Circadian Justice

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This article gives an empirically-grounded analysis of the normative problems arising in connection with sleep. It takes as its point of departure three tendencies visible to varying degrees in present-day societies: the shortening *of sleep, its* irregularisation*, and its* desynchronisation*. The article observes their capacity to generate injustice, identifying in particular how they produce social and political inequalities. Minorities arise characterised by their disadvantage on one or both counts. As the article further argues, adequately responding to these inequalities demands a wide-ranging approach, based on recognising the extent to which modern life is structured around sleep norms many no longer live by. Given the difficulty and undesirability of restoring the practices that underpin those norms, the challenge is develop societies that no longer presuppose them.[1]*

As something personal, universal and increasingly fraught, sleep is a favoured topic of popular science and lifestyle advice. How to sleep well, and how to cope with a 'sleep deprivation crisis', is the stuff of many a column and manual.[2] In the social sciences, this interest in sleep is paired with a growing body of research highlighting how it often escapes the individual's control. For all the focus on personal choices and good advice, much about sleep reflects wider structural factors and patterns of change – the sleeper is socially conditioned.[3] Yet despite the attention of social observers of various kinds, much less has been written about the normative and political questions arising.

As this article argues, when sleep is widely lacking or disrupted, and especially when such problems are unevenly spread, problems of justice are likely to arise. In particular, a variety of harmful, undeserved, and avoidable forms of inequality can be expected, as some people find themselves living at odds with the demands of their body and / or the norms of a wider society. Some inequalities are of a social kind, as those whose sleep is upset face particular physical, material and social hardships. Others are of a political kind, as disruptions to sleep's quality and timing raise barriers to the capacity to exercise and expand certain rights. Minorities emerge defined by their disadvantages on one or both dimensions. The majorities spared these hardships not only contribute, however inadvertently, to the perpetuation of these inequalities, but in many respects also benefit from them, as socially useful work is done by those whose sleep is compromised. This is the domain of *Circadian justice*,[4] largely neglected in contemporary political philosophy.

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[2] Cooke 2017; Huffington 2015.
[3] Taylor 1993; Hislop and Arber 2003; Aubert and White 1959a, b; Williams 2011.
[4] Circadian rhythms being those of the body, notably of sleep, attuned to the daily cycles associated with Earth's rotation.

Its neglect matters because sleep problems are not just the knock-on effects of more recognised forms of injustice. Bad sleep can afflict those who are otherwise advantaged. Not all shift-workers are badly paid, but they typically suffer for the irregularity of their sleep. Not all care-givers lack discretionary time, but poor sleep can leave them in no state to exercise it. Sleep raises problems whether other hardships are present or not. But crucially, when poor sleep *does* correlate with other disadvantages, it is not simply a dependent effect. It can make bad circumstances less bearable, whether poor-quality housing or cramped living quarters, and is often the very thing that makes them unbearable. Sleep affects a person's mood, and thereby their evaluation and experience of what they encounter. Likewise it may affect their ability and inclination to *change* their circumstances, making other disadvantages more sticky. What opportunities exist for improving conditions will often be missed by those too tired and demotivated to act. In such cases, while poor sleep may be clustered with other disadvantages, it is distinctive in its capacity to aggravate and entrench them. It is a 'corrosive disadvantage' – one the presence of which yields further disadvantages.[5]

I begin this article by identifying some long-term changes in sleep practice in contemporary societies that bring matters of justice to the fore. One has to do with the reduced hours of sleep experienced by many. A second has to do with fluctuations in the timing and location of sleep that prevent the consolidation of routines. A third has to do with a decline in the simultaneity of sleep, such that those living in the same timezone increasingly sleep at different times. These three tendencies – the *shortening* of sleep, its *irregularisation*, and its *desynchronisation* – are discussed in the first section. They unfold both in western and developing countries, often in the context of interactions between the two. The result is the creation of social minorities living at odds with the demands of their bodies and / or the norms of the wider society – at odds, that is, with their Circadian rhythms, and with what one might call the 'social-Circadian' rhythm of the surrounding majority.[6]

As the following two sections explore, these tendencies yield two notable forms of inequality. The first, social, kind has to do with inequalities of health, resources and social status. Minorities face disadvantages not of their making and inadequately compensated by the market. These moreover are often disadvantages from which the majority benefits. The second kind of inequality, largely overlooked in existing discussion, is political. Those whose sleep is curtailed, disrupted, or timed differently from the majority find themselves disadvantaged in terms of their capacity to participate as citizens and to do so collectively with peers. As I claim, in these two forms of inequality one sees the contours of a distinct kind of injustice deserving greater recognition. While equality is by no means

[5] Wolff and de-Shalit 2007. On poor sleep as the cause of disadvantages as well as effect: Hale, Troxel and Buysse 2020.
[6] On 'social jetlag': Korman et al. 2020.

the only value in play – personal liberty and community are also at stake – it cuts to the core of why Circadian justice matters.

The final section discusses the implications. In the spirit of non-ideal theory, rather than propose an optimum social arrangement for the distribution of sleep I explore how one could improve on the status quo. Minorities whose sleep is disrupted would seem deserving of protection or compensation. Because the market alone does not offer this, one must look to legal measures that regulate the workplace and the remuneration appropriate to particular burdens. But important as such measures may be, they will not address the political aspects of inequality. Taking these seriously means thinking about the structure of societies as a whole. As I argue, most remain structured on the premise of sleep norms that many people no longer live by. Given the difficulty and undesirability of restoring the practices that underpin those norms, the challenge is develop societies that no longer presuppose them. The article concludes with a discussion of what this might entail.

Before proceeding, some preliminaries on the nature of sleep. First, we are dealing with a culturally varied thing. As anthropological and historical studies have shown, patterns differ across space and time. While data on pre-industrial sleep is patchy,[7] research suggests that much we may consider normal is of recent origin.[8] The model of an eight-hour, unbroken sleep is a modern and western one, coinciding with the advent of electric lighting and the new routines of the workday, and achieved through class struggle in the emerging industrial workplace.[9] An expectation of 'consolidated' sleep was a departure from earlier norms, still found in parts of the world today, of segmented sleep.[10] The same applies to sleeping alone.[11] If we are to explore the significance of contemporary tendencies that 'disrupt' sleep, it must in part be with reference to norms that, rather than universal, are those of present-day industrialised societies.

Second, when approaching matters of sleep one must consider not just quantity but quality. Especially in societies where norms of regular and uninterrupted sleep prevail, tendencies at odds with these may be as significant as those that reduce aggregate hours of slumber. Sleep is not easily parcelled. Unlike e.g. food, which can be taken in different flows (a series of meals or a process of snacking), the more sleep is divided, the less restorative it becomes. The same is true if it is taken irregularly. Especially in capitalist societies, where divisibility is often prized as a route to efficiency, the quality of sleep can be poor, even when enjoyed in ample quantity.

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[7] Hsu 2014.
[8] The classic study is Ekirch 2005; cf. Ekirch 2001, 2015.
[9] Wolf-Meyer 2012, p.3; Galinier et al 2020; Reiss 2017, ch. 1; Steger and Brunt 2003.
[10] On pre-industrial 'first and second sleep', and frequent interruption: Ekirch 2015, esp. p.358.
[11] The rise of the 8-hour sleep coincided with a middle-class European ideal of sleeping *alone*: Reiss 2017, ch. 1.

Third, one should note that the need for sleep is, at least for a while, *negotiable*. Different degrees of it are compatible with survival. Sleep is a need, felt especially when an individual has been deprived of it, but it can generally be prioritised or de-prioritised. Unlike the flow of oxygen, there is scope for flexibility in how it is taken. Up to a point, the individual can, and often must, weigh it against competing priorities. For the same reason, there is scope for the individual to be exploited, by herself and others, as its non-essential component is eroded.

Social structures of sleep

The advent of industrial society in nineteenth-century Europe saw efforts to standardise sleeping patterns through the promotion of certain norms. Political mobilisation drove this. Campaigns for limits to the working day resulted in legal provisions that helped stabilise day-to-day practice. Marx had documented the ruthless exploitation of labour and the corresponding effects of fatigue on workers in his account in *Capital* of 'The Working Day'.[12] Capitalist pressure, he argued, 'reduces the sound sleep needed for the restoration, reparation, refreshment of the bodily powers to just so many hours of torpor as the revival of an organism, absolutely exhausted, renders essential.'[13] Even if such exploitation was ultimately counter-productive for the ruling class – 'the interest of capital itself points in the direction of a normal working-day' – left to its own devices the capitalist impulse to maximise the extraction of value would intrude ever further on workers' hours of rest.

The same pattern of exploitation produced on the side of labourers a drive to regularise conditions. 'The changes in the material mode of production … gave rise first to an extravagance beyond all bounds, and then in opposition to this, called forth a control on the part of Society which legally limits, regulates, and makes uniform the working-day and its pauses. …. The creation of a normal working-day is, therefore, the product of a protracted civil war, more or less dissembled, between the capitalist class and the working-class.'[14] Just as industrialisation had upturned many lives and detached people from agrarian rhythms and their seasonal variations, the socialist response helped consolidate a new kind of order, one whose minimum provisions for repose helped contain the pressure to sleep fewer hours.

Approximate simultaneity of sleep amongst the members of a given population was a related feature of the emerging sleep orders of modern society. The rhythms of the working day increasingly

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[12] Marx 1967/1990, chapter 10
[13] Marx 1967/1990, chapter 10, section 5, 'The Struggle for a Normal Working Day'.
[14] Marx 1967/1990, chapter 10, section 7; see also Thompson 1967.

overlapped as they came to be structured by institutions, while the elastic patterns of segmented sleep, spread out across the hours between nightfall and dawn, gave way to the more delimited practices of consolidated sleep. Cities gave birth to norms that gradually spread out across region and class.[15] Functional explanations for simultaneity tend to focus on the demands of coexistence in urbanised environments, the rise of clock time, and more general considerations of security. Simultaneous sleeping, it has been argued, minimised the chances of disturbance as population density increased.[16] It was also a way to reduce mutual vulnerability. The sense of safety required to take rest was fortified by the knowledge of others doing likewise.[17] Certainly, synchronisation was never complete: the simultaneous repose of the many made necessary the role of the nightwatchman and its institutional equivalents. The rise of industrial society also saw the expansion of factory shiftwork.[18] The wealth retained the capacity to set their own schedules.[19] But at the level of populations as a whole, a tendency towards simultaneous sleep was observable.

The emerging sleep order of western modernity was maintained in the era of the welfare state. In post-War Europe especially, this was a period of consolidation of sleep norms – the heyday of workers' rights and of the semi-permanent, 9-5 job. The sociology of sleep could assume a stable object of study.[20] But things were looking different by the turn of the millennium. Three disruptive trends of the present – *shortening*, *irregularisation* and *desynchronisation* – may be highlighted.

A standard observation of contemporary societies, within and beyond the West, is that there has been a steady increase over time in the numbers of underslept people. Sleep that is *short* is said to be widespread, to the extent a significant proportion of any population is getting an insufficient amount. In the most straightforward versions of the story, average sleep duration across populations as a whole is said to have declined. One hears that the average North American adult today sleeps around 6.5 hours, down from 10 hours in the early twentieth century.[21] Claims of this kind are increasingly contested, at least as generalisable across countries.[22] What seems more certain is change at the extremes, with increasing numbers of people subject to short sleep, notably amongst working adults and those of certain backgrounds.[23] Various factors are involved, including technological change and

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[15] Ekirch 2015, pp.162ff.
[16] Schwartz 1970. The synchronisation of sleep also established (for some) periods of privacy, when individuals could claim the rights of the sleeper to be left undisturbed.
[17] Aubert & White 1959b; Schwartz 1970, p.488; Ekirch 2015, p.170.
[18] Aubert & White 1959a; Williams 2011, p.103.
[19] Ekirch 2015, p.163.
[20] Aubert & White 1959a, b; Schwartz 1970.
[21] Crary 2013, p.11; cf. Reiss 2017; Mendelson 2017, p.29.
[22] See e.g. Bin et al 2012; Matricciani et al. 2017. Hsu (2014 pp.218ff.) emphasizes the difficulty of quantifying changes, but cautiously suggests there remains 'a strong case to be made that the average amount of time devoted to sleep in the Western world has been declining ever since the start of the twentieth century'.
[23] Knutson et al 2010; see also Sheehan et al 2019; Grandner 2017.

renewed increase in capitalist productivity demands. Weak trade unions and low rates of pay raise the demands on individual workers – the pressure to do overtime, or to take on multiple jobs. Such pressures recall those described by Marx, but with less in the way of worker organisation to contain them. An escalation in noise pollution, especially for those living near roads and airports, is a further contributing element, along with the intrusion of communication devices into the bedroom.[24] Whether due to the demand to work more, the disturbances of modern living, or the enticement of consumption, information and leisure, chronic sleep deprivation seems to afflict increasing numbers.[25]

Changes in sleep's duration are widely coupled with its *irregularisation*, as people sleep on a less routinised basis. Hours of sleep may change in quick succession, involve departures from night-time sleeping, and involve inconstancy and uncertainty in their location. The phenomenon of service-sector workers being required to mix late and early shifts ('clopening') is one example.[26] Platform technologies that encourage casualised workers to adapt to patterns of market demand that vary through the week are another. One reads of Uber drivers who not only sleep short hours, but who radically reduce them at weekends to make the most of available custom, and who sleep in their cars in parking-lots so as to maximise their productive hours.[27] Less dramatically, the practice of working from home can be expected to cause its own disruption by eroding the boundary between work and repose.

Clearly, the irregularisation of sleep may compound the challenges of short sleep, adding episodes of acute deprivation to those of chronic. But it can raise problems even when quantitatively the hours are unchanged. Getting sleep at odd times, such that the body's Circadian rhythms are confounded, and in odd places, such that there is no location reliably associated with sleep, can itself be a source of exhaustion. Shift workers report these as amongst the most difficult aspects they face.[28] 'Shift Work Sleep Disorder' has been coined to describe the medical problems arising.[29] Moreover, the irregularisation of sleep often corresponds to a lack of *control*, which inhibits the planning required to adapt and increases the stress caused. In precarious jobs, timetabling is increasingly automatized, with the effect that not only are hours irregular but there is no-one plausibly to confront. Lack of control over sleep tends to be experienced as a particular hardship.[30]

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[24] Leader 2019.
[25] Of the US, Grandner (2017, pp.3-4) writes: 'at least one-third of the population seems to be reporting habitual sleep of 6 hours or less'; see also Hale, Troxel and Buysse 2020. I set aside the cultural implications of shortened sleep: in some contexts, sleep and what it allows (e.g. dreaming) have been given normative significance, e.g. as opportunities for the relief or revelation of sins: https://doinghistoryinpublic.org/2019/09/10/thinking-about-sleep-across-history/.
[26] O'Neil 2016.
[27] https://www.theguardian.com/technology/2019/may/07/the-uber-drivers-forced-to-sleep-in-parking-lots-to-make-a-decent-living
[28] See Coveney 2014, p.128, on the value shift workers attached to regular, 'solid' hours.
[29] Mendelson 2017 p.83; Grandner 2017.
[30] On the importance of control: Hale & Hale 2009.

A third trend less discussed, being a structural phenomenon only partly amenable to individual observation, is the *desynchronisation* of sleep. This occurs on a continuum ranging from fairly minor variations on a 9-5 working day to the more far-reaching discrepancies associated with shift-work, self-employment, and unemployment. More than 10% of UK workers do night-shifts, in the care, nursing, emergency and transport sectors especially – a 3% increase in five years.[31] Such trends are linked both to the flexibilisation of labour and to technological change.[32] They are pronounced in developing countries too. Over the last three decades especially, the outsourcing of labour in services from western Europe and North America to eastern Europe and Asia has created groups of workers expected to adapt their day to the timezones of western markets. Whether in call-centres or IT services, employees must synchronise their activities with those far away, de-synchronising themselves from the schedules of those physically proximate.[33] A minority emerges, defined by its misalignment – occasional or permanent – with the sleep norms and majority practices of where they live. Again, this may compound the shortening and irregularisation of sleep, as individuals experience colliding or unpredictable schedules and the disturbances these may cause. But it need not correspond to either, and has distinct implications as we shall see.

As new kinds of service worker are pushed online – e.g. in teaching or healthcare – they are likely to feel the same pressures to adapt to global demand. Moreover, these pressures may be felt in parts of the world where they were once more contained. Western providers may be encouraged to adapt to the priorities of Asian markets (e.g. in the scheduling of online tuition). One sees the rise of global time-demands, into which locally-based individuals and institutions must slot themselves. Contemporary socio-economic changes would seem to push many populations – if not in their entirety then at least in key sectors – further towards a '24/7' society.[34]

Tendencies towards the *shortening*, *irregularisation* and *de-synchronisation* of sleep, which for the purposes of this article I take to be established, are not always to be viewed as negative. One can cite various potential advantages, both at an aggregate and individual level. Economic productivity may increase due to the improved efficiency of a 24/7 society. The decline of the 9-5 working day may allow better use of resources. Individuals may benefit from the economic opportunities afforded by joining international markets, expanding their life opportunities in the process. In creative pursuits, there are the advantages of non-interruption and self-expression that come with working at night, while

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[31] https://www.tuc.org.uk/news/older-workers-powering-increase-night-working-tuc-analysis-reveals
[32] For an early account: Melbin 1987; cf. Derickson 2014.
[33] Aneesh 2012, pp.527ff.
[34] See Crary 2013, p.8, on the 'uninterrupted operation of markets, information networks, and other systems.' For critical remarks on the 24/7 thesis: Hsu 2014.

in institutional contexts there are the freedoms that come with absent bosses.[35] And for some people, such experiences will be the expression of choices freely made.

But these tendencies reopen important questions about who gets to sleep well, and in a way that pairs smoothly with other aspects of life. Some of this is about biological demands. While one need not assume there is a 'right time' when everyone should sleep – there will be natural variations in any given population – individuals have sleep needs that can be accommodated or neglected. Hardships arise when they are denied the rest they require. Interlaced with need, it is also about social norms. In societies where certain sleep norms are retained, yet increasing numbers of people do not conform, sleep demands can set the individual against a range of other schedules – of family life, social life, and politics – with the effect of undermining their wellbeing in ways that go beyond unmet biological needs.

In some ways, sleep problems are a universal in today's world. They touch everyone at some point in their lives, whether generally advantaged or not. Technological changes that make people permanently accessible affect the affluent and the less so, the old and the young. The flexibilisation of employment, and a long-hours working culture, can affect those in well-paid white-collar jobs.[36] You can be materially comfortable and sleep-deprived – just ask an airline pilot.[37]   And there are circumstances – e.g. parenthood – liable to affect the sleep quality of individuals whatever their walk of life. Sleep problems extend widely, and they are separable from other social problems.

They are not, however, free-floating. As sociologists have noted, sleep problems often do correlate with other forms of (dis)advantage. Class position tends to be expressed and reinforced in sleeping pattens. It is the sleep of the poor and precarious that is most vulnerable.[38] Amongst the main mechanisms by which sleep is compromised, studies have highlighted: living in disadvantaged material circumstances (lack of stable accommodation, crowded households and neighbourhoods, poor-quality insulation, low physical security, and the need to take precarious jobs, including night-work); the psychological distress that comes with such circumstances (e.g. anxieties concerning the capacity to care for others in the context of low income or risk of unemployment); and poor individual lifestyle choices (smoking, alcohol, diet, low exercise).[39] Richer groups tend to have more regular sleep, more

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[35] Aubert & White 1959a. On the positives in unconventional sleep schedules: Norman 2011.
[36] About the case of young banking intern who died after working for 72 hours without sleep, and whose experience sparked a wider debate on working conditions in finance and consulting:
https://www.nytimes.com/2015/10/04/business/dealbook/tragedies-draw-attention-to-wall-streets-grueling-pace.html)
[37] Reis et al. 2016.
[38] Williams, Meadows & Arber 2011, pp.292ff.; Mezick et al. 2008; Arber, Meadows and Venn 2012, esp. pp.240-2. On similar patterns in early modernity: Ekirch 2001, p.359.
[39] Arber, Meadows and Venn (2012), esp. pp.240-2.

control over its timing, more motivation to protect it, and more capacity to set the norms by which society lives.[40] Sleep has likewise tended to correlate with (dis)advantages of race[41] and gender.[42]

Across a range of social cleavages, good and bad things cluster around good and bad sleep.[43] This is important because it is when disadvantages map onto each other that they become especially difficult to bear or exit.[44] Even where poor sleep is largely an effect of other disadvantages (in the extreme case: homelessness), it may compound these through its impact on outlook and opportunity. Amongst the standout mechanisms is how poor sleep lowers mood,[45] and in severe cases leads to depression.[46]   It affects, in other words, the lens through which an individual appraises their circumstances and the possibilities for changing them. When sleep suffers, a person can become demoralised, hence less equipped to tackle the challenges they face. Moreover, in addition to amplifying existing disadvantages, sleep can be the source of new ones. Through such mechanisms as worsened health (obesity, susceptibility to infection, psychological illness), impaired performance (attention deficit, poor cognitive function, poor memory formation), risk of accident, social marginalisation, and the obstruction of political participation, sleep gives rise to a range of afflictions.[47] As the following sections indicate, we are dealing with a disadvantage that can easily spawn others, with far-reaching normative implications.

Sleep and Social Inequality

How might questions of justice be implicated in the apparently mundane practice of sleep? Beyond the unfamiliar character of the problem, there are some methodological difficulties. Separating the implications of sleep itself from those of everything surrounding it is difficult, precisely because (dis)advantages may cluster. The following focuses on the aspects most clearly bound up in sleep itself, touching on wider matters of scheduling, free time and work/life balance only as they bear on this. Later I shall argue that inequalities of sleep are instrumentally significant given what they entail for political participation – an aspect largely ignored in existing discussions of sleep. But first they are

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[40] Aubert & White 1959b, p.12. As Hale & Hale 2009 argue, people protect their sleep partly to the extent they have things to do in the morning.
[41] Mezick et al. 2008.
[42] Hislop and Arber 2003; Williams, Meadows & Arber 2011, pp.291ff.
[43] Williams 2011, p.xii.
[44] Wolff and de-Shalit 2007, ch. 8.
[45] Barnett 2008.
[46] Andrew 2012.
[47] See e.g. Meadows et al. 2020, p.1; Mendelson 2017, pp.7ff., pp.64ff.

intrinsically significant, as something that compromises the well-being and life-chances of those affected.

While the discussion focuses on problems of inequality, a comprehensive treatment of Circadian justice would have to include further dimensions. There are, after all, sleep problems that may affect large numbers of people more or less equally, and where the concern is less that the burdens fall disproportionately on some than that they are generalised to many.[48] Consider problems associated with noise pollution in urban contexts (e.g. night flights). These might be approached in terms of *liberty*, whether construed negatively as interference with an individual's privacy and choices, or in the republican sense as a situation of domination where a population is subject to decisions it is little able to shape (think flight paths). Sleep in controlled settings is especially suitable for analysis in such terms: in an institutional environment like a hospital, the common experience of disturbance and its effects on wellbeing may be more striking than the discrepancies between patients. In other contexts, there are problems one might approach in connection to the value of *community* – e.g. the capacity of groups to enjoy periods of common repose.[49] But all these are set aside in this article, where there is not the space for a comprehensive account. As a first cut at the topic of Circadian justice, the primary goal is to establish its importance, for which an analysis centred on equality is well suited.

How then do today's structures of sleep provoke undeserved forms of social inequality? The most intuitive aspects lie in how short and irregular sleep leads to quantitative and qualitative deterioration, in a way that is unevenly distributed in any given population.[50] Amongst the disadvantages arising are a range of physical conditions and risks.[51] Then there are the social indignities that arise, e.g. to do with exposure to others at close quarters, the transgression of norms of conduct (e.g. sleeping in cars), visible tiredness at inappropriate times (e.g. at work), or incapacity to perform the tasks associated with a certain role. These provide the conditions for shame and ostracization. Common to many is that the observer may mistake the cause of behaviour for a character trait (laziness, selfishness, low intelligence), expanding the scope for humiliation.

Those on the wrong side of these inequalities are not just those who sleep shorter-than-average hours, but those with particular biological needs. The same demands vary in their impact on different chronotypes. 'Natural long sleepers'[52] need more sleep than average, and are therefore especially

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[48] The problem is analogous to environmental degradation more generally, which produces effects harmful to all (e.g. climate change) and effects especially harmful to some (e.g. rising seawaters).
[49] For an engaging discussion of the communitarian problems presented by the 'personalisation of time': https://www.theatlantic.com/magazine/archive/2019/11/why-dont-i-see-you-anymore/598336/
[50] For overviews: Arber, Meadows and Venn 2012; Hale, Troxel and Buysse 2020.
[51] Medical studies suggest these include fatigue, depression, obesity, problems of attention deficit, cognitive function and memory formation, susceptibility to infection, increased pain sensitivity, heightened risk of accident, and early mortality. See fnt. 39.
[52] Mendelson 2017, p.28.

affected by short or irregular of sleep. Likewise, sleep disruption is said to be more arduous for some based on their genetic makeup.[53] Those afflicted by illness may have greater need of sleep. Age matters too: ethnographic work on night-shift workers suggests the burdens of sleeping at odd hours become unmanageable as people get older.[54] And then there are the 'larks' or 'night-owls', with a predisposition to rise early or late, for whom even standard routines of work or education may be hard to maintain, and for whom demands pushing them further from their natural patterns are especially challenging.[55] In all these ways, sleep becomes the vector of important inequalities in people's ability to access what they need. One might speak of a 'sleep cleavage', one that divides the afflicted and the rested. While, like most social cleavages, it intersects with others of class, gender, race, age, it is not quite reducible to any of them.

From a libertarian perspective, it might be said that inequalities of sleep, even if real and consequential, are not necessarily a matter of injustice. Rather than undeserved, they are simply a reflection of people's choices – to accept certain kinds of employment, or to pursue certain kinds of leisure. The Uber driver catching a few hours of sleep in the car-park may live an uncomfortable life, but has he not embraced it? If there are hardships involved, it might be said that they are voluntary, as individuals make decisions about how to structure their lives and willingly acquire certain burdens. Do they not show by their actions that they consider whatever remuneration or satisfaction they receive adequate compensation for the disruption of sleep?

The problems with such a view are familiar from other fields of social policy. The message of much of sleep sociology is that the key individual choices are often heavily constrained, e.g. by lack of alternative forms of employment or subsistence. Even the supposedly self-employed may be driven by the nature of platform technology to work longer and more irregular hours than they would like, and choices may be made without awareness of their long-term implications. Also, those who are chronically sleep deprived, unlike those who are acutely so, may be unaware of how sleepy they are, making them an unreliable assessor of their condition.[56] What is more, individual decisions have effects on others – family, neighbours and strangers – which means they cannot be evaluated looking only at their implications for those most directly affected.

This becomes clearer as we consider the implications of the de-synchronisation of sleep, more complicated than those of short and irregular sleep insofar as sleep deprivation is only one possible outcome. The effect of de-synchronisation in the first instance is to create a 'sleep minority' composed

[53] Arendt 2010, p.17.
[54] Norman 2011, p.21.
[55] On the problems 'night-owls' face in living to societal rhythms, and ways to alleviate them: Facer-Childs et al. 2019.
[56] Mendelson 2017, pp.62ff.

of those living at odds with prevalent norms.[57] Certainly, this may aggravate problems of poor sleep, as those sleeping at different times may disturb each other. Day sleepers, like the sleep-deprived generally, may resort to medication to improve their sleep – they find themselves paying, in terms of both money and health, for what night-sleepers get for free.[58] But de-synchronisation raises problems of inequality even when it does not lead to sleep deprivation.

Some inequalities are of a material kind. Public institutions in most contemporary societies are still configured to norms of daytime access. From doctors and dentists to education systems, opening hours tend to be attuned to the rhythms of those who sleep at night and rise in the morning. Not only can this affect the access of day-sleepers, but it has secondary effects insofar as their dependents may need access. Shift-workers with children in school are caught between two sleep-schedules, burdened by the demands of both, and with additional needs e.g. to do with childcare. Such workers report not just the difficulty of finding time to care for dependents, but being too exhausted to make use of what time is available.[59] Such challenges aggravate broader inequalities to do with healthcare and education, and have gendered effects insofar as they encourage partners to pick up the strain at home. One may also note that those returning from night-shifts are at increased risk of involvement in an accident, exposing themselves to litigation and their families to the associated effects.[60]

Other inequalities are of status. To be part of a sleep minority is to be deprived of the support of certain social norms. As sociologists have argued, the peace and privacy of the day-sleeper is less protected than that of the night-sleeper.[61] The latter can legitimately ask those who disturb them to reduce their noise, and can expect that the physical space they occupy be exclusive to them at certain hours. They can expect to be left alone. Members of a sleep minority are less protected. They must be more assertive in defending their peace and privacy, and must reckon with the likelihood they are ignored or rebuked. Moreover, at the times when they are awake, they may be accused of disturbing the privacy of others. To be part of a sleep minority is to be vulnerable to condemnation.[62] Those active at 'abnormal' hours may also be objects of suspicion. Whether in the eyes of the police or their fellow citizens, nocturnal movements are likely to be viewed warily, and the status of those performing them questioned.[63] A sleep minority needs to justify itself where others do not.

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[57] The reference group being those of the individual's immediate milieu – family, neighbours, friends, colleagues.
[58] Compromised sleep, combined with a sleep science that fosters an ideal of unbroken sleep, sustains a medical industry for curing the problems arising: Wolf-Meyer 2012; Barbee, Moloney & Konrad 2018.
[59] Norman 2011, p.5.
[60] Åkerstedt et al. 2005.
[61] Aubert & White 1959b; Schwartz 1970, p.492.
[62] For an empirical study of call-centre shift-workers in Romania and their social interactions: Marinache 2016.
[63] Aubert & White 1959b.

These inequalities are matters of justice because they entail effects that are largely unchosen and undeserved. They are not quite a case of *discrimination*, insofar as the concept implies both a defined victim group with salient and enduring characteristics, and a discriminating agent that targets it intentionally.[64] Neither the sleep minority nor the majority can be conceived in these terms: the problem is more general. Rather, this can be viewed as a case of *structural injustice.* As Young puts it, structural injustice 'exists when social processes put large groups of persons under systematic threat of domination or deprivation of the means to develop and exercise their capacities, at the same time that these processes enable others to dominate or to have a wide range of opportunities for developing and exercising capacities available to them.'[65]

As this definition suggests, what is unjust is not just that a significant minority is excluded from the advantages available to the majority, but that the majority may benefit from the minority's existence. Many shiftworkers for instance perform important social functions, enriching the lives of night-sleepers when they are awake and protecting their security as they sleep. While the inequalities described are often in principle avoidable, insofar as in a reconfigured society the same benefits might be achieved without them, they are ones that in existing societies the majority has reason to embrace. In line with a general principle of fairness and reciprocity, one may say that those sleeping to a 'normal' (night-time) schedule should avoid free- or cheap-riding on the sacrifices of those sleeping to irregular schedules, from whose actions they accept the benefits.[66]

Sleep and Political Inequality

Poor sleep raises problems not just of social inequality. Its effects extend into the exercise of political rights. That political equality depends on certain contextual conditions is a point often made. The rights of citizenship mean little without the material resources needed to act on them. These include, but are not restricted to, the economic and personal security that allows individuals to look beyond their immediate needs. As Julie Rose has argued, there are also non-material resources such as the availability of time to devote to activities of an individual's choosing.[67] Sleep, I suggest, is one such non-material resource for political equality. More than this, it is a precondition of adequately drawing on others. People whose sleep is meagre in quantity, poor in quality, or timed in a way that hinders other activities, will struggle to employ what free time they have. Sleep anchors the body's Circadian

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[64] Young 1990, p.196.
[65] Young 1990, p.52.
[66] Klosko 2005.
[67] Rose 2016; cf Goodin et al. 2008.

rhythm, and with it the capacity and desire to make use of what opportunities are available. Political equality is likely to be compromised in various ways by the shortening, irregularisation and de-synchronisation of sleep.

The most straightforward aspect lies in how fatigued individuals may be less able and inclined to participate in the political process. Tiredness can reduce motivation. An empirical study suggests sleep deprivation leads to lower levels of civic engagement: voting and protest are lower amongst the chronically fatigued.[68] All forms of civic engagement involve hurdles to cross, and the sleep-deprived will be less motivated to cross them. Especially those whose sleep is irregular may struggle to plan their participation and take advantage of free time when it arises at short notice.[69] Nightworkers may additionally feel alienated from daytime affairs and from institutional politics by extension.[70] Accordingly, the rights that democratic regimes allow may go under-exercised. The fact that disadvantages to do with short, irregular and de-synchronised sleep tend to cluster with other kinds of disadvantage moreover means that those less inclined to exercise their political rights may also be those most in need of exercising them. Policies they might benefit from – including fair compensation for sleep-harming labour – become less likely to be enacted if they are not involved.

A tired population is likely to be more accepting of regime types that make fewer demands on their participation. Even where this does not produce anti-democratic sentiment, it may lead to acceptance of sharp limits on political equality, and to reduced vigilance at critical moments. Tiredness, it is observed, impairs an individual's ability to take decisions for themselves.[71] Poor sleep inhibits the cognitive functions required for an outlook that is other-oriented, deliberative, and inspires action and initiative.[72] In the political context, disengagement is one likely outcome, but also acceptance of charismatic and technocratic forms of rule which vest decision-making in elites. Factors beyond cognitive impairment reinforce this. For an individual to lack control over the duration and timing of their rest is to be confronted on a daily basis with their powerlessness. The sleep schedule is a context in which the absence of self-mastery is made visible: it is a context in which fatalism is learned. Forms of politics that play on such sentiments seem likely to prosper in a population with large numbers of tired people.[73]

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[68] Holbein et al. 2019.
[69] See https://www.theatlantic.com/magazine/archive/2019/11/why-dont-i-see-you-anymore/598336/ on the challenges of organizing workers whose schedules vary at short notice.
[70] On the alienation from daytime life felt by nightworkers: MacQuarie 2017, p.184.
[71] Mendelson 2017, p.58.
[72] Barnes et al. 2011.
[73] Erich Fromm once observed in *Fear of Freedom* that autocratic forms of politics thrive when populations are characterised by a 'state of inner tiredness and resignation, which … is characteristic of the individual in the present era even in democratic countries' (Fromm 1942, p.181). For Fromm, such vulnerability was amongst the conditions facilitating the rise of fascism. He went so far as to emphasise Hitler's capacity to manipulate an audience by playing on their exhaustion: 'he [Hitler, in *Mein Kampf*] does not even hesitate to admit that physical tiredness of his audience is a

Questions of sleep-synchronisation are crucial too. As Rose notes, important for political involvement is not just free time but *shared* free time.[74] It is a precondition for exercising certain rights of association (e.g. daytime protests, evening party meetings) which must be exercised together. By making co-presence harder, de-synchronisation inhibits the formation of certain kinds of public. Clearly, sleep itself may be epiphenomenal in some cases, simply reflecting the disruption of other anchoring schedules to do with work or leisure. But it nonetheless has its own distinctive significance, since political participation requires not just overlapping free time, but overlapping free time in which people are inclined to seek each other's presence. Fatigued people spend a good portion of what free time they have in recovery. Political equality depends on the availability of discretionary time which is not just shared, but shared by those not so exhausted as to seek only privacy. Sleep shapes whether shared time can be put to good effect.

Fatigue has a tendency to isolate people, but also to introduce frictions into the relations they maintain. Problems of sleep pose a challenge to another underpinning of political equality: solidarity. To be fatigued is to be consumed with the necessities of life. Other-oriented actions, and support for those that champion them, are likely to come second.[75] At the micro level, researchers have observed how sleep deprivation and de-synchronisation can foster social segregation and interpersonal mistrust. Ethnographic work suggests those working night shifts exhibit limited solidarity with each other, due to the effects of exhaustion, and little solidarity with day-working peers, due to their temporal misalignment and isolation. Theirs is typically a solitary, even lonely, existence, shaped by clear barriers to collective action.[76] Some also report detachment from friends and family, as they become unavailable to meet or too tired to socialise.[77] Their reticence may be moralised by peers, who misread it as hostility or indifference, and who in turn retreat from interaction.

More politically significant are the effects on solidarity at the macro level. Solidarity is ultimately about ties that extend beyond acquaintances to imagined others – those who do *not* know each other personally, and of whom the individual has only traces of general, categorical knowledge. Solidarity is important both as a foundation for the ties of political community, and for the capacity to

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most welcome condition for their suggestibility. Discussing the question which hour of the day is most suited for political mass meetings, he says: "it seems that in the morning and even during the day men's willpower revolts with highest energy against an attempt at being forced under another's will and another's opinion. In the evening, however, they succumb more easily to the dominating force of a stronger will."' (Fromm 1942, p.192.). According to Fromm, it was by manipulating people based on their need of sleep that the authoritarian ruler hoped to win the consent of citizens to the loss of their political rights.
[74] Rose 2016, ch. 5, esp. p.94.
[75] Barnes et al. 2011.
[76] See MacQuarie 2017 (a study of night-workers at London's New Spitalfields market), esp. pp.182-3: 'Night shift workers survive bodily precariousness because they are immune to co-workers' needs, and not because they offer each other mutual support … [They lack] solidary ties with others from the broader society …. [and] do not engage with others in collective action outside the workplace.'
[77] Marinache 2016; Norman 2011.

reform, even overturn, a failing order. As such it is indispensable to political equality. Significant in this respect is how sleep can become not just a vector of mutual indifference but of competition and insecurity.

One way this may manifest is in the fear that others are getting by on fewer hours' sleep. Amongst those sleeping to broadly the same schedule, there is evident scope for a sleep 'arms race', as individuals seek to gain an advantage or demonstrate their commitment to an endeavour.[78] For those secure in their position and self-regard, the spectre of wakeful peers may be easy to ignore. But for those in a more vulnerable situation, and especially those in a relation of competition (workers, students, producers), the non-simultaneity of sleep encourages various forms of social comparison and attendant anxieties. Moreover, whereas in earlier periods there was always ambiguity about the distribution of wakefulness at any given moment – behind a closed door, one's sleep status was uncertain – today it is made visible by communication technologies that make clear when people are active. As tweets, emails and text messages circulate, wakefulness is revealed, and indeed can actively be made conspicuous. At the individual level, the effect may be the worsening of wellbeing amongst those already disadvantaged: de-synchronisation leads back to social inequality, as sleep becomes shorter or less regular, or dependent on medication to achieve. At a wider level, the effect would seem to be the emergence of a new axis of insecurity and competition, one liable to inhibit solidarity.

These are tendencies that the desynchronisation of sleep may exacerbate. As noted, one of the functional explanations of simultaneity of sleep has to do with conflict-prevention and in-group solidarity.[79] It allows periods for the suspension of competition. When people sleep in synchrony, none need fear others are making gains at their expense. True repose, one might say, depends on the idea that others are resting too. With the desynchronization of sleep, this is what can no longer be assumed.[80] Activity of one kind or another becomes more or less permanent in a 24/7 society. However an individual times their sleep, they must reckon with others continuing to work as they (try to) sleep. The sleeper becomes structurally vulnerable once more to the non-sleeper. Beyond the dynamics of competition, individuals must reckon with the prospect of missing out on important decisions and deliberations, whether in the workplace or the wider society. For those asleep while others are interacting, there is always the possibility that key things happen without them – that by the time they awake the 'moment has passed' and they are too late to exercise influence.

Clearly there may be positives to set against this. As with all minorities, there are potentially new solidarities to be formed. New connections become possible between those who share the same

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[78] Cf. Halliday 2016. On competitive non-sleeping in the finance industry, see fnt. 32.
[79] Aubert & White 1959b, p.10.
[80] NB this is not just about de-synchronisation amongst those physically proximate. As networks of production and communication become transnational, the non-simultaneity of sleep at a global level becomes increasingly visible.

(minoritarian) sleep schedules in a local setting.[81] Cross-national and cross-regional ties become possible amongst those in different timezones who sleep to the same schedule – potentially of special significance for diaspora communities. De-synchronisation at the local level can always be construed as synchronisation at a wider level: to be divided by sleep locally is to be united by it transnationally. But it may be harder to generate such forms of solidarity, given they must bridge other cross-cutting divides, than it is to undermine local forms.

In some ways, these challenges are the most profound associated with sleep. Remedying social inequalities, and overcoming obstacles to joint political participation, become more difficult to address if they are paired with feelings of insecurity and competition. By cultivating dividing lines that challenge solidarity, de-synchronised sleep inhibits a collective approach to shared problems. As well as weakening social ties generally, it makes the problems of fatigue that many experience more difficult to appreciate as shared concerns demanding a common response.

Towards Circadian Justice

Insofar as sleep matters are discussed in public policy today, they tend to be framed as questions of personal self-care. The potential for hardship is recognised, but treated as a matter for individual awareness.[82] As an approach to Circadian justice, this seems wholly insufficient. The wider social factors that influence individual sleep patterns, and the wider effects they give rise to, are likely to be overlooked in such a perspective, while the political implications are ignored. Such a pattern is replicated in those interventions in public debate that prescribe ways to tackle a 'sleep-loss epidemic'. Such responses tend to privatise sleep and its discontents.[83] Holding individuals responsible for collective problems is generally a bad idea, but especially in an area like sleep, where feelings of personal responsibility can generate added anxiety, exacerbating the situation.[84]

Against the individualisation of sleep problems, one may be tempted to thoroughly structuralise them. The injustices raised, it may be argued, are expressive of general patterns of exploitation, notably the drive to increase workers' productivity. If one tackled the pathologies of late capitalism – unregulated labour, global competition, the productivity imperative, predatory medicalisation, etc. – sleep issues would largely resolve themselves. There is much to be said for this

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[81] Marinache 2016; though see MacQuarie 2017, pp.182ff..
[82] Department of Health and Social Care 2019.
[83] Williams 2011, p.x; cf. Leader 2019, Hale & Hale 2010.
[84] Cf. Williams 2011, p.15. Privatising sleep issues seems especially unfortunate given the policy implications of work-life balance more generally are well established: see e.g. Goodin et al 2008.

view, in that many of the contemporary tendencies described are bound up in socio-economic change. A post-capitalist society would offer ways to tackle the most detrimental features of contemporary sleep experience like the lack of individual control. But it would be unlikely to do away with all problems of poor sleep. Historical research on changing sleep practice emphasises less the advent of capitalism than industrialisation and technological change (notably electric lighting[85], also train timetabling). Technology is likely to remain a key disruptive factor, under or after capitalism. In any case, a systemic transformation beyond capitalism may be far off – not least if one accepts that fatigued people may be disinclined to seek far-reaching change. The risk is that such an approach to sleep is in practice no less de-politicising than one that treats sleep as the domain of private choice.

The question becomes whether existing societies might be redesigned in ways that serve Circadian justice. What might such a project involve? In the first instance it would entail addressing the factors that lead to short and irregular sleep – a modern-day equivalent of the nineteenth-century socialist project we began with. In addition to controls on the working week, one would look to controls on the length of shifts, which for those working irregular hours are at least as significant for wellbeing as the weekly total of hours worked.[86] Employment rights that give workers more say in their schedules seem crucial,[87] and have been introduced in the form of 'predictable scheduling' laws in several US jurisdictions.[88] 'Right to disconnect' legislation, as introduced in several European countries, sets aside hours when employees are not expected to respond to work communications, offering some protection for hours of rest. In many sectors, as adaptations during Covid-19 have shown, employees can also be given more discretion about when they start work, allowing them better to align with their chronotype.[89] Reducing the pressure to cut sleep, and increasing control over its timing and location, seem essential to alleviating the problems that arise.

Some have suggested that sleep should be protected legally, extending Marshall's notion of social rights.[90] As Marshall himself noted, one of the rationales for social rights is that they underpin the exercise of political rights, and given what we have said about the political significance of sleep, the same rationale would seem to apply. Rather than based on a perfectionist agenda of improving people's life choices, a 'right to sleep' could be understood as a way to support the exercise of existing rights.[91] Admittedly, upholding it would not be straightforward – deciding when such a right is violated

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[85] Ekirch 2005.
[86] Norman 2011, p.25.
[87] As included in these union demands: https://www.tuc.org.uk/news/older-workers-powering-increase-night-working-tuc-analysis-reveals
[88] Miggo 2019.
[89] Korman et al. 2020.
[90] Williams 2011, p.56; Goldberg-Hiller 2019.
[91] On an analogous point concerning working-time policies: Jauch 2020.

may be easy in the extreme cases (e.g. of torture), but less so for the more diffuse infringements of everyday life. Yet in some ways its imprecision is part of its appeal. Precisely because one cannot guarantee good sleep, the focus becomes on adapting the myriad circumstantial things that may foster or hinder it. A demand for good sleep is a demand that inevitably touches on many different aspects of contemporary life, from the right to sufficient time to sleep to a right to a place for it.[92] If problems of sleep are ultimately connected to individuals' capacity to control their lives,[93] protecting sleep becomes a wide-ranging demand. While policy-makers can only seek to protect sleep indirectly, fostering the conditions favourable to it, much social good can be done by insisting this consideration be applied.

What though of problems of desynchronisation? A possible goal, though a dubious one, would be the recreation of the sleep orders of the modern nation-state, centred on an ideal of synchronisation. One might call this the *homorhythmic* model. Legal measures that could support it include employment laws that reduce the appeal, or even the possibility, of working at certain hours, blocked out for common repose in the manner of Sunday trading laws. Insofar as contemporary patterns are connected to the globalisation of economic relations, regulations would presumably also be needed to re-localise economic activity, e.g. favouring local supply chains, and protecting workers from competition abroad. Enforcing night-time peace would also depend on renewed curbs on noise pollution, extending for example limits on the hours airports may operate. However, while one can conceivably regulate the length and structure of working lives, no modern society can aim for the total synchronisation of sleep. Not only can a government do no more than synchronise the times *available* for sleep, leaving likely discrepancies in sleep itself, but even this is an implausible objective. If hospitals and other amenities are to be open at night, some degree of de-synchronisation must be accepted. At the minimum, one would need to distinguish between socially-useful public services allowed to continue around the clock and other activities needing regulation. Even under these conditions, one would see the emergence of sleep minorities, possibly more isolated and marginalised for the fact that they are smaller in size.

The alternative, it would seem, is to embrace more fully the de-synchronisation of sleep – what can be termed the *polyrhythmic* model. In this perspective, the problem for contemporary societies is that much of daily life supposes a sleep order that many can no longer live by, and indeed whose lingering norms are part of the problem, causing anxiety and strife to those unable to conform. The response would involve facilitating different schedules of sleep and reducing the extent to which any is a source of disruption and disadvantage. Several things speak for such an approach, beyond its

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[92] On the latter: Waldron 2006.
[93] Hale & Hale 2010.

fit with the trends discussed. One is how it respects the fact people may have different biological needs. As noted, in any population there are likely to be natural long and short sleepers, larks and night-owls, or those whose needs differ according to age, health, or genetic background. Such variations mean even the best designed homorhythmic society is unlikely to suit all. Additionally, a polyrhythmic model seems more compatible with individual freedom. While we have focused on forms of desynchronised living typically chosen for lack of alternatives, one can imagine scenarios in which they might be freely embraced for the sake of a more flexible lifestyle that balances work with other pursuits and caring duties.

Such a model is one that technological advances already go some way to enabling. Problems of desynchronization are alleviated by time-shifting technologies that allow information to be consumed when an individual chooses. The loosening of centralized scheduling that began with teletext and the video recorder has been continued by email, the internet and the app, allowing individuals to 'catch up' with what occurs while they sleep and join the thread of a conversation at different points. Further contributions may be expected from automation, whether in making public services more accessible, standing in for people while they sleep, replacing certain jobs (driverless cars!), or alleviating the burdens on those who perform them and creating safeguards against the effects of tiredness. On their own, such innovations are quite double-edged of course, not least because they also contribute to the disturbances associated with a 24/7 society.

A polyrhythmic order would need to be underpinned by the intelligent design of laws and public policy. Reconfiguring public institutions so that they can be accessed at all hours – turning day institutions into day-and-night institutions – would be one natural move. Unemployment agencies, housing agencies and civic offices spring to mind, as well as the sites of trade unions and political parties. Less obviously, one might look to the creation of 24-hour civic centres, with amenities including wifi and public canteens, as places of civic access, social interaction, and alternatives to the junk food typically relied on by those working irregular hours. More national holidays to allow recovery sleep, and common periods of free time to allow those on shift-work to reconnect with their peers, would create further opportunities for political participation and for forging and renewing solidarity.[94] Setting minimum lengths to decision-making processes, so that interventions and objections can be made at any point over a 24-hour period, are amongst the changes institutions and corporations might be expected to adopt. Further reforms in the workplace could include measures to share the burden of nightwork, or at least to widen familiarity with minoritarian experiences, e.g. by requiring those in privileged positions to perform occasional night-shifts. One of the problems faced

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[94] Marinache 2016.

by sleep minorities is that majorities may have little understanding of their predicament, hence little concern to promote their equality.

But ultimately a polyrhythmic approach would need to extend to many aspects of social reform. Housing arrangements stand out. High-density housing structures, from blocks of flats to terraced houses, typically date to an age when people worked approximately the same hours, minimising their mutual disturbance. Renovating them for an age of de-synchronised activity would involve regulations in such areas as noise and light insulation, and social spacing. Affordability is evidently crucial too, since sleep problems are exacerbated by overcrowding, whether in the form of peers co-renting or multiple family generations cohabiting. Allowing people to live less cramped lives, especially in the context of more working-from-home, seems critical for limiting the inequalities of sleep.

Certainly, many of the social changes that may benefit sleep are ones that we may have reason to advocate on other grounds, and where that is not so it may be tempting to query how weighty sleep concerns really are. Are they ever going to tip the balance in the making of policy? If one takes seriously the causal impact of sleep on people's health and the opportunities available to them, there is no reason why such considerations should not be fundamental. Projects of reform should target corrosive disadvantages, as ones that are far-reaching and on which interventions may be especially productive. As sleep is increasingly recognised in these terms, it deserves a key place in the assessment of policy.

Measures supportive of a polyrhythmic society would allow those who sleep at different times to replicate the sleeping conditions of the most advantaged. They would minimise the adverse effects of sleeping at different hours to the majority, and perhaps ultimately shrink the size of the majority. Whether all unjust problems of sleep can be resolved in such ways is inevitably open to question. It may be that Circadian justice can only be approximated. For as long as humans live out their lives on the surface of the Earth – before, that is, space exploration drives them upwards, or climate change drives them downwards – they will have to contend with the daily experience of the planet's rotation, along with the majoritarian preference to sleep at night. But through a mix of concrete demands and wider projects of reform, it seems clear that societies can be made to accommodate these facts much better than they currently do.

Conclusion

Contemporary changes in sleep practice centre on three standout tendencies: the shortening of sleep, its irregularisation, and its desynchronisation. As this article has argued, these have the capacity to generate injustice, notably in the form of social and political inequalities. These are problems of justice insofar as they are harmful to some, undeserved, and avoidable. While the disadvantages accrued often correlate with other forms of disadvantage, they have independent significance, insofar as they make existing hardships more difficult to bear and exit. As the article has further argued, addressing these inequalities means first of all recognising the extent to which modern life is structured around sleep norms many no longer live by. Given the difficulty and undesirability of restoring the practices that underpin those norms, the challenge is develop societies that no longer presuppose them.

This account of Circadian justice is inevitably partial, not least because it centres on just one political value – equality. While this should convey the importance of the field, a fuller treatment would need to extend to other considerations such as liberty. One will also want to consider the tensions that different values give rise to and what kinds of balance can be struck. How far should individuals be forced by law to forego monetary benefits for the sake of protecting their sleep? Should distinctions be made based on the nature (e.g. the riskiness) of their work? When should the individual be held responsible for their sleep deprivation, and with what implications e.g. for criminal negligence? These are just some of the questions that may arise. In terms of public policy, I have suggested it is useful to distinguish between ideal-typical models of society, notably between *homorhythmic* and *polyrhythmic* orders. Again, this is something for further development, e.g. by consideration of the specificities of international regimes and those that span multiple timezones, as well as the particular experiences of diaspora communities. There are potentially global norms to be set in this domain, underpinned by international agreements or supranational institutions like the ILO.

There is, of course, a problem with focusing on public policy, which is that it assumes a measure of good will and capacity on the part of governments. It is worth observing at the close that many of the political challenges discussed in this article arise because this can*not* be assumed. People's ability and inclination to participate in democratic processes and shape the exercise of power matters because the benevolence of their rulers cannot be taken for granted. A rested population, and everything needed adequately to achieve it, may be one of the lower priorities of governing officials, perhaps not even desired. What would it mean to tackle the implications of poor sleep *without* the support of a sympathetic administration – in a manner more redolent of the struggles of the nineteenth century described by Marx?

Insofar as contemporary industrialised societies display a sleep cleavage, it is inherently a difficult one to mobilise. Those who have poor sleep in common may have little else in common, and the reasons for their poor sleep may be different. They may lack visible markers by which to identify

one another, other than the occasional yawn. They may also be transient minorities, insofar as some move in and out of different schedules. As the problem of solidarity underlines, the challenge is not just to politicise sleep, but to overcome the divisions it gives rise to. One of the challenges of Circadian justice today is that it is not at all clear who its agents would be.

The debilitating paradox is that only institutions and organisations, as entities abstracted from the vulnerabilities of individuals, can withstand the pressures of fatigue and seek to tackle its causes, yet these are what people afflicted by short, irregular and de-synchronised sleep will generally struggle to establish and influence. Individuals who are tired and separated from each other by their schedules of repose must rely ever more on intermediary associations – the party, the union, the political movement – to address their burdens, yet are separated from these by the political inequalities they are subject to. If the fatigued minorities of contemporary societies are to arrest the spiralling effects of poor sleep, it seems the initiative for collective action may have to come from the well-rested.

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