his turquoise livery stops at the red light. He is fidgety, knowing he is not being paid to wait, and glances down at his smartphone to double-check the order. The app calculating his journey time says the food is expected by the customer in 18 minutes. 'Not a chance!', he thinks. His company moped travels fast, but this gusty wind along the beach is slowing him down, and he is on his way to that restaurant that always takes longer. A message on his local driver WhatsApp group pops up. It is a photograph of a newborn with the caption 'Celebrate with us!'. He cannot refuse his friend and tells the app to log him off after the order is complete. As soon as the light turns orange he pulls swiftly away, wondering whether he will still make his savings target this week.

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Two women meet after work. They have a new tradition of going for cocktails once a month, catching up on each other's urban lives. It is dark outside, but warmly lit within as they sip their technicolour drinks. Mid-sip, an alert appears on one of the women's phone. 'Report of Armed Robbery', it reads, beside a glowing yellow square on a black map of streets just a few hundred yards away. 'Not another one!', she jokes. Beneath the levity, though, a familiar worry settles in her chest about the safety of the neighbourhood she has moved to. Once the drinks are finished, she breezily bids goodbye to her friend, but takes a circuitous route home, stopping in a bookstore open late where she pretends to browse. Her phone trembles in her pocket. Another alert has appeared saying the report turned out to be

unfounded. She exits the store briskly, chiding herself for her skittishness, and resolves to delete the app altogether.

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A map of a sea voyage arrives on Signal. The team, spread across the town in coffee shops, libraries, and home offices, receive it simultaneously on their laptops. It is from a civil search-and-rescue vessel crossing the Mediterranean to evacuate boats in distress. This is their cue. They apply their software to scan the satellite images, to see if there are any boats on the route. After an hour, it finds a match. They all peer closely at their screens, separately, but together. Is that mark on the map a refugee boat or something else? The Signal messages stream. They return to check the satellite images, but that part of the sea is obscured by clouds. They may have to wait a whole day for a clearer sky. One of them sends a message back to the ship's crew informing them. Although the team is thousands of miles away, they feel bound to that mark on the screen by a vision of hope and human survival.

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Digital monitoring technologies are establishing new configurations of space, time, and movement. Global positioning systems, sensors, QR codes, image recognition, automated alarms and alerts, and platformed reporting, among other forms of digitalized vigilance, are redirecting the momentum of social life wherever they are integrated into it. Each of these imagined scenarios, which point to three of the ethnographies within the book, illustrates some of the new interplays between human bodies, mechanical bodies, computation, communication, and climate that are reshaping digitally mediated worlds in different ways.[1]

The central aim of this volume is to gather some of these changes ethnographically, and through this to modulate our understanding of surveillance. The expansion of surveillance technologies across the twentieth and twenty-first centuries has often been represented by the character of Big Brother in George Orwell's *1984* (1990) – the enigmatic figurehead of a totalitarian state. In response, the term has been reworked by scholars of surveillance to emphasize different kinds of relationships. Disassembling power asymmetries into everyday technological encounters, William Staples ventures the existence of 'tiny brothers' (2014, p 2), documenting small-scale action. In her study of surveillance and capitalism, Shoshana Zuboff meanwhile invites the idea of a 'Big Other', to signal a shift away from human intention altogether (2019, p 20). Elsewhere, Pieter Wagenaar and

Kees Boersma employ the term 'Soft Sister' to describe the surveillance enacted in the name of the welfare (2008, p 193). Within this tradition, and condensing the spatio-temporal shifts documented here, we animate another reimagining of Orwell's character – Big Mother.[2]

As a category of surveillant activity, Big Mother was first used to denote the range of technologies developed to monitor children.[3] The application of GPS-tracking on mobile devices, and the use of nannycams and CCTV cameras in nurseries and playgrounds, appeared to signal a broader departure from a historic vision of surveillance as carceral and punitive, towards another as protective and nurturing. The capacity for care potentiated by surveillance had long been recognized by scholars (Lyon, 1994; Albrechtslund and Lauritsen, 2013), but it was arguably only in the wake of the intense public health surveillance surrounding the COVID-19 pandemic that this quality became more widely acknowledged. The intersection of care and control through surveillance is now a lively topic in many fields of scholarship. In this context, the image of Big Mother has been taken up by theorists to describe the feminization of care technologies (Sadowski et al, 2021; Horsley, 2023), with the aim of enrolling users in ever more surveillance. There, it stands for the deliberate simulation of a soothing maternal archetype, while in practice being something more sinister.

Here we seek to retrieve the term from purely sinister connotations, by drawing on another lineage that precedes even Big Brother himself. In 1927, Frederick Britten Austin composed a novel about the 'Big Mother' who made the earth (1970), inspired partly by James Frazer's depictions of pagan mother goddesses (Gibson, 2014).[4] The earth mother concept continued to reverberate throughout the twentieth century into the neo-pagan and eco-feminist movements of the 1970s, and then James Lovelock's now influential figure of Gaia (Lovelock, 2000; Latour, 2017) – an anthropomorphism of the earth as a self-sustaining system. The salient difference with which we seek to connect, is to consider surveillance not as the constant monitoring of activity, but as the *generator* of activity. We animate Big Mother to anthropomorphize the use of monitoring technologies to manage the rhythms of life. In this definition it is predominantly protentive, rather than retentive.[5] Rather than prosecuting or otherwise acting upon the past, it is a modality that constructs human avenues into the future. In lieu of an apparatus of constant observation, imaged by Orwell's chilling posters of Big Brother, with eyes that follow you around the room, observation in the mode of Big Mother may be episodic. Indeed, in its least invasive forms it is not people, but rhythms themselves that are being monitored. I will return to this below.

Before addressing the questions of time and rhythm at greater length, it is important to clarify two other key terms: 'surveillance' and 'vigilance'. In the field of surveillance studies, surveillance has operated as a more or

less expressly political concept, involving the use of information to coerce or control, or in more benign terms to manage or supervise (Ball, 2010; Lyon, 2022). It has also been persistently associated with technology, and with the political consequences that technologies have had, particularly from the nineteenth century onwards (Peacock et al, 2023). Vigilance, on the other hand, is a term more associated with human actors and hence with anthropology, though it shares with surveillance the same Latin root *vigilare* – to keep watch. Anthropologist Henrik Vigh has offered a summary definition of vigilance as an awareness and preparedness for negative potentialities (2011), which involves scanning the present for clues. Vigilance is a pose and a practice that has one eye perpetually upon the future, but through this is constitutive of social relations in the present (Ivasiuc et al, 2022). We do not see a pure distinction between the two terms – what surveillance scholars call human or social surveillance, anthropologists may call vigilance. Hence we incorporate both at different points in the text, to speak to these two readerships at once.

Rhythm

Our ethnographic focus is on the temporal effects of surveillance. In this we begin to correct a tilt towards spatiality at the expense of temporality in the study of surveillance, and converge with a rising wave of interest in the temporal effects of mass computing (Kitchin and Fraser, 2020; Volmar and Stine, 2021; Kitchin, 2023). As several of these scholars observe, however, time is a profoundly elusive concept. St Augustine famously declared in the fourth century that he did not know what time was, and the answer remains enigmatic. One clue to this enigma is buried inside the etymology of the word.[6] 'Time', in English, derives from the Latin *tempus*, which also means weather or season. In French and Spanish, the words for time and season are identical. Through this, time is cognate with temperament, temperature, even tempest – phenomena subject to moderate or violent change. A temporal domain, in contrast to a sacred one, is a space of growth and decay. If time at its most rudimentary equals change, then a contradiction arises. Émile Benveniste argued that the paradox of 'chronic time' – the time measured by calendars and clocks – is that it is in fact 'intemporal' (1965, p 5). Efforts to reify time, to hold it somehow steady, are antithetical to its intrinsic character. Rather than allowing the capacity for change, these efforts exist within the realm of human attempts to control.

A second problem stems from the philosophical legacy of Isaac Newton (1971). In the seventeenth century, the growing presence of mechanical clocks in England inspired a cosmological vision which continues to reverberate. Newton pictured the universe as a giant clock moved by divine hands, creating the theological architecture for his scientific theory

of absolute space, time, and motion (Snobelen, 2012). Instead of being related and substantial qualities, in the prevailing Aristotelian paradigm, Newton reimagined space and time as abstract and distinct dimensions. Newton's laws were immeasurably productive for the field of mechanics that they instigated, and the myth of his discovery remains more powerful than ever, with tourists picturing themselves holding apples in front of 'his' tree outside Trinity College, Cambridge.[7] Simultaneously however, they set a trap for generations of scholars studying the human experience, by introducing a false dichotomy between space and time that must be repeatedly transcended. Whether space-times or timescapes, synchronizing or unfolding, the temporal concepts employed in what follows assume the inextricability of this relation.

A valuable critique of the dimensionality that is still imposed on time comes from the anthropologist Don Handelman (2021). Rather than thinking of time as something that naturally flows, Handelman views time as a dynamic that is immanent to form. As he says, citing Jorge Luis Borges, 'Time is the substance I am made of. Time is a river which sweeps me along, but I am the river' (Handelman, 2021, p 314). For Handelman, human temporality is the outcome of the intrinsic time trajectories of substantial and related phenomena. In this vein, his most startling insight is to represent the time of organic life – including but not limited to human life – as intrinsically 'curving' (Handelman, 2021, p 313). The difference between inorganic and organic temporality is then not one of linearity and cycles (see Eliade, 1955), but of *volume*. It is the undulations of decay and renewal, deriving from the need for organic life to reproduce itself, which holds the capacity to create experiences that are, what he calls, 'time-full' (Handelman, 2021, p 291). Meanwhile inorganic temporalities, including but not limited to the digital tools we explore, alone endow the human experience of time with minimal volume. What then becomes critical, when examining the temporal consequences of new forms of surveillance, is their interaction. With this in mind, I turn towards the axial time concept.

In his final book, philosopher Henri Lefebvre advocated for the study of rhythm (2009 [1992]). A scholar better known for his work on space (1991), Lefebvre's short treatise *Rhythmanalysis*, asserts the indissolubility of space, time, and movement. 'Everywhere where there is interaction between a place, a time, and an expenditure of energy', he says, 'there is rhythm' (Lefebvre, 2009, p 15). In this he can be considered the anti-Newton, fusing these coordinates back into relation. For Lefebvre, the principal mediator for these relations is the body, 'living or not' (2009, p 1). This encompasses the human body, with its 'garland' of rhythms (Lefebvre, 2009, p 20), as well as the inorganic bodies human beings have produced, with their own mechanical tempos. Besides bodies, critical for rhythm is repetition: whether at exact intervals such as the thud of a metronome, or irregular repetitions

such as seasons or tides. Like Gilles Deleuze (1994), repetition for Lefebvre is never simply replication. Though repeated, every repetitive occurrence takes place in conditions of difference, and therefore possesses the potential to reshape subsequent rhythms. From an anthropological perspective, while not necessarily passive, rhythm is to some degree involuntary. 'To grasp a rhythm it is necessary to have been grasped by it', he stresses (Lefebvre, 2009, p 27).

An eccentric text, since it was first published, *Rhythmanalysis* has been considered somewhat niche; however, interest in its applications has been steadily growing across the social sciences (Edensor, 2010; Chen, 2017; Lyon, 2018; Lange, 2019; Walker, 2021). For this collection, three of Lefebvre's analytical terms become particularly salient. The first is *eurhythmia* – a harmony of rhythm that is the body in its 'healthy' state. Eurhythmia is the result of *polyrhythmia* – the multiplicity and diversity of rhythms – which exist within bodies as well as outside of them. Lastly, the antithesis of eurhythmia is *arrhythmia* – the disruption of rhythm – that at worst can yield a 'fatal de-synchronisation' (Lefebvre, 2009, p 68).

Lefebvre takes a trenchant view of technology, for whom it is better at nurturing ideology than everyday life, that is not necessarily shared here. However, if there were a moral-cum-political conclusion that could arise from this collection, it would be to consider the perennial potential for arrhythmia that arises through the increasing incorporation of temporalities that are, as Axel Volmar and Kyle Stine say, 'hardwired' (2021). In the 2020s, the inhabitants of digitally mediated worlds live in the slipstream of several decades of computational rewiring, infrastructuring an acceleration with the capacity to significantly alter temporal environments. This has created, in their view, a yawning discrepancy between the time that is 'lived' by human beings (Volmar and Stine, 2021, p 10) (what Handelman would call 'time-full'), and the times of these technologies. Ethnographically, however, these can only be understood together. The question for us is, rather – what is gained and what is lost, in structural shifts from mother earth to Big Mother? The chapters open this conversation, by collecting a range of human appropriation and response to the use of digital monitoring to manage the rhythms of life.

Before moving on, it is worth earmarking the work of another scholar influenced by the earlier writings of Lefebvre.[8] In 1967, the historian E.P. Thompson published his celebrated essay on temporal changes in the monitoring of work in the wake of the industrial revolution. Transforming pre-industrial entanglements with organic and ecological rhythms, into new spatio-temporal regimes governed by small and large mechanical clocks, Thompson established an ongoing discussion about monitoring, time, and social control, which he theorizes with the language of 'discipline' (Thompson, 1967).[9] Although the essay contains notes of a developmental teleology that is belied by the optics here, it remains an important early

contribution to understanding the intersection between surveillance and time.[10] Just ten years later, however, another idea of discipline was conceived, that would shape the study of surveillance for the next quarter-century.

Space and time in surveillance studies

At its moment of inception, surveillance studies was anchored by a spatial image. The panopticon – or more accurately panopticons – were a series of architectural designs produced in the nineteenth-century by English social reformer Jeremy Bentham. The designs proposed building asymmetries of visibility into the spatial configurations of institutions, in order to create behavioural conformity among their occupants, by way of uncertainty about whether they were being surveilled or not. It was in the second significant life of these designs, however, as they were taken up in the work of Michel Foucault (2019), that they exerted their most significant effects on scholarship. This was propelled partly by Foucault's own suggestion that the panopticon be viewed, not simply as an architectural plan, but as a model for a whole imaginary of modern power. While analyses of temporality were present in his work (Lilja, 2018; Portschy, 2020), his move to centre the panopticon prioritized the disciplining effects of space, rather than the transformations in time that had been foregrounded by Thompson. Many of the field's first major works were oriented, implicitly or explicitly, around this image (Gandy, 1993; Lyon, 1994; Mathiesen, 1997).[11] The panopticon travelled particularly well in the context of proliferating CCTV programmes (Norris and Armstrong, 1999). The installation of cameras in public areas from the 1980s onwards rehearsed and remediated these asymmetries, in ways that were consistent with Foucault's proposal.

This characteristic spatiality in the study of surveillance reached an apotheosis around the turn of the millennium. In 2001, the landmark exhibition *Ctrl+Space* went on display in Karlsruhe, Germany, its catalogue published the following year (Levin et al, 2002). A double entendre on the rising control being exerted on certain forms of space, and the role of computing in enabling it, many of its artworks and essays critically examined the effects of camera surveillance on public spatial imaginaries. Because of the indissolubility of space and time, however, they frequently found their way towards attendant shifts in temporality.

Beatriz Colomina's case study in the catalogue is particularly instructive (Colomina, 2002). Colomina describes and theorises the installation 'Glimpses of the USA', at the American National Exhibition in Moscow in 1959. Conceived by art partnership Charles and Ray Eames, the installation consisted of seven 20 ft × 30 ft screens, each showing separate scenes of everyday life in America to their Russian audiences. A reimagination and reversal of the optics of the military control room, the exhibition was among the first

to fragment and multiply spatial perspectives through the use of audiovisual reels. While this kind of multiscreen vision has now become commonplace, as users of today's computers and smartphones navigate seamlessly between different windows, in the 1950s this was a radical departure. Yet while it visually fragmented space, it simultaneously fragmented time, as viewers were shown different temporalities as well as different spatialities at once. What then became paramount was flow. As she says, 'Perhaps we can no longer talk about "space", but rather about "structure", or more precisely, about time. Structure for the Eames' is organisation in time' (Colomina, 2002, p 335). The couple were meticulous about the timing of each performance. Each 45-minute showing was minutely choreographed to appear effortless and noise-free. In other words, what came to matter most when space and time were multiplied and pulled apart, was their spatio-temporal reassembly in the bodies of the audience: in Lefebvre's terms, rhythm.

An important exception to this spatial tilt, arrived with William Bogard's *The Simulation of Surveillance* (1996). Bogard argued that even by the 1990s, the historic modality of surveillance was already being superseded. Simulation – in which he includes profiling, gaming, cybernetics, and other kinds of monitoring that rely on modelling – was becoming hegemonic. He argues that where surveillance still maintains a relationship to the real, namely the subject of surveillance, simulation ultimately unhooked itself from subjects, in the final analysis maintaining a relationship only to itself as an imaginary of total control. Bogard sees the difference between surveillance and simulation as temporal. 'Simulation is about the imagination of the "future past", about protecting a future as something already over, ultimately about mastery over time' (Bogard, 1996, p 34). Surveillance in its Foucauldian form was a matter of monitoring the unfolding of life as precondition to political intervention. By contrast, simulation was, 'Full front-end flow control ... simulation instead guarantees to surveillance apparatuses certain flows in advance … hyper scanned envelopes that wrap around the observer and generate all possible flows' (Bogard, 1996, p 44). Political intervention then becomes a matter of creating certain kinds of flows, while cutting off the potential for others.

Bogard's argument presages the growing role of surveillance as a protentive practice, one that anticipates what is coming next. Many of the forms of digital monitoring explored in this book are artefacts of simulation. We might then ask, does the programmed future, as one which is 'already over', serve to evacuate the time-fullness of those engaging with those forms of digital monitoring? Is it, as Genosko and Thompson argue (2006), that in contracting the temporal horizon they separate their users from understanding, and proliferate fragmented lives? There is certainly ethnographic evidence to support this. As one user of the American live crime app Citizen says, 'I will not go live [to enter a real-time engagement

with the app] I want to *live*' (Alice McAlpine-Riddell, Chapter 5, this volume). Living – being in time – and going live – living in the simulated present – are conceived as conflicting. The only way to live is to switch off. This being said, most of the ethnographic subjects take less absolute positions. Either for their convenience, or because they are involuntary mediators of citizenship or labour, many of the engagements documented are framed by what Astrid Meyer, Stinne Aaløkke Ballegaard, and Anders Albrechtslund, following Annemarie Mol, describe as 'tinkering' (Chapter 3, this volume). They consist of human endeavours to make the time trajectories of the technologies work with and towards the rhythms of organic life – to minimize the potential for arrhythmia. I will now identify some of the shared temporalities that are attending the growth of digital monitoring: the extended present, the remembered past, and interruption, before returning to renewal and the role of vigilance over rhythm.

The present

It has been observed by ethnographers and other social scientists, that new monitoring technologies perpetuate a logic of the present. This has been called a 'hyper now' (Barassi, 2020, p 1548), an 'infinite present' (Zuboff, 2019, p 337), or an 'extended present' (Bergroth, 2019, p 199). Yet assessing what the present consists of ethnographically is far from straightforward. For some theorists it is a space of liberation. Exploring the coordinated destruction of clocks in the 1830 July Revolution in Paris, Walter Benjamin introduced the concept of the now-time (*Jetztzeit*) as a moment of revolutionary possibility (1973). Similarly, New Age thinkers consider 'the now' as a time of pure freedom, the ultimate realization of self (Tolle, 2001). On the other hand, those influenced by Karl Marx, particularly Jean Baudrillard, are often critical of concepts of the present, which can be conceived as the ultimate achievement of capitalist time-space compression (Harvey, 1990). In this tradition, Lefebvre considers the present to be entirely distinct from, and moreover antagonistic to, the actual unfolding of 'presence' (2009, p 47). While 'the present simulates presence and introduces simulation (the simulacrum) into social practice … presence is *here* (and not up there or over there). With presence there is dialogue, the use of time, speech and action' (Lefebvre, 2009, p 47). In other words, while presence is embedded in rhythm, the present imitates this while remaining outside of it.

It is significant to note that the present is a living temporal discourse in Silicon Valley, where many of these technologies are developed. Deep inside a mountain in Texas, a timepiece is currently being constructed called 'The Clock of the Long Now', partly with financial backing from Amazon founder Jeff Bezos. The Clock is several hundred feet tall and designed to measure time accurately for at least ten thousand years, during which it will

be powered by solar energy, as well as the movement of those it is intended to attract as a site of pilgrimage. In the vision of those building it, the Long Now is a 20,000-year span of technical evolution beginning with the invention of agriculture and ending with the digital revolution. By contrast, the Now is just three days long: yesterday, today, and tomorrow. At least symbolically, the Clock is continuous with Thompson's examples of the use of clocks as control technologies – the mastery of Time over time – that serves to reinforce and reproduce existing economic asymmetries. In his analysis of the project, Sun-ha Hong argues that through the Clock and its associated ideological schemes, 'We are confronted with the closure of possible worlds and temporalities to the one and only kind of progress' (Hong, 2022, p 374), namely, that of Silicon Valley companies themselves. In its materialization of one kind of temporal imaginary, the Clock of the Long Now is particularly useful at shedding light on the narrow and immobile temporal horizon that many of these technologies call forth. The question for us is – how is this horizon being experienced and negotiated by those using them?

A particularly distributed new form of sociotechnical rhythm is explored by Kalle Kusk (Chapter 4) – platform-mediated food delivery. Platforms such as Deliveroo, Uber Eats, or Bolt operate upon a logic of near-instantaneity, using GPS-monitoring apps installed on employees' smartphones to calculate exact delivery times from the point of order. What Kusk outlines, however, is a general misfit between space-time as simulated by the app – the product of GPS coordinates and algorithmic calculations – and time as experienced by riders themselves. Restaurants may be slow to make the food, there may be traffic or even road closures due to sporting events, all of which must be spontaneously navigated by the riders, who are not paid for their time but on completion of delivery. The result is, Kusk argues, another kind of work that makes this work possible – 'time work' (Flaherty et al, 2020). Time work means not only finding ways of adapting to or outsmarting the app, by cultivating relationships with restaurant workers, or finding ways to entertain themselves while waiting; but also, when necessary, subordinating work to other events in their lives. One pleasant effect reported by some, of the immediacy of employment instigated by logging on, was that they did not need to give notice for absences. Although without the security of an imagined linear future, this kind of time work may hold greater capacity to make space for human life cycle events. One evening in Malta, a number of drivers spontaneously log off their apps to go to a campsite and celebrate the birth of a new son.

Andreas Stoiber and Alice McAlpine-Riddell (Chapters 5 and 6) further complexify the actual temporal dynamics of present-oriented technologies, in different contexts of real-time mapping. Stoiber describes the endeavours of the German non-governmental organization (NGO) Space-Eye, to use satellite imaging of the Mediterranean to support civil sea-rescue missions.

Like Kusk, Stoiber emphasizes the new forms of work that arise in conditions of purported immediacy. The challenge Space-Eye employees face is to synchronize multiple temporal rhythms – which in this case means neural network modelling, satellites and drones, and the organizational temporalities of humanitarian work beyond the state – to locate and assist refugee boats. Stoiber reinforces theories of acceleration (Sharma, 2013), by showing how the politics of speed often structures real-time monitoring in conditions of unequal resourcing. In a different setting, McAlpine-Riddell demonstrates the chimerical quality of the real time among users of the American live crime app Citizen. Citizen combines police information with user reporting to map events potentially harmful to public safety such as fires, shootings, accidents, or even protests. In an illustrative case of simulation as a time out of time, McAlpine-Riddell notes the asynchronous way in which news is transmitted, as she and her interlocutors receive updates at different times, and posts sometimes remain on the map for a month after their occurrence. Faced with repeated disjunctures between real time and the lived space-times of their neighbourhoods, many users simply switch off.

An orientation towards the present can also mean inhabiting a temporality of radical uncertainty. In Chapter 9, Matan Shapiro explores the world of Non-Fungible Token (NFT) collectors in London, and their efforts to identify and exclude dishonest actors. NFTs are based on blockchain technology: the creation of distributed ledgers that produce a total transparency of financial transactions, to obviate monitoring by third parties. The paradox Shapiro uncovers, however, is that when a form of monitoring becomes digitized, in this case the historic monitoring conducted by financial institutions, it may itself necessitate the creation of new forms of vigilance, both in-person and digitally mediated. In this unfolding temporal domain, in which one is never certain whether one is corresponding with an honest actor or a 'scammer', the spaces of exchange where NFT communities gather assumes a heightened importance. These can be online forums such as Reddit threads or Discord channels, where collectors post experience and advice, or simply a shared table in a London pub where members attend to unusual behaviour. Shapiro characterizes this temporality as one of play, in which end results and symbolic meanings are unknown. 'Playtime' is time without the stability of repetition. In Lefebvre's terms, it is thus in some sense outside of, or most likely before, new settlements of social rhythm.

The remembered past

Scholars have shown how the history of monitoring in a given region can influence how new forms of monitoring are received (Samatas, 2005; Frois, 2013; Boersma et al, 2014). How do located memories exert a temporal 'force' (Handelman, 2021, p 306) of the past upon the present, in ways that

condition temporalities of citizens or (would-be) users? My ethnography of privacy and data protection advocates in Germany demonstrates the persistent spectre of fascism in framing their political concerns. These mobilizations have, since the 1970s, been critical of making human beings 'machine-readable' – legible to the mechanisms of computing – criticism which involves, directly or indirectly, the role of registration and computing in the Holocaust. Analytically, the chapter traces another historical spectre behind this one, that of the registration systems that attended the making of the modern world. From the eighteenth century onwards, registration of enslaved persons and labourers entailed a 'double fix' – the fixing of identity along biological lines, which accompanied the fixing of labour to land. Through this I introduce a conception of these historic modalities of surveillance (that, is before the Bogardian shift) as 'fixing'. Like other intemporal technologies, colonial and post-colonial registration systems, right up to the mid-twentieth century, operated through reifications that were antagonistic to change. In response, today's German privacy advocates offer a way of thinking about privacy in relation to digital monitoring as 'unfolding' (*Entfaltung*). A word which possesses organic meanings, this discourse and imagery relocates human beings within the natural world of which they are a part (Marx, 1995).

Karolina Kupinska (Chapter 7) demonstrates the indelible mark left by the severe acute respiratory syndrome (SARS) 2003 epidemic in mainland China, which significantly accelerated the response to the first wave of COVID-19. By May 2020, schools were reopening through the use of 'Health Codes' – individual QR codes on users' digital devices that categorized their relative health risk. The health code, as one that delimited a person's movement, produced its own temporalities in numerous ways, such as the clock-based 24/48/72 status, indicating the number of hours since the user's last polymerase chain reaction (PCR) test. Unlike most of the other forms of digital monitoring in this volume, health codes in China were involuntary. Just as the memory of SARS expedited the speed of their introduction, the direct equation between digital monitoring and the Chinese state subsequently introduced a dramatic sear in the temporal fabric two years later. In December 2022, the health code era abruptly ended with the end of the zero-COVID policy. The effect of this centralized rupture, as Kupinska records it, was to open up the temporal horizon for Chinese citizens into spaces of spontaneous navigation.

Interruption

Many of the digital monitoring technologies explored are described by their own creators as disruptive. Meta's chief executive officer Mark Zuckerberg famously declared that the company's early mantra was to 'move fast and

break things'. But what precisely was being broken? Martin Holbraad, Bruce Kapferer, and Julia Sauma (2019) argue that the concept of rupture to which disruption is cognate, is an artefact of linear temporality that is specifically Christian. We might think of rupture as linear time's modality of renewal, and thus a subcategory of broader cosmologically specific rhythms that can take different expressions (Kublitz, 2019). 'Ruptures are moments at which value emerges through a break with something', they argue (Holbraad et al, 2019, p 1). In the context of Silicon Valley, this hegemonic value is expressly economic, and arises through breaking apart existing forms of time-fullness to make space for technological need. Lake Polan's ethnography of corporate privacy engineers in San Francisco offers an insight into this dynamic. In a recurring cycle of solicitation, seduction, and betrayal, Polan shows how the makers of these technologies seek self-consciously to get close to users in their initial stages. There is an endeavour by the makers to align 'their respective temporal rhythms', forcing entrepreneurs to feel users' feelings as their own. Whereas in Stoiber's Chapter 6 these efforts towards eurhythmia are framed by the goal of rescuing refugee boats, here rhythm is captured with the ultimate aim of being transformed into shareholder value.

If disruption may be considered not just Meta's temporality, but a meta-temporality of these technology companies, interruption would be its microsocial iteration. The programming of alerts, alarms, and notifications makes microbreaks in the temporalities of users. Sometimes these may be necessary, prompting human beings absorbed in other tasks to respond to physical threat, crisis, or ill health. Citizen app is a tool, nominally to allow Americans to cope with rising violence and other physical dangers in the American public sphere, by placing 'panic buttons' at their fingertips. Similarly in Meyer, Ballegaard and Albrechtslund's Chapter 3, GPS-trackers, motion sensors, and door alarms are integrated into tablet alert systems in Danish nursing homes, to protect the bodies of elderly dementia patients. However – a phenomenon widespread in alert media – the ubiquity of false alarms can desensitize users, and in these settings a 'timely response' may mean ignoring the alarm altogether. In Chapter 1, Mikkel Kenni Bruun illustrates that while often mediated by new forms of self-monitoring, the temporality of interruption need not purely be digital. Ideas of 'checking in' with oneself appear across health-oriented practices in Britain and beyond, where bodies and minds are constituted as objects of continuous self-monitoring and self-reflection. This strikes a pronounced contrast with other kinds of healing practices that are characterized by ritual absorption.

Watching over rhythm

While the spread of digital monitoring has generated new rhythms, and reconfigured those that already exist, human efforts to resocialize these

landscapes constitute a form of vigilance *over* rhythm. Rob Kitchin and Alistair Fraser's invitation to slow down computing (2020) is a particularly apt example. Faced with the acceleration of time infrastructured by increasing computational speed, the human experience of time, they argue, echoing scholars above, becomes fragmented and compressed. Drawing on an article which references the slow-living movement from the 1980s onwards (Schneider, 2015), Kitchin and Fraser assemble an array of individual and collective moves that decelerate relationships with digital technology in various ways. Although their abiding metaphor is for slowness as an alternative to acceleration, it is significantly one that recognizes the importance of switching speeds. Echoing Lefebvre's reference to music, there is not only one tempo, they remind us. 'What we are advocating for is a new way of moving', they offer (2020, p 16). There have been a number of prominent efforts to this end. The French 'right to disconnect' policy allows employees to negotiate times in which they are offline, reintroducing modulation into working life. Elsewhere, the microblogging platform Mastodon eschews asynchronous newsfeeds in favour of a chronological timeline. In other words, achieving eurhythmia, a harmony of rhythm, itself requires vigilance.

In Chapter 2, Claire Elisabeth Dungey's ethnography of GPS-monitoring among families in Germany shows how this form of vigilance may be gendered. Mothers in Munich use location-monitoring apps like Life360, Find My iPhone, or Google Family Link to manage the labour of multiple forms of vigilance by watching over rhythms instead. While a dot moving along a simulated map when a child is expected to be walking home from school denotes normality, a dot that stays still for too long in one place may be considered a warning sign and prompt a phone call. Alongside their children's rhythms of travelling to and from school, they may watch over rhythms of media use, or set alerts for themselves to do domestic tasks. In these busy family lives, the smartphone becomes a central tool in the management of polyrhythmia. It is a place where schedules, school timetables, after-school activities, and even their husbands' routines can be brought into relation – and consequently supervision. Dungey also demonstrates how children in these environments are learning to use digital devices the same way. One young girl tracks her exercise routines, her piano playing, and even brushing her teeth, using a 'routine app' to establish and monitor patterns of self-care and self-cultivation.

As Handelman (2021) observes, one of the major differences between organic and inorganic life is that the former must reproduce itself to persist through time. It should not be surprising that one of the most popular and fast-growing sectors of digital monitoring in Europe and the US is FemTech: technology tailored to women's health, of which the highest usage is oriented around reproduction and contraception (Statista, 2024).

New datafications of the so-called Rhythm Method, resituate the cycles that sustain human life across generations within new political economies. Although now taking digital form, FemTech extends the deep history of calendars and other devices to watch over patterned occurrences – whether of seasons, floods, harvests, and so on – that sustain or harm conditions for human life (Peters, 2015). A point of continuity between old and new lies in its visuality. Watching over rhythm requires an image – whether in the mind, on the screen, on paper, or on the walls of a cave – of what that rhythm often looks like. As Bruun's ethnography with fitness and mindfulness practitioners in Britain demonstrates, watching over the vital rhythms of the self entails ideas about what that self consists of, which vary across place and time. Forms of normitivization, such as inherited assumptions about the 28-day menstrual cycle (Clancy, 2023), can also arise when rhythm becomes reified.

In summary, this volume illustrates some of the changes that digital monitoring is ushering into everyday lives, without considering the everyday as a special kind of domain. Rhythmic shifts across multiple materialities and scales, into new polyrhythms of inordinate complexity, emerge as the current time trajectories of the historical encounter between human beings and their creations. Big Mother is not necessarily watching you, but she may be shaping the conditions within which your life unfolds.

Summary of the book

The intersection between surveillance and time is addressed in all of the following chapters. What the substantive chapters likewise share is the use of ethnographic methods – deep and often extensive engagements with human beings – mostly drawing on the field of anthropology but also sibling social sciences. In some chapters, the optic of rhythm comes directly to the fore. In others, it is a background note against which other time concepts are placed. The book is organized into three parts: Care and Wellbeing; Real-Time Monitoring; and Systems Past, Present, and Future; and succeeded by an Afterword. Each of these themes ricochets across the book but is particularly concentrated in the chapters within the relevant part.

Part I, 'Care and Wellbeing' opens with Mikkel Kenni Bruun's study of fitness and mental health advocates in the UK. Bruun shows the increasing importance that monitoring has in the pursuit of physical and mental health, in which, through Fitbits and other devices, basic biological functions and even thought patterns become the object of observation. He historicizes this as the contemporary descendant of ocularcentric logics of medicine and psychology that have become hitched to new forms of self-surveillance and embodied vigilance. Next, Claire Elisabeth Dungey discusses the use of geolocation tools by parents in Munich, Germany, to monitor the movements of their

children. Dungey documents the range of attitudes towards these technologies among different family members and emphasizes maternal use. Here Big Mothers, vigilant over temporal patterns, take concrete form. Astrid Meyer, Stinne Aaløkke Ballegaard, and Anders Albrechtslund conclude the section with a study of the gamut of digital monitoring tools being used in nursing homes in Norway and Denmark. They argue that through them, the lives of dementia patients are subsumed within simulated fantasies of total safety, and subsequently, to hopes for optimized futures in Scandinavian welfare systems.

Part II, 'Real-Time Monitoring', starts with Kalle Kusk's ethnography of food delivery workers in Denmark and Malta. Kusk demonstrates the extent to which real-time monitoring is foundational to how new forms of work are being organized. As workers wrestle with algorithms to manage the flow of deliveries, Kusk offers that time itself becomes an object of work that can be managed more or less effectively. Next, Alice McAlpine-Riddell explores real-time monitoring in the use of Citizen by residents of New York City. She takes a trenchant view of what the app in practice delivers. For McAlpine-Riddell, Citizen engenders the hyperreal, replacing space-times with a fractured virtuality that can disrupt and disturb more salubrious rhythms. Then, Andreas Stoiber introduces us to the world of automated satellite surveillance by German NGOs, who seek to support search and rescue missions in the Mediterranean. Stoiber shows the sheer scale and complexity of organic and inorganic temporalities that must be coordinated to make monitoring work. Lastly, Karolina Kupinska documents the use of health codes in Xiamen, China, by middle-class residents during the COVID-19 pandemic. She explores the temporal ruptures instituted by interlocking grids of surveillance in four dramaturgical acts, all while being routinized into everyday living. In China, health monitoring becomes a 'group responsibility' that binds families and strangers together.

In the final part – 'Systems Past, Present, and Future' – and the Afterword, the book drills deeper into some of the structural forces that are inviting new intersections between surveillance and time. In my ethnography with a range of privacy advocacy groups in Germany, I show how privacy is conceived not as something proprietorial, but as a space of indeterminacy, in which what is at stake is the very capacity to grow and change. Matan Shapiro then chronicles meet-ups of NFT traders in London. Shapiro argues that the absence of centralized oversight creates a new labour of hypervigilance in environments saturated with suspicion. Finally, Lake Polan offers context for why anticipation itself has become a site of conflict. Through his work inside Silicon Valley start-ups, he demonstrates the claims upon the future that are intrinsic to their growth trajectories, in which consumers are perpetually betrayed by the infrastructuring of surveillance to the modern internet. Sun-ha Hong closes the volume with a synthetic discussion of the drive for efficiency, one that has sought to make human beings more like

the machines they wield. When motivated by capital accumulation, the imposition of linear rhythm can become a form of violence that bends and breaks bodies into contorted shapes. The paradox that Hong presents is that ever more intensive rationalization does not produce greater predictability, but greater volatility. The capacity to reclaim rhythm – to anticipate and to socialize what comes next – thus ultimately emerges as a political task. In the context of growing digital monitoring globally, it is those commanding these tools – whether workers or citizens, consumers, companies, or nation states – who may be more likely to determine the rhythms to come.

The chapters collect ethnography carried out within the current geographic category of the Global North. We should at this point emphasize that this is not to assert that monitoring in the mode of Big Mother is not taking place all across the Global South, and we welcome the development of the argument in these regions. This being said, it is equally important not to project a false evenness onto the production and consumption of digital technologies. Digital divides continue to matter very much, both within the North, but particularly in enduring historically constituted differences between North and South, as remote or less industrialized areas, with only partial access to electricity or the internet, are less likely to be venues for protentive digital monitoring. On the other hand, in the places where digital infrastructures *are* deeply embedded, the studies in this volume offer but a small snapshot of large-scale transformations. Whether these will be the space-times of the future depends, as ever, on the human beings around them.

Notes

[1] Kalle Kusk, Alice McAlpine-Riddell, and Andreas Stoiber advised on the plausibility of these scenarios.

[2] The Big Mother concept was further developed in conversation with the co-editors.

[3] Rouse (2011), Mance (2013), Hanlon (2016). A number of references have also been made by the Big Brother reality television franchise, which bear a direct relation to motherhood. In 2005, the Greek Big Brother series introduced a new format in which contestants appeared with their mothers. An expanded definition of Big Mother has recently been offered by DevX (2023).

[4] This lineage can be extended further back into Johann Bachofen's study of goddess worship (2005), which exerted an influence on Frazer.

[5] See Hui (2021) for a further elaboration of protention and its relation to digital media.

[6] For further detail see Peters (2015, p 244).

[7] The apple tree that stands outside Trinity College, was grafted from a descendant of the tree at his Lincolnshire manor that reportedly inspired Newton to develop his theory of gravity. The original was, elliptically illustrating some of the theoretical statements around change advanced here, blown down by a gale in the nineteenth century.

[8] Thompson cites Lefebvre's *Critique of Everyday Life* (1958), with reference to the difference between cyclical and linear time.

[9] The word 'rhythm' appears at a number of points throughout Thompson's essay, usually to refer to the temporalities distinct from the world of clocks. Indeed, the transition from task-orientation to clock-time that Thompson maps can also be comprehended through

the prism of rhythm. Indeed, from the perspective of labourers themselves, what was at stake was less a categorical transformation – tasks remained enduringly significant – but rather a new rhythm of work in which the mechanical tempos of clocks assumed a more prominent role.

[10] At one point Thompson displays some of his historical biases, expressing confusion that, 'The mother of young children has an imperfect sense of time and attends to other human tides. She has not yet altogether moved out of the conventions of "pre-industrial" society' (1967, p 79). Seeing the time that envelops the earliest forms of human life as 'imperfect' misconstrues one of the most developmentally significant stages of the human life cycle.

[11] For a classic critique of the panoptic model, see Haggerty (2006). Haggerty describes a number of theoretical limitations that have been imposed on the study of surveillance through the panoptic imaginary. Its temporal dimensions can be added to his list; although see Birnhack (2023) for a recent turn in surveillance studies.

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