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IN MY WORK, I OPEN UP A NEW WORLD OF TEMPORALITY (LIVED TIME) SITUATED AT THE INTERSECTION OF DESIGN, SOCIOLOGY AND CHRONOBIOLOGY. AS THE FOUNDER OF UCHRONIA, A DESIGN RESEARCH PRACTICE AND PLATFORM, I EXPLORE THE MULTIFACETED NATURE OF TIME IN AN ACADEMIC AND PUBLIC CONTEXT.

UCHRONIA MANIFESTO

1

The perception of having 'no time' is not only an individual issue. It is an essential, structural concern within Western societies, which needs to be addressed in the politics of time.

2

Technologies shape and are shaped by society. They are neither the problem nor the solution.

3

Deadlines – not bound to any laws or regulations – cross all the boundaries of labour and leisure, public and private, across all time zones.

4

We are imprisoned in our own system of clocks and calendars, even so they are only one element in the interplay of temporality (lived time).

5

Time is the true metric for human satisfaction and welfare rather than economic prosperity.

6

Now is the time to question our existing working patterns and our current temporal structure.

7

Now is the time to *unlearn* clock time and gain temporal freedom.

8

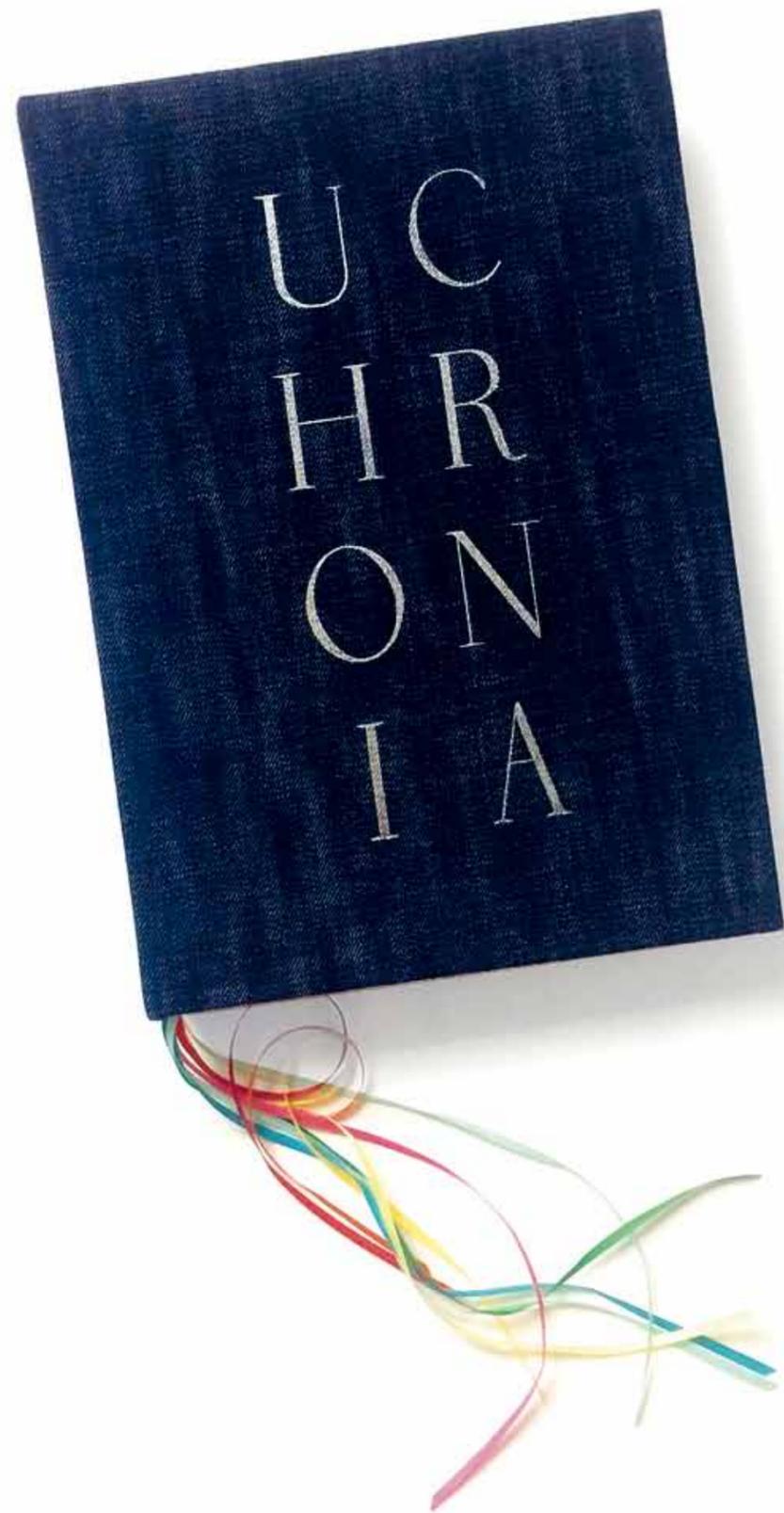
No one can hold us back from consciously experimenting with the design of time, on an individual and societal level.

9

Time is like an orchestra. It is about the right timing, with time spans reaching from one moment up to deep time.

10

It is time for Uchronia, the temporal utopia.



UCHRONIA, THE TEMPORAL UTOPIA

AN ESSAY ON SYNCHRONISATION PROCESSES AND ALTERNATIVE TIME

by Dr Helga Schmid

SYNCHRONISED TIME

Before the Middle Ages, the word 'time' was not part of everyday language. The passing of time was instead seen as a natural process, not managed or structured by human beings. A belief in destiny dominated the thinking of earlier societies, and this notion of time is best described as 'fluid time' – a continuous flow and experience of time.

Although external natural rhythms and conditions have always played a central role in the life of human beings, a scientific awareness and understanding of the functional principles and rhythms of the human body clock only arose in the second half of the twentieth century. The body clock controls and regulates functions on all levels of the human body, including gene expression, physiology, behaviour and cognition.¹ This is expressed by peaks in cognitive performance, physical ability, alertness and sleepiness, or body temperature.

The human body reacts to 'entrainment signals', which, as described by the chronobiologist Russell Foster act on a 'biological oscillator which is synchronised to an environmental rhythm such as the light/dark cycle'.² The most influential time-giver is light, which, depending on its intensity, synchronises the biological clock with the outside conditions of day and night.

The agricultural idyll described above, with its recurring rhythm of life, has its flip side. Autonomy, individual

liberty and freedom of choice are accomplishments of the modern era. Contemporary approaches, often under the umbrella of the 'slow movement' or the popularised form of 'mindfulness' naively suggest we go back to this idyll, ignoring the actual living circumstances of the current time period.

The idealised longing for a lost past ignores that we cannot easily return to such conditions. Even more important, most of us would not want to give up our present standards of living and do not understand the consequences of such a 'simple life'. A leap back in time is not the simple solution to today's situation.

DESYNCHRONISED TIME

At the beginning of the fifteenth century, a continuous desynchronisation process began, between the social construct of time and natural rhythms. From the introduction of mechanical clocks in the fourteenth century by the Church, clock time found its way into the rhythms of everyday life, and changed the perception of time in people's minds.

Moreover, the increasing availability of artificial light, from fire, candles and oil lamps to gas and electric lighting, disconnected people from the natural day-and-night rhythm; and the more that natural and social time drifted apart, the larger the physical effects on the human body.

Fig. 1
 At a certain point in time
 (0 = point of divergence)
 the Uchronian plot (A) diverts
 from the course of history
 (a). Uchronia appears as
 a continuous line (B, C, ...),
 in reference to historical
 events (b, c, ...).

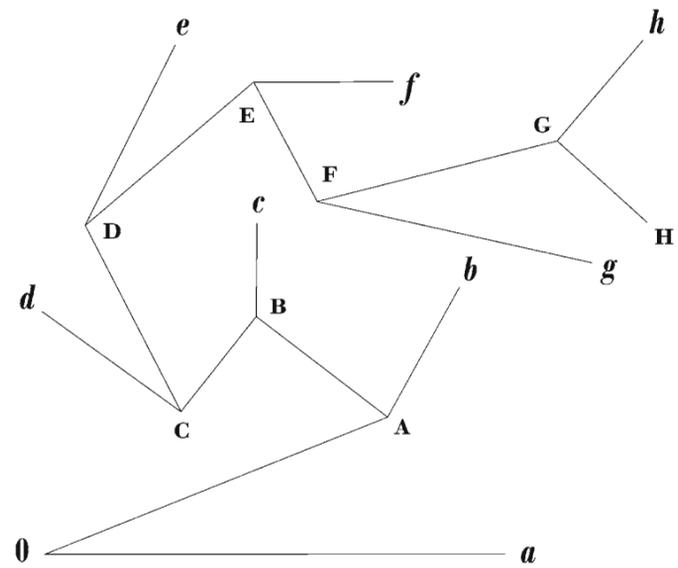
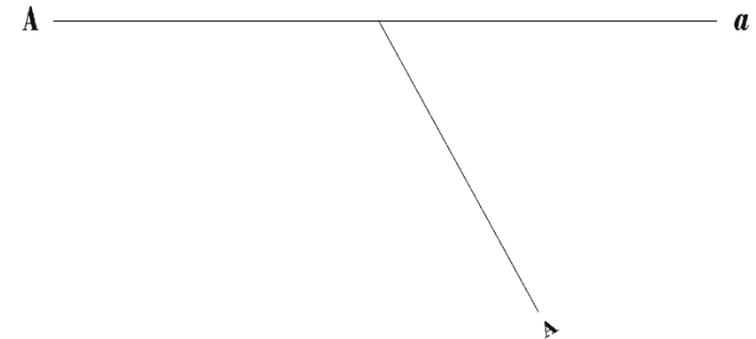


Fig. 2
 Uchronia (A) swings between
 two poles, fantasy–madness
 (A) and truth–reality (a).



Figs 1–4:
 Uchronia Diagram (1876),
 Charles Bernard Renouvier,
 in *Uchronie (L'Utopie dans
 l'histoire)*, Paris: Librairie
 Germer Baillière.
 Redrawn by Helga Schmid

During the course of industrialisation, the desire for speed arose. New space-shrinking technologies like the railway, the automobile and the telegraph fostered the drive for speed, and led to a standardisation of world time in 1884, and therefore to the present structure of today's timekeeping. The production of timekeeping devices facilitated the capitalist notion of time as a commodity; in Benjamin Franklin's words, 'time is money'. It could be 'saved', 'spent', 'wasted', 'lost', and much else.

As a consequence of constant timekeeping, the precise regularity of time entailed the establishment of a modern virtue, helped by Franklin: punctuality. This involved laborious training, from the first days of school to adult working life, and has become a matter of course today. We now know that what gets lost during the internalisation of clock time is the understanding and appreciation of one's own inner clock, with consequences ranging from depression and obesity to cancer and a lower life expectancy.³

But it is not only the clock that is used as a structuring tool in the modern era. The Gregorian or Western calendar was introduced in 1582, the beginning of its worldwide domination. It is currently the one calendar that can claim universal acceptance internationally for all temporal organisational purposes. While its years, months and days originate in natural rhythms, the week is an artificial invention. The calendar allows for processes of synchronisation within society on a macro-level. On a micro-level, it facilitates precise scheduling by the segmentation of days into hours and minutes. Calendars and the act of scheduling facilitate a structure for everyday life, sacrificing spontaneity for the benefit of certainty.

Clocks and calendars are the principal means of time management, but as collective societal rhythms slowly disappear, so does the notion of shared social time. In urban societies, the importance of natural rhythms continually diminishes in everyday life, as people spend almost all their time indoors, and are therefore less exposed to day/night oscillation and seasonal change.

CONTEMPORARY SOCIETY: DYSCHRONIA

The philosopher Byung-Chul Han characterises the contemporary situation of Western societies as a time crisis, a so-called 'dyschronia', which originates in the loss of a genuine rhythm.⁴ Studies indicate that, in fact, people in Western societies do feel under increasing

time pressure and complain about the scarcity of time. Digital technologies and the process of globalisation seem to add to this. In the 1970s, Jeremy Rifkin announced 'comptime', which he defined as the 'final abstraction of time and its complete separation from human experience and rhythms of nature'.⁵

Triggered by modern technologies, clock time has persisted with greater precision (for example with the atomic clock), but certain synchronisation dynamics have changed progressively over the years. For instance, punctuality has given way to flexibility – mobile phones, for example, allow us to be always available to others, enabling instant communication. This leads to shifting temporal structures within contemporary society, and we are caught in a vicious circle. The sociologist Hartmut Rosa describes this as social acceleration. To take a single example, electronic messages allow instant communication. This accelerates the communication process and, according to Rosa, leads therefore to social change. The number of e-mails, for example, compared to letters, increases steadily, creating a need to answer more messages within the same time period. The speed of communication increases, and the desire for a new technological solution to it is proposed – so called 'time-saving devices'. The circle of acceleration starts anew.⁶

TIME CRISIS AS A CONSEQUENCE OF THE VITA ACTIVA

In contrast to Rosa, Han proposes that time has lost its regulating and organisational aspect. Time lacks a sense of direction, whereby events are not connected with each other anymore. Time has become fragmented into the smallest possible unit of atomic particles, and the world has shrunk to singular, punctual events. In Han's terms, 'the atomization of time, destroys the experience of continuity'.⁷ This results in a particular behaviour: out of the hunger for time grows a desire to overload the now with more and more 'events' in increasingly shorter timeframes.

The important issue is not the scarcity of time itself; it is the present-day perception of being 'pressed for time'. According to the sociologist Judy Wajcman, the actual number of working hours has remained consistent, or even decreased, over the past 60 years in Europe and the United States, and life expectancy in Western societies is increasing. Both indicate that we should have more time at hand than before; but the *feeling* of being rushed is more present than ever. Wajcman calls this the 'time-pressure paradox'.⁸

This is reflected in a contempt for sleep as non-productive time. People in Western societies changed their sleeping behaviour from a presumed ten hours 200 years ago, to six and a half hours on average today. In *24/7: Late Capitalism and the End of Sleep*, Jonathan Crary exemplifies sleep as a significant indicator of how capitalist thinking influences the fabric of everyday life. Today's non-stop society pushes its citizens to constant activity, and ideally constant consumerism.⁹

Crary urges us to reconnect with natural and physical rhythms¹⁰ in order to address the current crisis. Similarly, John Urry emphasises that 'rhythmicity is a crucial principle of nature, both within the organism and in the organism's relationships with the environment. And humans and other animals are not just affected by clock time but are themselves clocks'.¹¹

Nowadays this fact is often ignored or overwritten by stimulants (from caffeine and nicotine to cocaine and amphetamines), which increase alertness and activity in the short-term. People reduce their hours of sleep so they can keep up with what our society glorifies: high productivity, activity and speed. This results in a conflict between social expectations and the actual time available, which creates a state of literal, physical exhaustion that leaves affected individuals with significant problems with managing their life. The number of people diagnosed with 'Burnout Syndrome' in Western societies is rising.¹²

What do we as a society and as individuals consider time well-spent or wasted? As Han explains, acceleration is only a secondary process. The core issue is an exaggerated appreciation of what he calls the *vita activa* over the *vita contemplativa*: active life over contemplative life. Acceleration is only a product of contemporary technological culture, rather than the trigger itself. Wajcman points out that technologies are a product of culture, and the relationship between temporal rhythms and technological devices is a result of cultural evolution: social shaping.

Technology is too often seen as outside of social relations. But if time cannot be separated from collective rhythms, assumptions, and hopes of human life, then neither can the technologies that increasingly mark and shape time for us.¹³

This often leads to unintended consequences, which result from human action but not intention. Technologies shape and are shaped by society. They are neither the problem nor the solution, which indicates that the crisis has a more deeply ingrained prehistory. It essentially starts with the way we individually think about time, especially its value.

TIME CRISIS AS AN INDIVIDUAL EXPERIENCE

The intensity of being pressed for time varies hugely from person to person. The concept of individualisation emerged from the industrial era and continues to develop, leading to a hyper-individualised society. Zygmunt Bauman discusses in *Liquid Modernity* the shift to the 'society of individuals'. People are actors of their own life, transforming their identity in response to the present situation. Bauman refers to modern life as a never-ending casting, where every action is evaluated anew, leaving the responsibility for success and failure fully to the individual.¹⁴

Society and politics are increasingly separate entities, detached from individual lives, and the dismemberment of societal structures is the consequence. Previous nine-to-five jobs,¹⁵ standard meal times, or the separation of work days and weekends slowly but surely melt away. This shift leads, on the one hand, to the individual's autonomy of when to work, eat or rest. On the other hand, it can become a trap, making individuals work longer and longer hours. It is now all up to the individual – we are free to decide on our lives to a certain degree, in relation to jobs, relationships, or place of residence.

This means an unprecedented freedom, but such optionality creates unforeseeable problems. For example, people now change jobs every couple of years or so. Compared with agricultural society, where people were farmers or craftsmen all their lives, the unconditional identification with one's occupation has vanished. Autonomy, individual liberty and freedom of choice are the dominant features of today's life. Time instead of money is suggested as an alternative measuring rod for human satisfaction.¹⁶

The extent to which a person is affected by acceleration processes depends on their status and position within society. The impact on each individual is difficult to measure, but our common perception is of being pressed for time. Individualisation and desire for autonomy changes the societal pattern and fosters the desynchronisation of temporal structures.

AN ALTERNATIVE APPROACH TO THE TIME CRISIS

An understanding of the human biological clock lends support to the notion of flexibility and individual temporal rhythms. Now the individual and his or her individual

Fig. 3
Uchronia (A) is a time paradise, offering a new experience of time in the near future. Instead of reality (a), three ways to Uchronia are possible.

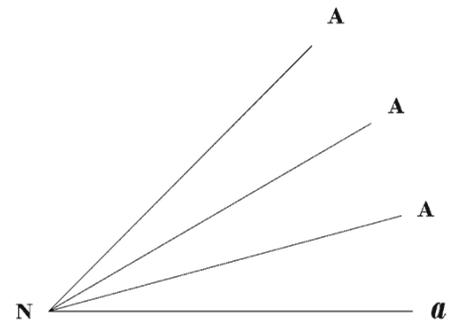
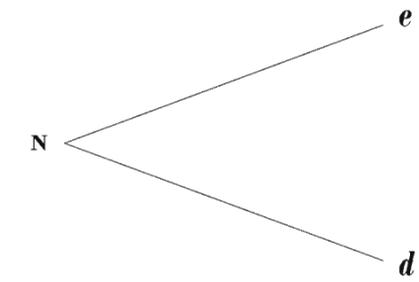


Fig. 4
Uchronia is the future. Now (N) two directions are possible, either the time hell of dyschronia (d) or the time paradise of Uchronia (e).



rhythm take on greater significance. How time is perceived depends on each individual, and their ability to harmonise or synchronise social time, natural and bodily rhythms. A meaningful new temporal structure must therefore be discussed at the individual level, based on physiotemporal and biotemporal order, rather than on conventionality of sociotemporal rules. The personal can then be employed on a political level.¹⁷

THE POTENTIAL OF UCHRONIA

The concept of Uchronia was developed 140 years ago. However, up until now, the neologism pales beside its counterpart 'utopia'. Charles Renouvier coined the word in his novel *Uchronie*, published in 1876. Two subtitles offer two plausible interpretations of Uchronia: 'utopia in history', or 'an apocryphal sketch of the development of European civilisation not as it was but as it might have been'. In other words, Uchronia was originally conceived as an alternative history.

Renouvier included a tree diagram that acts as a visualisation of the Uchronian plot, in contrast to the course of history (Figure 1). In a typical model of Uchronia, an historical event changes at a given point in time, leading to alternative consequences – reality and Uchronia split into different plots. In my research, Uchronia is located between reality and the imaginary, not necessarily limited to the past, and at a point of divergence a parallel narrative unfolds.

Lyman Tower Sargent talks about 'three faces of utopianism'.¹⁸ Certainly, the Uchronian world is much smaller in comparison to the universe of utopia; yet the reduction of Uchronia to alternative history alone does not suffice. Taking a cue from Sargent's *Utopianism*, I suggest three faces of Uchronianism. The first face is Uchronia as alternative history, as previously explained.

The second is equivalent to a 'temporal utopia' offering an imaginary escape in the form of a time paradise. According to the sociologist Helga Nowotny, Uchronia strongly refers to the utopian concept: 'Uchronias, like utopias before them, have a central social function to fulfil: they contain proposed solutions to particular unsolved problems in a society.'¹⁹ Uchronia in this sense is located in the now or the near future, and is intended to offer a new and better experience of time. She is concerned with how time is managed in daily life. Her Uchronia is about a better conception of time.

The third face comprises the use of Uchronia in relation to its historical linguistic origin. Referring to Uchronia as 'no-time' (*ou-chronos*), it suggests a 'non-existent time'. In contrast to alternative history,

Uchronia is not related to an historical event or any precise point in time.

Here I present a visual summary of the various Uchronian definitions, creating a set of graphical representations of Uchronian models (Figures 2 to 4). The diagrams are a continuation and extension of the visual language of Renouvier's original drawings of Uchronia: line drawings and single characters (e.g. now = 0, Uchronia = A).

Uchronia, I propose, can be a temporal utopia, and with a focus on Nowotny's second vision of Uchronia, a breaking out of standardised time. At its heart is the search for the spontaneity of the vicissitudes (ups and downs) of life. Natural rhythms, especially the human circadian rhythm, are suggested as an alternative to current social time norms. By rethinking Uchronia, we can open up opportunities to enrich and influence the discussions on present-day perception of time.

NOTES

- 1 Till Roenneberg et al., 'Epidemiology of the Human Circadian Clock', *Sleep Medicine Reviews*, VI, 11 (2007), 429–438.
- 2 Russell G. Foster and Leon Kreitzman, *Rhythms of Life: The Biological Clocks that Control the Daily Lives of Every Living Thing* (London: Profile Books, 2004), p. 245.
- 3 Till Roenneberg et al., 'Social Jetlag and Obesity', *Current Biology*, X, 22 (2012), 939–943.
- 4 Byung-Chul Han, *The Scent of Time*, translated excerpt of *Duff der Zeit* (Bielefeld: transcript, 2009), p. 7. In biological studies, the term 'dyschronia' is used for symptoms of diseases related to the inability to process the passage of time. McGilchrist, Wolkind and Lishman, for instance, describe this phenomenon in relation to Tourette's syndrome. See I. McGilchrist, S. Wolkind and A. Lishman, "'Dyschronia" in a patient with Tourette's syndrome presenting as maternal neglect', *The British Journal of Psychiatry*, II, 164 (1994), 261–263. See <http://bjp.rcpsych.org/content/164/2/261.short> [accessed 2 September 2018].
- 5 Jeremy Rifkin, *Time Wars: The Primary Conflict in Human History* (New York: Simon & Schuster, 1989), cited in Hartmut Rosa and William E. Scheuerman, eds, *High-speed Society: Social Acceleration, Power, and Modernity* (Philadelphia, PA: Pennsylvania State University Press, 2010), p. 189.
- 6 Wajcman makes a similar point about time-saving devices in the household. She describes the paradoxical phenomenon that the devices alter behaviour and standards rather than saving time (e.g. cleaner cloth). See Judy Wajcman, *Pressed for Time: The Acceleration of Life in Digital Capitalism* (Chicago, IL: University of Chicago Press, 2015), pp. 118–122.
- 7 Han, 2009, p. 9.
- 8 Wajcman, 2015, pp. 61–65.
- 9 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (New York: Verso Books, 2014), p. 11.
- 10 Henri Lefebvre suggests a similar approach in relation to time and space. The body functions as a metronome, the starting point and tool for analysis and research. See Henri Lefebvre, Stuart Elden and Gerald Moore, *Rhythmanalysis: Space, Time and Everyday Life* (London: Bloomsbury Academic, 2013).
- 11 John Urry, 'Speeding Up and Slowing Down', cited in Rosa and Scheuerman, 2010, p. 182.
- 12 Roenneberg et al., 2012.
- 13 Wajcman, 2015, p. 2.
- 14 Zygmunt Bauman, *Liquid Modernity* (Malden, MA: Polity Press, 2012).
- 15 Working hours (the nine-to-five model) are altered through changing working models in the form of flexible working patterns. This especially affects high-end and low-end jobs. In high-end jobs there is a growth of temporal sovereignty (e.g. flexible hours), while low-end jobs are characterised by temporary or zero-hours contracts. ('Zero-hours' is a type of work contract common in the United Kingdom. Such contracts do not give any job security or guarantee permanent work, with only the hours worked getting paid. See OED online definition of 'zero-hours', available at www.oxforddiccionaries.com/definition/english/zero-hours [accessed 3 September 2018].
- 16 A large-scale study on discretionary time in Australia, Finland, France, Germany, Sweden and the United States explored how lifestyle choices impact on work-life balance and temporal pressure on the individual. It suggests time as the natural metric for human welfare rather than economic welfare. In contrast to 'spare time' (168 hours per week, minus *actual* time in paid labour, unpaid household labour and personal care), they suggest discussing people's 'discretionary time' (168 hours per week, minus *necessary* time in paid labour, unpaid household labour and personal care). For more details, see Robert E. Goodin et al., *Discretionary Time: A New Measure of Freedom* (Cambridge: Cambridge University Press, 2008).
- 17 In reference to the paper 'The Personal is Political' (1970) by Carol Hanisch, amend last sentence to: Available at www.carolhanisch.org/CHwritings/PIP.html [accessed 3 September 2018].
- 18 Lyman Tower Sargent, *Utopianism: A Very Short Introduction* (Oxford: Oxford University Press, 2010), p. 5.
- 19 Helga Nowotny, *Time: The Modern and Postmodern Experience* (Cambridge: Polity Press, 1996), p. 139.

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CIRCADIAN SPACE

by Dr Helga Schmid

ABSTRACT No single object could better symbolise the dominance of social time in Western societies than the alarm clock. It interrupts the physical need for sleep and interferes with our body clock. Contemporary life is dictated by external time-givers (societal expectations, day and night), but what happens if we concentrate on our body and individual time signature?

The project *Circadian Space* investigates an alternative time system based on the circadian rhythm. In collaboration with chronobiologists and sociologists of time, it involves the construction of a temporary architectural space representing the body clock. Hours, minutes and seconds are meant to recede in importance as the space becomes the clock. Predetermined standards of spaces are de-programmed, not only in their functionality but also in the way these spaces are inhabited, offering a future perspective on dwelling.

Right: Circadian Space:
Sleepiness Phase,
Kelly Spanou
and Dr Helga Schmid



In my work, I investigate the nature of temporality in relation to the future of dwelling. The physicality of our bodies is placed at the centre of consideration, with the human body clock as parameter for spatial development. This approach disconnects spaces from their traditional topology. The starting point is the temporal relationship of time and the usage of spaces. Currently spaces are inhabited during certain hours of the day. The change of space is often related to the time of day. For instance, the alarm clock determines when to get up and move from the bedroom to the bathroom or kitchen. Clock time determines when to leave home for the commute to arrive at the workplace at a specific point in time. The day continues with scheduled breaks and meetings, up to the commute home again, with most changes of physical spaces related to clock time. The following brief example illustrates our relationship with time and space.

In everyday life we are used to checking the time as a reference point for working hours, meal times, rest or sleep. Alan Lightman, in the novel *Einstein's Dreams*, discusses a world running on mechanical time:

[...] there are those who think their bodies don't exist. They live by mechanical time. They rise at seven o'clock in the morning. They eat their lunch at noon and their supper at six. They arrive at their appointments on time, precisely by the clock. They make love between eight and ten at night. [...] When their stomach growls, they look at their watch to see if it is time to eat.¹

The clock structures and directs people's behaviour. In my work, I argue for an alternative structure in relation to spaces. Rather than being guided by clock time, I suggest that the space can act as the clock itself, and body rhythms become the essential criteria for spatial movement. The basis for this is chronobiological research,² which categorises the human biological rhythms into three rhythmic domains of *ultradian* rhythm of less than 20 hours (e.g. the heartbeat), *circadian* rhythm of around 24 to 25 hours (e.g. sleep-and-wake cycle) and *infradian* rhythm of 28 or more hours (e.g. menstrual cycle).³

In the project *Circadian Space*, I concentrate on the human circadian rhythm, as outlined in chronobiological research.⁴ I divide the daily rhythm into seven phases of rest, transition and activity: sleep phase, wake-up phase, cognitive performance phase, nap phase, physical performance phase, intuitive phase and sleepiness phase.

These phases are mapped out onto a circle representing around 24 hours. The duration of each phase represents only one possibility, as this varies from

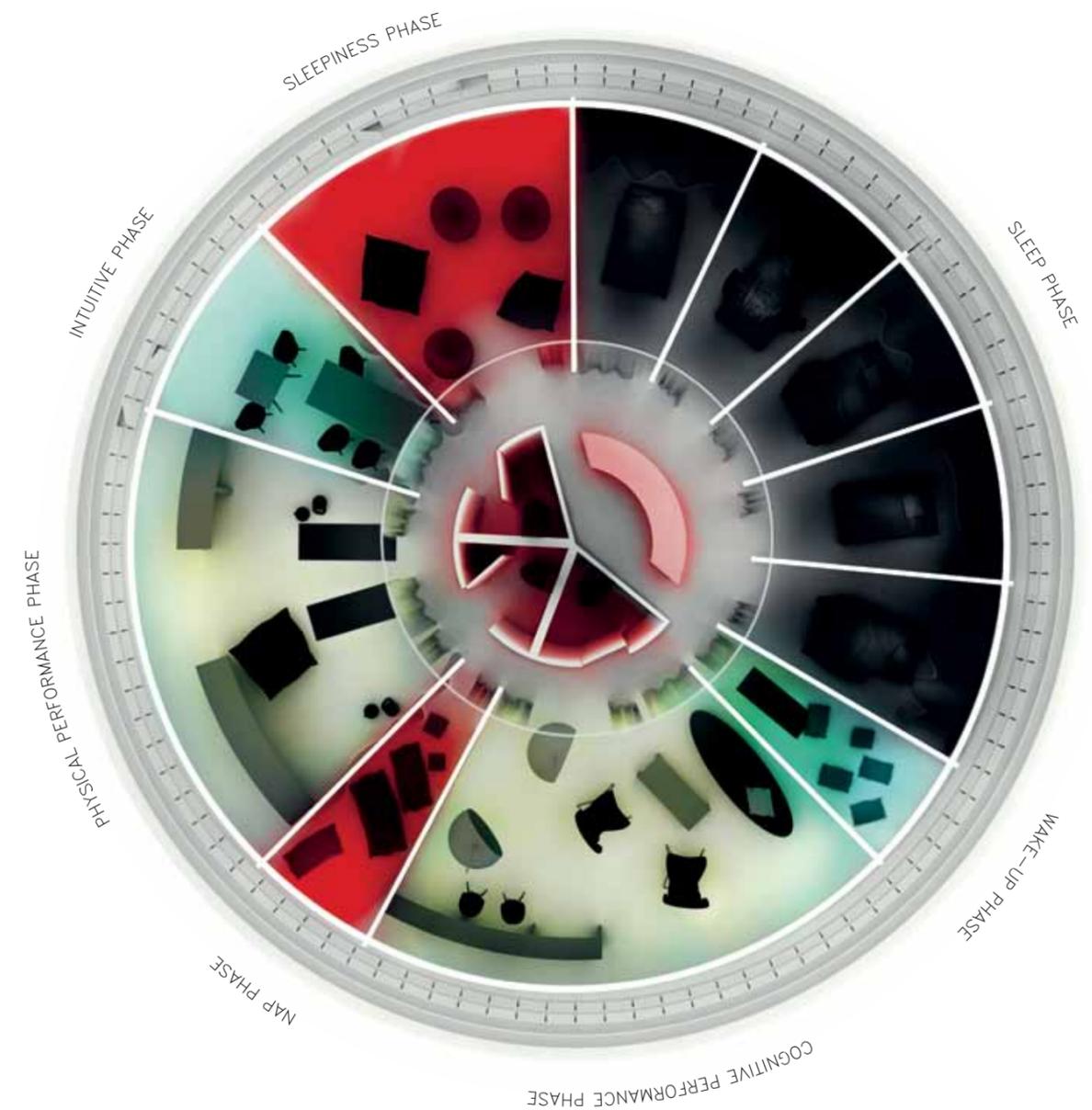
person to person and day by day. This takes into account that bodily rhythms are flexible in comparison to the rigidity of clock time.⁵ Using the schematic scheme of seven phases provides a novel perspective for spatial design based on the body. Criteria for spatial design range, for instance, from peak in logistical reasoning and best muscle strength to highest body temperature. Internal time is transformed into space. The typology of a home, with kitchen and bedroom, becomes irrelevant when the bodily rhythm provides new criteria for dwelling.

This approach shows some resemblance with the work of the architect Philippe Rahm. With a focus on climate, he outlines his methodological approach on 'interpretive architecture':

The goal is to come up with an architecture free of formal and functional predeterminations, a de-programmed architecture that is open to variations of season and weather conditions, day/night transitions, the passage of time, and the appearance of novel functions and unexpected forms. What we are working toward is a reversal of the traditional approach to design in order to achieve a new spatial organisation in which function and form can emerge spontaneously in response to climate.⁶

Predetermined standards are thus de-programmed, not only in their functionality but also in the way spaces are inhabited. In relation to the circadian rhythm, spaces will only be used once a day during a certain biological period, and not multiple times during the day. The design is aimed at preferred conditions for each body phase. This includes parameters like light intensity and spectrum, room temperature, textures, materials, colours, atmosphere and furnishings. In my collaborative work practice, the design of a Circadian Space was developed together with experts in chronobiology, sociology of time, architecture, and interior and lighting design. Next, I will describe the four key phases.

The wake-up phase is one of the shortest phases, with an average of between half an hour and one hour. In this stage, the body undergoes a transition from sleep to wakefulness, from lying to standing wide awake. Biological attributes include the sharpest rise of blood pressure, cortisol and testosterone secretion, while meanwhile melatonin secretion stops. Translated into a space, it consists of four areas: a soft lying area as a transition from the bed, leading to an area for stretching and warming up of the muscles, followed by an area for sitting upright and finally inducing standing up in order to walk to the next phase. The lighting conditions in the room simulate a sunrise: from the dark reddish,



Circadian Space Diagram,
Kelly Spanou and
Dr Helga Schmid

low light intensity to an activating blue with higher intensity.

The first peak of the day is the cognitive performance phase. It is one of the longest phases, with a duration of approximately three to five hours. During this period, the body is at its peak with regard to concentration, short-term memory and logical reasoning. The heart rate and blood pressure are at their maximum. The interior space reflects this stage by providing different modes of working. Separated into a large open space and small enclosed niches, it allows for a variety of actions to be undertaken. The furniture in the space is mobile and can be repositioned depending on the mode of working, physical and/or intellectual activity, in groups or individually. The body position might vary over the course of the phase, changing from active positions of walking and standing to sitting still. Concerning the light, it is at its brightest stage, in full spectrum. This is again comparable with the path of the sun through the course of the day: it would be at its highest point during this phase.

Following this, the nap phase lasts for around one to two hours. At an interval of around twelve hours from the point of deepest sleep (in the sleep phase), the body undergoes a second rest phase as part of the circadian rhythm. In this stage, alertness and concentration significantly decrease. The space accommodates this moment of 'lying in the shade'. It is not intended for deep sleep in complete darkness, but rather for taking a rest and contemplating. Therefore, the space is a soft and comfortable lying area with dimmed lights of a very low lux rate consisting of red-orange light.

The second peak of the day is the physical performance phase, with an average duration of three to five hours. Bodily strength is at its peak, and this is categorised as the most active phase within the circadian rhythm. The biological attributes of this phase are peaks in alertness, grip strength, muscle strength, lung and cardiovascular performance, cardiovascular strength, the highest body temperature and blood pressure, as well as lowest propensity to sleep. For the interior design of the Circadian Space, this results in a large space that allows all kinds of physical activities. The dominant bodily posture is standing and constant movement. The ideal light conditions are external daylight. The duration of the physical performance phase is in contrast to present-day living conditions. The predominant body position of an average city dweller is sitting, up to fifteen hours each day.⁷ By shifting the focus on the human body, the conflict of this physiology and the reality of an office worker's schedule comes to the foreground. In the Circadian Space, around one fifth of the day is allocated to physical activity.

My aim is to influence the thinking on temporal structures in relationship to body and space. The project introduces alternative criteria for spatial design outside the contemporary norm. It is not a blueprint for the 'perfect' space, nor a strict set of rules on how to design spaces. It is rather a wake-up call. In contrast to traditional categories and understandings of space and time, it offers a fresh perspective on dwelling, based on the physiology of the human body. With the human circadian rhythm at the centre of consideration, the approach is in line with a way of thinking and living based on bodily time, as described in *Einstein's Dreams*:

[These people] do not keep clocks in their houses. Instead, they listen to their heartbeats. They feel the rhythms of their moods and desires. Such people eat when they are hungry, go to their jobs [...] whenever they wake from sleep, make love all hours of the day. Such people laugh at the thought of mechanical time. They know that time moves in fits and starts.⁸

NOTES

- 1 Lightman, Alan, *Einstein's Dreams* (New York: Pantheon Books, 1993), pp. 18–20.
- 2 The study of biological rhythms is called chronobiology. The word is based on the ancient Greek terms *chronos* meaning time, *bios* meaning life and *logia* meaning study. See Jay C. Dunlap, Jennifer J. Loros, and Patricia J. DeCoursey, *Chronobiology: Biological Timekeeping* (Sunderland, MA: Sinauer Associates Inc., 2003), p. 4.
- 3 Willard L. Koukkari and Robert B. Sothorn, *Introducing biological rhythms: A Primer on the temporal organization of life, with implications for health, society, reproduction, and the natural environment* (2005), New York: Springer-Verlag, p. 7.
- 4 For details, see table 'Rhythms of Humans' (2004) by Russell G. Foster and Leon Kreitzman, in *Rhythms of Life: The Biological Clocks that Control the Daily Lives of Every Living Thing* (London: Profile Books, 2004), p. 248.



Circadian Space:
Sleep Phase,
Kelly Spanou and
Dr Helga Schmid

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- 5 Conversation with the sociologist Karlheinz Geißler on 18 March 2013, Munich, Germany. He uses the German word *Takt* in contrast to rhythm: 'The stroke or clock is the opposite of rhythm, it is a different quality. The clock is repetition without exceptions. The clock is rigid, while rhythm is flexible.'
- 6 Gilles Clement, Philippe Rahm and Giovanna Borasi, *Environ(ne)ment: Manières d'Agir pour Demain / Approaches for Tomorrow* (Milan: Skira, 2007), p. 155.
- 7 Levine, James A., 'Lethal Sitting: Homo Sedentarius Seeks Answers', *Physiology* V, 29 (2014), 300–301.
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AROUND A DAY

A CIRCADIAN SHOOTING OF 24 TO 25 HOURS

Dr Helga Schmid in collaboration with
Tereza Červeňová (photographer)
and Dr Delfina Fantini van Ditmar
(SMART biologist model)

Fig. 1
Wake-up phase



Fig. 2
Cognitive performance phase

'... I lived according to my moods, and I never lacked time to accomplish a task. How could it have been otherwise, since time existed only in me, since I created time and was indeed my own clock?'

Beyond Time, Michel Siffre, 1964



Fig. 3
Nap phase



THE DESIGN MUSEUM

Fig. 4
Physical performance
phase



Fig. 5
Intuitive phase

'Despite electricity
and atomic clocks,
our bodies still beat
to a daily cycle.'

We do not recognise
it for what it is
because we live now
in a world beset
with all manner of
artificial timing cues
so that our basic
internal clocks are
often "masked".'

Rhythms of Life.
Russell G. Foster and
Leon Kreitzman, 2004



Fig. 6
Sleepiness phase



Fig. 7
Sleep phase

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