UCHRONIA

TIME AT THE INTERSECTION OF DESIGN, CHRONOSOCIOLOGY AND CHRONOBIOLOGY

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ABSTRACT

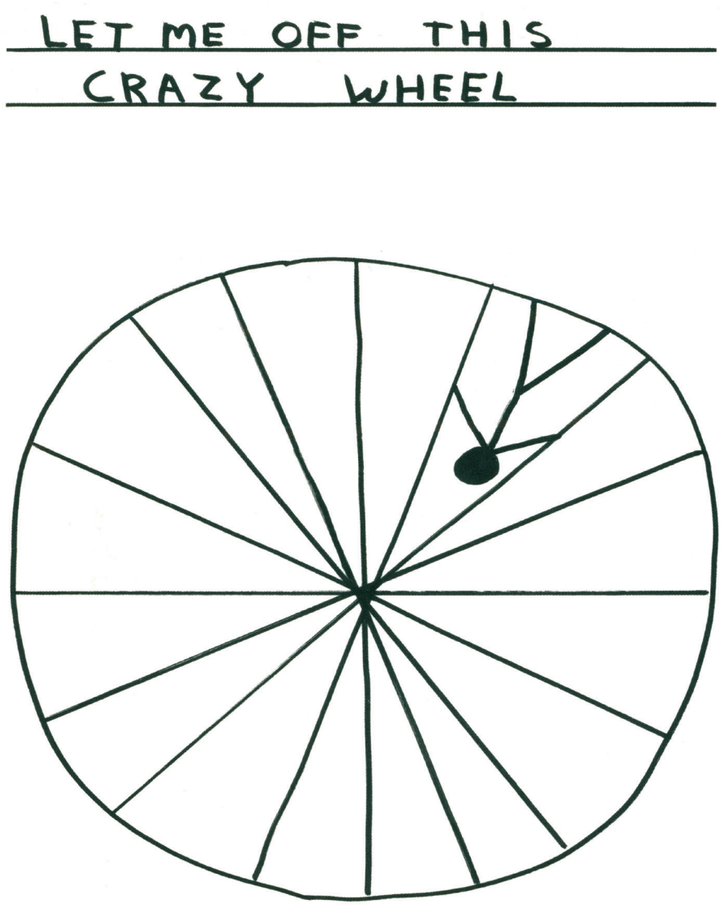

Figure 1.1: *Crazy Wheel* (2013), David Shrigley

The societal transformation from an agricultural to an urbanised 24/7 society, reflected in a move from natural time to the mechanical clock to the contemporary digital age, has significantly influenced our daily biological and social rhythms. Modern technology has fostered an increasing temporal fragmentation, heralding an era of flexible time with ever more complex processes of synchronisation.

These inhumane rhythms conflict with the natural rhythmicity of the human biological clock. This thesis investigates the potential of new perceptions of time through the application of *uchronia*—a term derived from the Greek word *ou-chronos* meaning 'no time' or 'non-time', and from *utopia*, from the Greek *ou-topos*.

This research is situated within contemporary debates on the nature of temporality, often denoted as time crisis or dyschronia. It investigates uchronia as temporal utopia and in the way it generates insights about our knowledge of contemporary temporality.

The research develops an original uchronian methodology and applications of uchronian thinking in practice-led design research, intertwining design, chronobiological and chronosociological research to propose a new area of *chronodesign*.

Through design practice, I explore how scientific research can be translated into lived, aesthetic experience. The methods range from critical and speculative design (thought experiments), artistic research (unlearning methods), to methods drawn from chronobiological research (*zeitgeber* method). I investigate practical work which challenges thought patterns regarding the temporal structure of contemporary life, in which participants explore alternative time-givers or synchronisers, in order to think outside the boundaries of clocks and calendars.

By providing a broadened definition of uchronianism, I aim to establish uchronia as a platform for critical thought and debate on the contemporary time crisis, with chronodesign as a practical design initiative.

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In Samuel Beckett's play Waiting for Godot,
the two main characters Vladimir and Estragon
talk about their temporal experience:

VLADIMIR: That passed the time.
ESTRAGON: It would have passed in any case.[1]

It made me reflect on my own experience of time
in the past years. Certainly, doing this Phd
was an enriching way to pass the time–a time
full of new, unknown and unexpected moments.

I wish to express my sincerest gratitude for
the fantastic, unconditional and beautiful support,
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1 Samuel Beckett, *Waiting for Godot; A Tragicomedy in Two Acts*, 2nd edn (London: Faber & Faber Plays, 2006), p. 41.

AUTHOR'S DECLARATION

During the period of registered study in which this thesis was prepared the author has not been registered for any other academic award or qualification. The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

Helga Schmid
February 2017

CHAPTER 1

INTRODUCTION

We conjecture it is either some unknown animal,
or the god that he worships;
but we are more inclined to the latter opinion,
because he assured us (if we understood him,
for he expressed himself very imperfectly)
that he seldom did anything without consulting it.
He called it his oracle, and said it pointed out the
time for every action in his life.[2]

2 From *Gulliver's Travels* (1735) by Jonathan Swift.
The Lilliputians discover the giant Gulliver's watch.

1.1 EMBODIMENT OF TIME

Every culture has a deeply rooted and particular perspective on social time–'its own unique set of temporal fingerprints'[3]. Time serves as a 'frame of reference'[4] understood and applied by people within each society. From birth onwards, the specific cultural temporality becomes deeply encoded, almost like a sixth sense.[5] As the sociologist Norbert Elias explains in his classic work *Time: An Essay*, the sense of time becomes part of each individual's personality, as if no other time structure could be possible. The temporal, cultural system, with all its facets, thus becomes deeply embodied. For instance, by the age of seven an understanding for the notion of the clock develops.[6]

Certainly, any Western[7] system is undergoing perpetual change, and one of the driving forces for change is rooted in new technologies. Subsequently, these technologies influence our temporal existence, and play a determining role in forming and reconfiguring how we understand and use time. For example, the mobile phone has changed our behaviour in relation to the temporal arrangement of appointments. In many cases, punctuality has given way to flexibility.[8] The measurement of time by the clock is still pivotal, but societal synchronisation dynamics have changed as a result of digital technologies. This leads to the current state of Western society, which is described as an 'instant network society' or 'high-speed society'[9]. The embodiment of the rhythm and speed of digital life creates an atmosphere in which perceptions of time pressures and the scarcity of time are increasing.[10] The natural rhythmicity of the human biological clock, however, conflicts with such contemporary algorithmic structures and inhumane rhythms. The expression 'time-crisis' sets a dystopian tone in contemporary debates on the nature of today's temporality.[11] At the time of the Industrial Revolution, the discrepancy between 'clock time' and the human body clock was described by Lewis Mumford in his seminal book *Technics and Civilisation* (1934):

> The clock, moreover, is a piece of power-machinery whose "product" is seconds and minutes: by its essential nature it dissociated time from human events .... In terms of the human organism itself, mechanical time is even more foreign: while human life has regularities of its own, the beat of the pulse, the breathing of the lungs, these change from hour to hour with mood and action, and in the longer span of days, time is measured not by the calendar but the events that occupy it.[12]

From the vantage point of the present, mechanical time seems slow compared to the high-speed age we currently inhabit. In relation to this contemporary situation, Jonathan Crary posits in *24/7: Late Capitalism and the End of Sleep*, that we have created a nonstop society wherein the human body is not capable of keeping up with the same speed and endurance[13]. In today's 'achieve-ment society',[14] sleep disrupts our productivity and activity around the clock. Today's 24/7 world is not suitable for the human body; or in other words, the 24/7 person is still to be created. Huge efforts are devoted to the manipulation of the body clock in order to achieve a sleepless, fully awake human being.[15] In *Rhythms of Life* the biologists Russell Foster and Leon Kreitman ask: 'Can we create a world in which we can manipulate time to offer a time paradise or "Uchronia" for a time-stressed populace? Or will it be the time hell of "Dyschronia"?'[16]

This thesis is entitled *Uchronia: Time at the Intersection of Design, Chronosociology and Chronobiology,* and critically investigates our contemporary 'time crisis' from a designer's perspective. This research takes as its starting point the proposition introduced by the sociologist Helga Nowotny in *Time: The Modern and Postmodern Experience,* in which she coins the term *uchronia* anew, defining it as 'temporal utopia'.[17] In this thesis I argue that a new approach to thinking about time is needed in order to tackle or even overcome the embodiment of our temporal system, where conventional time keeping has been based on the mechansims of clocks and calendars. Thus, I intend to establish the neologism *uchronia* as a platform to discuss, question and speculate what kinds of temporal systems are possible and imaginable. I explore this through a new time-centric practice I call *chronodesign*.

3 Jeremy Rifkin, *Time Wars: The Primary Conflict in Human history* (New York: Simon & Schuster, 1989), p. 9. The term *temporal* is understood as 'relating to or denoting time or tense', see OED Online, 'Temporal'. Available at: http://www.oxforddictionaries.com/definition/english/temporal [Accessed 11 January 2016].

4 A detailed definition of social time by is given in the later section 'What is Time?' See Norbert Elias, *Time: An Essay* (Oxford: Blackwell Publishers, 1993), p. 73. S. Tabboni, 'The idea of social time in Norbert Elias', *Time & Society*, i, 10 (2001), 5–27.

5 Elias, 1993, p. 139.

6 Rifkin, 1989, p. 57.

7 I refer to the definition of Western in the Oxford Dictionary, when speaking about Western society. Western is defined as a place to live or origin in the West, especially the USA or countries in Europe. See OED Online, 'Western'. Available at: http://www.oxforddictionaries.com/definition/english/western [Accessed 11 January 2016].

8 Hartmut Rosa, *Social Acceleration: A New Theory of Modernity* (New York, NY, United States: Columbia University Press, 2013), pp. 231-236.

9 Hartmut Rosa and William E. Scheuerman, eds, *High-speed Society: Social Acceleration, Power, and Modernity* (Philiadelphia, PA: Pennsylvania State University Press, 2010).

10 Judy Wajcman, *Pressed for Time: The Acceleration of Life in Digital Capitalism* (Chicage, IL: University of Chicago Press, 2015). p. 4.

11 Byung-Chul Han, *The Scent of Time* (Translated excerpt of *Duft der Zeit),* (Bielefeld: Transcript, 2009), pp. 7-8.

12 Lewis Mumford, *Technics and Civilization* (New York: Harcourt, Brace & Company, Inc, 1934), p. 15.

13 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (New York: Verso Books, 2014).

14 Byung-Chul Han, *The Burnout Society* (Redwood City, CA: Stanford University Press, 2015), p. 8.

15 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), pp. 232–234.

16 Foster et al., 2004, p. 242.

17 Helga Nowotny, *Time: The Modern and Postmodern Experience* (Cambridge, Angleterre: Polity Press, 1996), p. 136.

1.2 UCHRONIA THROUGH THE LENS OF DESIGN

This thesis is positioned in design research[18], as part of my PhD studies in Design Interactions and Visual Communcation at the Royal College of Art in London. With my background as graphic designer, I started my research in the Design Interactions programme under the supervision of Professor Anthony Dunne over the course of two years. The focus of my practice and theoretical framework was on the exploration of critical and speculative design[19] methods (see Chapters Four and Seven). I shifted to my home discipline of Visual Communication two years later, and was introduced to the specific communication design lens offered by the research community in the School of Communication (see Chapter Eight).

18 Design Research is outlined in the section Defining Terminology of this chapter. I refer to Ken Friedman, 'Theory Construction in Design Research: Criteria: Approaches, and Methods', *Design Studies*, VI, 24 (2003), 507–522, and Christopher Crouch and Jane Pearce, *Doing Research in Design* (London: Berg, 2012).

19 Critical and Speculative Design is outlined in the section Defining Terminology of this chapter. My main reference are the designers Anthony Dunne and Fiona Raby.

The combination of these two different approaches within design research have contributed to how I approach my exploration of uchronia. In the context of my thesis, I use the expression 'design research community' with regard to the above described research community within the RCA, and the wider professional design network (Design Research Society, German Society for Design Theory and Research).

During the course of the research, I broadened the contextual framework, including delving further into the disciplines of chronobiology and chronosociology. While my research is not framed as an empirical scientific investigation, in some of my workshops and experiments, I draw from chronobiological theory and methods (as experimental practice), as well as from the field of sociological studies[20] focussing on time pressure and acceleration processes. My practical work consists of the design and delivery of initial observations at airports, a typographic piece on conflicting, temporal *moments*, unlearning techniques in the form of two uchronia workshops and two body clock performances, thought experiments on alternative time communities, an interdisciplinary 12-hour body phase workshop, and an architectural workshop. I visualised my airport observations through a graphic and written piece called *Moment Cards*, elaborated the visualisation of different uchronian models and developed a concept, including drawings and a model for the Circadian Space. These specific projects will be explored in more depth and detail in Chapters Four to Eight of the thesis.

I use as my foundation a tripartite framework of design, chronosociology and chronobiology, in order to open up the potential of uchronian thinking and develop the idea of chronodesign. The nucleus of my research is specifically on the establishment of temporal sovereignty, and the externalisation of internal biological time through a series of systematic, practice-led explorations. In this thesis I defend the position that the concept of uchronia, comparable to utopian visions and dreams, is a tool to shift and explore new perspectives on time. It provides new insights into how our bodies and the design of experiences may align with this new concept of time. This discussion is explored in more depth in Chapter Three on uchronian methodology, and continues with the projects mentioned above, presented in Chapters Four to Eight. In the following section I define the research question.

20 My main influences in the sociology of time are Barbara Adams, Valerie Bryson, Norbert Elias, Karlheinz Geißler, Helga Nowotny, Hartmut Rosa, Judy Wajcman and Evitar Zerubavel.

1.3 RESEARCH QUESTION

I investigate the proposition that an awareness of the construct of social time is necessary in order to address the present-day relationship with time. 'Burnout society'[21] is just one phrase in current debates about our relationship with time in sociological theory, human chronobiology, philosophy, and the public sphere. In this context, sociologist Judy Wajcman discusses the time-pressure paradox[22], pointing out the mismatch and misconception between free time at hand in contrast to the feeling of being 'pressed for time'. Han goes further by describing the present-day situation as a dyschronia.[23] Rosa argues that this situation is caused by processes related to technological acceleration, the acceleration of social change, and therefore the acceleration of the pace of life. By exploring the issues that have led to the current situation, I propose a shift in thinking about the current perception of time. Here, I argue that people need to break with common patterns of thought in order to change it. Meaningful new temporal structures of everyday life must be discussed, based on physiotemporal and biotemporal order, rather than only on conventionality of sociotemporal rules or technological acceleration.

I thus establish uchronia and explore this concept more fully. To date, the neologism uchronia is under-explored, especially in comparison to its bigger brother utopia. Nowotny explores uchronia as a temporal utopia, but her basic rationale behind the uchronian concept has not been applied to a practical design project on the subject. So far, researchers (e.g. Valery Bryson, Russell G. Foster, Leon Kreitzman) use the terminology of uchronia only as a proposition, usually written as an outlook in the final paragraph or chapter of their studies. In terms of the timeliness of the current time crisis, the adoption of uchronia is far behind in realising its potential.

Building on this argument, my research asks:

What characteristics of contemporary temporality does uchronia address?

To answer this central question I address two secondary questions:

What are the possible *applications* of uchronian thinking in design research?

What are the *implications* of uchronian thinking and the uchronian methodology in design research and more broadly?

These questions are investigated using methods detailed in Chapter Three: observation, writings, interviews, experiments, workshops and performances, leading to interdisciplinary collaboration and practical implementation in the form of a large-scale project concept development. The thesis thereby addresses broader questions about how the experimental nature of design research can contribute to scientific research, and conversely, how design practice informed by science can contribute to the thinking about and design of environments. This leads to the next section, the contribution to knowledge.

21 Han, 2015, pp. 35-51.
22 Wajcman, 2015. pp. 61-84.
23 Han, 2009, p. 5.

1.4 CONTRIBUTION TO KNOWLEDGE

My contribution to knowledge is threefold:

Firstly, a more nuanced and practical definition of uchronianism in Chapter Two, where I propose three faces of uchronianism: uchronia as alternative history, uchronia as temporal utopia, and uchronia as non-existent time. Through a new methodological approach from my design perspective, I shed new knowledge on the way uchronia is considered and thereby add a new working definition of uchronia from a design perspective. In Chapter Nine, I discuss in greater depth my plans for a publication on uchronianism. The intention is to communicate new thinking on uchronia to a wider audience whose interest in the scientific aspects could be made more accessible through visualisation of uchronian principles. My thesis contributes to the diversification and broadening of the term uchronia as understood and developed within the sciences. Through the extension of its meaning, especially with regard to uchronia as temporal utopia, I add my voice to the debates around the notion of a current time crisis. This research also provides an alternative approach which specifically emerges out of critical and speculative design practices.

My second contribution to knowledge, developed out of my exploration of uchronia in its definition as temporal utopia. Inspired by the conceptual framework of Ruth Levitas' work *Utopia as a Method,* I discuss the sociological link between utopianism and uchronianism, and frame uchronia as a methodology[24] rather than a method. The uchronian methodology is situated between utopianism and critical and speculative design practice. Hereto, I draw parallels between Levitas' understanding of utopia and the work of Dunne and Raby. Under the umbrella of the uchronian methodology, I use artistic and design research methods to explore the potential of uchronian thinking. For instance, as part of my uchronian methodology, I translate Olafur Eliasson's concept of 'Unlearning Space' to time, by developing methods to unlearn time (e.g. zeitgeber method). But, to highlight this again, through the complementary sociological and design approaches, the thesis adds a new dimension to design research: uchronian thinking. In conversations, talks and workshops, I introduce 'uchronian thinking' to the design research community, as well as to my interdisciplinary network of chronobiologists, social scientists and architects. As a means of practically testing the uchronian methodology, I developed an area I call *chronodesign*, illustrating this with a design concept for the project Circadian Space, which informs chronobiological research as a testing ground for scientific research. Thus finally and relatedly, my third contribution is in the interdisciplinary nature of the research and the role design plays within the process. Design research functions here as the decisive factor for the collaboration between chronosociology and chronobiology. Before I continue to outline the structure of the thesis, I offer a brief description of the key terms and essential concepts.

24 Methodology is understood as the study of methods. Examples of design research methodologies and methods are listed in *Design Research: Methods and Perspectives*, ed. by Brenda Laurel (Cambridge, MA: MIT Press, 2003).

1.5 DEFINING TERMINOLOGY

In this section I present a brief definition of the key terms used in the thesis in relation to my work. Additionally, a glossary (page 368) offers explanations of chronobiological, sociological and design research terms reoccurring within the thesis. In the first instance, I begin by asking broader questions of the terminology in order to clearly provide a context for a more detailed evidencing of my research as it is described later in the thesis. Interspersed within this discussion are references to relevant literature and key thinkers from the field which have informed my research. I begin by asking:

WHAT IS UTOPIA?

Utopia is a term coined by Sir Thomas More in 1516 for his book *Utopia* [25]. The word is based on the Greek term 'ou-topos', meaning 'no place' or 'nowhere'. In English, the homogeneous interpretation of the terms utopia and eutopia, from 'eu-topos', meaning 'good place', are used interchangeably [26]. In his book, More envisions an idealistic society living on a fictional island. He presents the role of utopia not as a blueprint for the perfect society, but rather a suggestive exploration of imaginary ideas and dreaming [27]. In 2016, More's book celebrated its 500th anniversary of publication. Many concepts were developed during this period of time, and a single definition of utopia cannot do justice to the topic's complexity.[28] In Chapter Three, I explore the sociologist Ruth Levitas' definition of utopia in her books *The Concept of Utopia* (1990) and *Utopia as Method* (2013). I align myself with her understanding of utopia, when she argues, 'utopia is the expression of the desire for a better way of being or of living, and as such is braided through human culture' [29].

25 Thomas More (1516), *Utopia (Penguin Great Ideas)* (London: Penguin Books, 2009).

26 BBC, *Utopia, in our Time,* BBC Radio 4 (broadcast, 1999), <http://www.bbc.co.uk/programmes/p005462n> [accessed 12 August 2016].

27 Utopia, *About* (UTOPIA 2016, [n.d.]), <http://utopia2016.com/about/> [accessed 12 August 2016].

28 Ruth Levitas, *The Concept of Utopia* (Syracuse, NY: United States: Syracuse University Press, 1990), p. 179.

29 Levitas, 2013, p. XII.

WHAT IS UCHRONIA?

Uchronia is a concept that derives from 'utopia'. In the same manner as utopia, uchronia is defined as 'no time' or 'non-time' from the Greek 'ou-chronos'. The word uchronia was first used by the French philosopher Charles Bernard Renouvier in his novel *Uchronie* (L'Utopie dans l'histoire) [30] in 1876. 'Uchronia' is still a neologism, explored mainly in the literary genre of alternative history. I acknowledge the definition of uchronia as defined by scholars of the literary genre of alternative history [31] (Paul Alton, Emmanuel Carrère, Karen Hellekson, Pierre Versins and Christoph Rodiek, see Section 2.4). Moreover, I add to this definition a discussion of the term by exploring it from a different perspective—that is, uchronia as a temporal utopia. The definition and concept derives from the utopia, but is rooted in sociological theory. Helga Nowotny (1994) introduced the terminology of uchronia to sociology by strongly aligning her model to the utopian concept. Her interpretation of uchronia is closest to the idea of a 'temporal utopia'. She defines it as an attempt to escape the rigidity of clock time through the development of new time concepts. In this research, I therefore take uchronia to mean 'temporal utopia'.

30 Charles Renouvier, *Uchronie (L'Utopie dans l'histoire), esquisse historique apocryphe du développement de la civilisation européenne tel qu'il n'a pas été, tel qu'il aurait pu être* (Paris: Libraire Germer Bailliére, 1876).

31 Alternative history is a genre in science fiction, often used synonymously with the term alternate history, counterfactuals, or allohistory. The stories suggest an alternative course of history which is different from history. For a comprehensive description of the genre of Alternate history, see, 'The Plot and America', Uchronia: Uchronia: Introduction (1991), <http://www.uchronia.net/intro.html> [accessed 12 August 2016].

WHAT IS TIME?

Defining 'time' is an essential element; however, it is not the intention of the thesis to attempt to determine the multi-faceted dimensions of time. What I discuss is specifically how human beings embed themselves in their individual days. I look at how this behaviour resonates with their immediate environment, respectively, if it affects their temporal embeddedness. I reason this in relation to three temporal phenomena of social time, rhythms of the natural environment, and the human biological rhythm. Hereto, I understand social time in reference to the definition by Elias:

> the word 'time' … is a symbol of a relationship that a human group … with the capacity for memory and synthesis, establishes between two or more continua of changes, one of which is used by it as a frame of reference or standard of measurement for the other (or others). … Clocks are precisely this; they are nothing other than human-made physical continua of change which, in certain societies, are standardized as a framework of reference and a measure for other social or physical continua of changes.[32]

Social time is therefore defined as a social construct. In relating to the contemporary Western understanding, this linear social time is often referred to

32 Elias, 1993, p. 46.

as 'clock time'[33]. The second phenomena are rhythms of the natural environment, for instance tidal ebb and flow, day-and-night rhythm, and seasons. Human beings are not seen as separate from natural rhythms, but an integral part.[34] The third temporal phenomena of human biological rhythms are influenced by these external rhythms, especially sunlight. In chronobiology, these biological rhythms are categorised into the following three rhythmic domains: *ultradian* rhythm of less than 20 hours (e.g. the human pulse), 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).[35]

WHAT IS PRACTICE-LED DESIGN RESEARCH?

My research is situated in design research. My background as design practitioner from my previous education as graphic designer, and my professional practice and research activities in the museum context, clearly situate me in the field of design. In the context of the RCA, I have been part of a growing and vibrant design research community. For the understanding and definition of the term design and design research, I draw upon the work of Ken Friedman who outlines his understanding of design as follows: 'Design involves solving problems, creating something new, or transforming less desirable situations to preferred situations.'[36] In Chapter Three, 'Utopian Method and Uchronian Methodology', I will discuss the change from the existing to a 'preferred' state in the context of critical and speculative design. I align myself with Friedman's theorisation of design research as follows:

> To reach from doing to knowing requires the articulation and critical inquiry that leads a practitioner to reflective insight. (…)
>
> It is not experience, but our interpretation and understanding of experience that leads to knowledge. Knowledge emerges from critical inquiry. Systematic or scientific knowledge arises from the theories that allow us to question and learn from the world around us.
>
> One of the attributes that distinguish the practice of a profession from the practice of an art is systematic knowledge.'[37]

In design research, two common approaches have been discussed by Christopher Frayling (1997)[38] and Michael Biggs (2002)[39]: *practice-based* and *practice-led* design research. The definition of these approaches, although an issue for debate over more than 20 years, has not led to a distinct conclusion.[40] In the context of my research, I situate my approach as practice-led research in alignment with Couman's definition (2003):

> Within practice-led research it is the design process moving from problem to solution that is the point of departure for the rhetoric research direction of the thesis. (…)
>
> The research direction of an artist/designer–other than the art and design process–is a transparent process in which conscious steps are taken, in which knowledge is used, or knowledge is searched for and articulated in the process.[41]

The key elements for my research are the focus on process, rather than the final outcome of design practice. The process of making is a conscious act. The process is a result of me taking on the role of a practitioner and researcher in equal parts.

33 In the context of this thesis 'clock time' is understood as the worldwide time standard of Coordinated Universal Time. Time is divided into seconds, minutes, hours and days, precisely calculated by the atomic clock. The second is the base unit of time, defined as 9,192,631,770 oscillations of a caesium atom. In another context, clock time might be interpreted differently. The study and art of measurement of time (horology) looks at the variety of clocks and clock systems. Japanese clocks, for example, divide the day into twelve hours of six daylight and six nighttime hours. These hours vary in length throughout the seasons. See 2016 WorldTimeServer, *World time server: Current local time and date in any zone* (1998), <http://www.worldtimeserver.com/> [accessed 29 August 2016]. Jay Griffiths, *Pip Pip: A Sideways Look at Time* (London: Flamingo, 2000), pp. 1-3.
Kevin Osborne, *Asian Horology*, <http://nawcc.org/index.php/nawcc-workshops?catid=0&id=1403> [accessed 29 August 2016].

34 B. Helm et al., 'Annual Rhythms that Underlie Phenology: Biological Time-keeping meets Environmental Change', *Proceedings of the Royal Society B: Biological Sciences*, MDCCLXV, 280 (2013), 20130016–20130016.

35 Willard L. Koukkari and Robert B. Sothern, Introducing biological rhythms: A Primer on the temporal organization of life, with implications for health, society, reproduction, and the natural environment (New York: Springer-Verlag, 2005), p. 7.

36 Friedman, 2003, p. 507.

37 Friedman, 2003, p. 521.

38 Christopher Frayling, *Royal College of Art Research Papers Vol 1* NO *1 1993/4: Research in Art and Design* (London: Royal College of Art, 1993). And Christopher Frayling, Stead, V., Archer, B., Cook, N., Powell, J., Scrivener, S., et al., *Practice-based Doctorates in the Creative and Performing Arts and Design*. (Warwick: UK Council for Graduate Education, 1997).

39 Michael Biggs, 'Editorial: The concept of knowledge in art and design' (2002), <https://www.herts.ac.uk/__data/assets/pdf_file/0005/12299/ WPIAAD_vol2_biggs.pdf> [accessed 12 August 2016].

40 Nithikul Nimkulrat, 'The role of documentation in practice-led research', *Journal of Research Practice*, I, 3 (2007), 6 <http://jrp.icaap.org/index.php/jrp/article/view/58/83> [accessed 12 August 2016].

41 Anke Coumans, *Practice-led Research in Higher Arts Education*. In T. Ophuysen & L. Ebert (Eds), On the Move: Sharing Experience on the Bologna Process in the Arts. (Amsterdam: European League of Institutes of the Arts [ELIA] 2003), pp. 62-67.

WHAT IS CRITICAL AND SPECULATIVE DESIGN?

'Critical design' has its origin in the publication *Hertzian Tales* by Anthony Dunne in 1999. Together with his partner, architect Fiona Raby, he further defined the concept in *Design Noir: The Secret Life of Electronic Objects* (2001). They argue that,

> …design can be described as falling into two very broad categories: affirmative design and critical design. The former reinforces how things are now; it conforms to the cultural, social, technical and economic expectation. Most design falls into this category. The latter rejects how things are now as being the only possibility, it provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical or economic values.[42]

As a means of expression in critical design, work is typically displayed in exhibitions or through publications rather then being sold. With the goal to create an antithesis to mass-produced design objects, the purpose of such work is to ask questions and stimulate debate. In Dunne and Raby's most recent publication *Speculative Everything* (2013)[43], they move away from the 'critical' towards a 'speculative' approach. The difference has been described by Carl DiSalvo in his definition of speculative design:

> …a practice of creating imaginative projections of alternate presents and possible futures using design representations and objects. At times critical and at other times whimsical, it is a distinctive, if loose, grouping of projects.[44]

'Speculative design' therefore includes the critical approach, but opens up to imaginative and 'whimsical' ideas and concepts. The critique is not necessarily at the foreground of the design project, it can be rather suggestive, proposing a number of possibilities.[45]

My research takes as its starting point this speculative design approach through applying imaginative and critical aspects in my work, in particular by developing thought experiments.

42 Anthony Dunne and Fiona Raby, *Design Noir: The Secret Life of Electronic Objects* (Basel: Birkhauser, 2001), p. 58.

43 Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge: MIT Press, 2013).

44 Carl DiSalvo, "Spectacles and Tropes: Speculative Design and Contemporary Food Cultures." *Fibreculture: Special Issue on Networked Utopias and Speculative Futures.* Issue 20, (2012), pp. 109-122.

45 James Pierce, *Working by Not Quite Working: Resistance as a Technique.* PhD Thesis. Alternative and Oppositional Design. (Carnegie Mellon University, 2015). Available at: <http://www.jamespierce.com/publications/JamesPierceThesisDocument10-15.pdf>, p. 28.

WHAT IS CHRONOSOCIOLOGY?

The 'sociology of time'[46], or 'chronosociology', a term coined by Michael Dunlop Young and Tom Schuller in the book *The Rhythms of Society* (1988)[47], has been described in *Time: An Essay* (1993)[48] by Elias, in *Time and Social Theory* (1990)[49] by Barbara Adam, as well as in publications by Eviatar Zerubavel. Chronosociological studies generally take two different approaches: the first is 'penetrating the social nature of time in the search of the specificities and differences (as well as links) of social time in relation to other types of time'[50]; and the second approach 'consists of analyses of time in contemporary culture, illustrating its changes, the present specificity and new time phenomena.' The second area of study of time in contemporary culture plays a significant role in my research; current temporal conflicts are the starting point for the development of alternative temporal systems.

46 The sociologist Evitar Zerubavel introduced 'The Sociology of Time' as a new field of research. See Eviatar Zerubavel, *Hidden Rhythms: Schedules and Calendars in Social Life* (Berkeley, CA: United States: University of California Press, 1985).

47 Michael Young and Tom Schuller, *The Rhythms of Society* (London, United Kingdom: Routledge, 1988).

48 Elias, 1993.

49 Barbara Adam, *Time and Social Theory* (Cambridge: Polity Press, 1990).

50 Tarkowska, Elzbieta. 'Time in Contemporary Culture', *Polish Sociological Review*, 118, 1997), 191-195.

WHAT IS CHRONOBIOLOGY?

The study of biological rhythms[51] is a relatively new area within biology, and has been established as the discipline of chronobiology. The word is based on the ancient Greek term 'chronos' meaning time, 'bios' meaning life, and 'logos' meaning study'.[52] One of the early symposiums held at the Cold Spring Harbor Laboratory in 1960 laid the foundation for the scientifically recognised discipline of chronobiology.[53] Today it is defined as 'a multidisciplinary effort to understand the temporal dimension of life.'[54] Human chronobiology is concerned with cyclic or periodic phenomena in human beings. In the context of my research, the main focus is on human chronobiology, especially the body clock, how it works, its capabilities and limits, and which of its aspects can be influenced or manipulated. The aim of an investigation of chronobiology in the context of my PhD is to gain an understanding of the biological rhythm and its functional principles, in order to incorporate this knowledge into my design practice.

51 Biological rhythms and biorhythms are not interchangeable. Biological rhythms are related to cyclic and periodic phenomena in relation to lunar and solar rhythms. The term biorhythm refers back to studies of Wilhelm Fliess, discussing how a person's life is influenced by a simple mathematical model of two cycles. Today's most common model uses three cycles of physical cycle (23 days), emotional cycle (28 days), and intellectual cycle (33 days). The theory of biorhythms is now regarded as pseudoscience. See Terence M. Hines, 'Comprehensive Review of Biorhythm Theory', *Psychological Reports*, I, 83 (1998), 19–64.

52 Jay C. Dunlap, Jennifer J. Loros, and Patricia J. DeCoursey, *Chronobiology: Biological Timekeeping* (Sunderland, MA: Sinauer Associates Inc., U.S., 2003), p. 4.

53 Foster et al., 2005, pp. 40-41.

54 Ibid., p. 235.

1.6 INTER-DISCIPLINARY COLLA-BORATIONS

The thesis is built on interdisciplinary collaboration, and thus at the outset I give a brief introduction of the nature of the collaboration and the collaborators involved. I include an interdisciplinary network and collaboration map, outlining details of meetings (Appendix G). In particular, the uchronian project proposal Circadian Space became a platform for conversations in both fields of chronosociology and chronobiology.

CHRONOSOCIOLOGY

In the field of chronosociology, I approached a number of individuals to discuss and elaborate my research. Specifically relevant for my topic was Professor Helga Nowotny, Professor Emerita of Social Studies, ETH Zürich. In an email correspondence she gave me insight on her perspective on the origin and definition of uchronia. In relation to my research into historical prespectives on time and acceleration processes, I met and exchanged ideas with the German sociologist Hartmut Rosa, Professor of Sociology, Institute of Sociology, Friedrich-Schiller-University Jena. With regard to the project development, Professor Karlheinz Geißler (time researcher), was of great help and support as a conversation partner. In general, the nature of the chronosociological collaboration was informative and related to the understanding of the contemporary situation, the theorisation of uchronianism, the development of the uchronian methodology as well as the detailed conceptualisation of the Circadan Space project.

CHRONOBIOLOGY

In the field of chronobiology, the focus was on the collaborative elaboration of the Circadian Space project. All the past and ongoing initiatives have led and continue to lead to numerous fruitful conversations about the project development. Collaborations are with Thomas Kantermann, Scientific Director of the ChonoCity project; Professor Anna Wirz-Justice, Centre for Chrono-biology, Psychiatric Hospital of the University of Basel, Gijsbertus T. J. van der Horst and Ines Chaves from the Chronobiology and Health Group of the Erasmus University Medical Centre, Rotterdam Erasmus MC. Ongoing is a funding application with Professor Russell Foster, Head, Nuffield Laboratory of Ophthalmology and Director, Sleep and Circadian Neuroscience Institute, University of Oxford, and Professor Till Roenneberg, Head of Human Chronobiology, Ludwig-Maximilians University Munich (LMU). As part of my involvement in chronobiology, I became a member of the Society for Research on Biological Rhythms, I completed a six-week chronobiological course ‘Circadian clocks: how rhythms structure life’ taught by Till Roenneberg and Martha Merrow (LMU) in January to February 2015, and I presented my research at the European Biological Rhythms Conference in Manchester in August 2015.

DESIGN

In my own discipline of design, I collaborated with an interior designer, lighting designer, researchers and architects in workshops, conversations, and furthermore in planning for the detailed project realisations, including funding applications. From the very beginning, I worked together with the interior designer Ulrike Lehner, Ninetynine, on the development of the Circadian Space (Chapter Eight). She is also involved in the ChronoCity project (Chapter Nine). On the recommendation of Foster, I contacted the architect Ian Ritchie, Ian Ritchie Architects, and his partner professor Henning Rambow from tagebau architect + designer. Together with Rambow I conducted a workshop about the Circadian Space project with architectural students at the Leipzig University of Applied Sciences (HTKW) in November 2014 (Section 8.2). For the project realisation, I will collaborate with Ritchie or Rambow, depending on the location. In the design stage and later for the project realisation I have exchanged ideas with lighting designer Ulrike Brandi of Ulrike, Brandi Licht.

1.7 STRUCTURE OF THE THESIS

The structure of the thesis is aligned to the practice-led approach and appropriate to the interdisciplinary nature of the PhD. My thesis is a translation of my design process into written form, rather than the standard categories of literature review, methodology, case studies, evidence and findings, analysis, discussion and conclusion. This structure allows me to unpack how, through the combination and integration of theories and methods into my practice, my research uses design to connect the two subject areas of chronobiology and sociology of time. For this reason, the literature review provides a thread through each of the chapters, instead of being confined to a single chapter at the beginning of the thesis. The literature of the three disciplines of design, chronobiology and sociology of time is interwoven with the design process. This allows me to establish explicit links between the theory and the practice of the three academic fields.

CHAPTER TWO, 'Uchronia or Dyschronia?', presents a detailed account of the recent discourse surrounding our present day relationship with time. I analyse the causes of today's dyschronian situation from a historical and contemporary perspective, with a focus on desynchronisation processes between natural, societal and bodily rhythms. The chapter presents my initial contribution to knowledge, an exploration and nuanced definition of uchronia. In this chapter I point out a connection of uchronia, in its definition as temporal utopia, with chronobiology. Building upon this reference, the second chapter ends with a linkage of design research with the two fields of chronosociology and chronobiology.

CHAPTER THREE, 'Utopian Method and Uchronian Methodology', further explores the relationship between utopia and uchronia (as temporal utopia). The chapter begins with the exposition of my research questions in relation to the uchronian methodology. This is followed by an examination of the 'utopian method' defined by the sociologist Ruth Levitas. I use it as key inspiration for uchronian thinking. In contrast to Levitas, I frame uchronia as a methodology rather than a method. Under the umbrella term uchronia, I describe a series of methods relevant to my own process. The aim of this chapter is to establish the uchronian methodology as a general mode of thinking, as part of my contribution to knowledge. The chapter continues with the positioning of the uchronian methodology in the field of critical and speculative design, and further to visual communication. I draw parallels between Levitas' understanding of utopia and her idea of speculative sociology and the leading critical and speculative designers Dunne and Raby. I argue that through the sociological link between utopian and uchronian thinking, and complementary sociological and design approaches, the thesis adds two new dimension to design research: uchronian thinking, and chronodesign.

CHAPTER FOUR TO EIGHT, focus on the practice-led process. After laying out the conceptual framework in Chapter Two, and introducing my methodology and research questions in Chapter Three, I illustrate how these inform my ongoing practice as a visual communicator.

CHAPTER FOUR, 'Observational Studies', consists of two distinct studies, which are subjective observations, analysis and reflection on time conflicts in everyday life. In contrast to Chapter Two, they are applied approaches to apprehend today's time crisis. I finish the chapter by positioning my research approach, clearly distinguishing between uchronian thinking and popular approaches of alternative time (e.g. mindfulness, slow movement).

CHAPTER FIVE, 'Unlearning Time', suggests a radical break with the existent time system of clocks and calendars. Hence, I translate Olafur Elliasson's concept of 'Unlearning Space' to time. In a thought experiment entitled 'One-month Project Series' I explore how we can unlearn and free ourselves from deeply ingrained temporal structures. Building upon this thought experiment, I developed a method called *zeitgeber* method (German for time-giver or synchroniser) as a tool to rethink alternatives. The method is based on chronobiological theory, whereby I interpret the zeitgeber in the context of my research.

CHAPTER SIX, 'Uchronia Workshops' describes two workshops with MA students of the Royal College of Art. In these workshops I introduced the zeitgeber method and tested the potential of uchronian thinking. The students were asked to develop their own zeitgeber and live by it over the course of 48 or 72 hours. They documented and presented the outcomes of the experiments in public symposia.

CHAPTER SEVEN, 'Exploration of Uchronian Thinking', concentrates on the application of critical and speculative design methods used in the context of uchronia. I developed four thought experiments entitled 'Time Communities'. As with the previous two chapters, the future scenarios are deeply interwoven with chronobiological and sociological theory.

CHAPTER EIGHT, 'Uchronian Project Proposal: Circadian Space', explores the detailed development of the project 'Circadian Space'. I unpack the creative process of the concept development in interdisciplinary collaboration. Therefore, the first part of the chapter illustrates a series of workshops and experiments: a one-day workshop with an interior designer based on the daily bodily rhythm which resulted in a detailed project briefing, which I used as the basis for an architectural workshop as well as a performative exploration (self-experiment and collaboration with a performer). These practice approaches led to the further definition of the concept for the large-scale

concept for the Circadian Space. It is a translation of the human circadian rhythm[55] into an architectural structure. The second part of the chapter explores the development of the project through describing the experimental setting, spatial design, and practical implications of audience engagement through public events and an exhibition. I finish the chapter with an outline of the key findings.

CHAPTER NINE, 'Conclusions: The Potential of Uchronia', outlines my contributions to knowledge, which I have explored in the previous chapters. The first consists of a new working definition of uchronianism into three distinct categories. The second contribution consists of the exploration of uchronian thinking through the lens of design research. Hence, I bring forward the concept of the uchronian methodology. I test the methodology through the development of the Circadian Space concept proposal: the concept sets an example of an applied uchronian project and demonstates the translation of uchronian thinking into chronodesign; in relation to chronobiological research, it presents a testing ground for scientific research. The third contribution is related to the interdisciplinarity of the research. By linking the three disciplines of design, chronosociology and chronobiology, the field of chronodesign unfolds.

55 The circadian rhythm is a biological rhythm that persists under constant conditions with a period length of around a day (from Latin circa and diem, 'about a day'). Processes related to the circadian rhythm are the sleep-and-wake rhythm, or the rise and fall of the body temperature. See Koukkari, 2005, pp. 23-25.

CHAPTER 2

UCHRONIA OR DYSCHRONIA?

2.1 INTRODUCTION: THE SCARCITY OF TIME

The ‘scarcity of time’ dominates present-day thinkig about time in Western societies.[56] This chapter sets out the context for the study, with an account of today’s time conflicts in relation to past and present desynchronisation processes. I analyse the current discussion about time politics, from acceleration processes to the shift in the perception of time and the dyschronian scenario. In the discourse about the underlying issues, I concentrate on two key figures in the contemporary discussion. Hartmut Rosa puts forward that social acceleration processes (technological acceleration, the acceleration of social change, and the acceleration in the pace of life)[57] affect every aspect of life, causing the feeling of time pressure. He suggests ‘resonance experiences’[58] as an answer to acceleration. In contrast, the philosopher Byung-Chul Han discusses in his essay *The Scent of Time*, that acceleration processes are only one aspect of today’s crisis. Han sees the main trigger in the rise of the *vita activa* (active life) over the *vita contemplativa* (contemplative life)[59]. He argues for a shift in perspective by ‘revitalisation of the vita contemplativa and relearning of the art of lingering’[60]. My approach is even more radical, by asking for ‘unlearning time’ in relation to social time norms, in order to break with the existing system and start afresh with the social concept of time.

This research investigates the necessity for a new structure. Critical here is that social time norms are not regulated. They are constantly evolving, depending on culturally anchored codes following certain patterns of behaviour. The sociologist Eviatar Zerubavel defines in Hidden Rhythms what he calls the sociotemporal order. It is responsible for the regulation of the structure and dynamic of societal life, while the biotemporal order governs the organism. In contrast to the sociotemporal order, the biotemporal order underlies a certain rigidity. Specifically, through the daily rhythmic cycle of rest and activity, the body clock provides such a determined framework that it can serve as the underlying model for the development of new temporal structures. This includes long segments of time, for instance sleep and wake periods, and brief time segments determined by physical processes such as the ‘speed of perception and processing in our brains.’[61] On these grounds, I introduce the research fields of chronobiology and chronosociology. In this context, an analysis of the contemporary situation, as well as a retrospective view, provide an understanding of the deeper, underlying causes of today’s crisis, depicting the shift in temporal patterns over the last centuries. It informs the later discussion of alternative temporal structures, avoiding a nostalgic idealisation of the past.

As a key idea to critique the present state and suggest alternatives, I bring forward the concept of uchronia. This includes an exploration of the terminology, with a focus on its definition as ‘temporal utopia’. I investigate it as a tool for design research to influence present-day thinking about the format and tempo of contemporary life. This chapter thus provides a framework for the research, contextualising it within the fields of design, chronosociology and chronobiology.

56 Wajcman, 2014, pp. 13-35.
57 Rosa, 2013, pp. 71-80.
58 Hartmut Rosa, *Resonanz: Eine Soziologie der Weltbeziehung* (Berlin: Suhrkamp Verlag, 2016).

59 In reference to the definition of *vita activa* and *vita contemplativa* in Hannah Arendt, *The Human Condition*. In contrast to Arendt’s approach, for Han the *vita contemplativa* ‘connects to the experience of being [*Seinserfahrung*] in which what is beautiful and perfect does not change or pass–a state that eludes all human intervention’. See Hannah Arendt, *The Human Condition*, (Chicago, IL: University of Chicago Press, 1958), and Han, 2016, p. 14.
60 Han, 2009, p. 2.

61 Rosa et al., 2009, p. 94.

2.2 TEMPORAL DESYNCHRO-NISATION PROCESSES

In this section, I will reflect on the temporal desynchronisation processes of social time, the human biological clock and natural rhythms from a synchronised pre-modern age to the initial desynchronisation processes in the modern age. This gives an insight on the deeper lying causes of today's issues.

SYNCHRONISED TIME PATTERN

External natural rhythms and conditions play a central role in the life of human beings. Before the Middle Ages, the word 'time' was not part of everyday language, but seen as a natural process, not in any manner 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 'liquid time' or 'fluid time'–a continuous flow and experience of time.[62] Splitting up time into small units was perceived as heathen, and any kind of clock, from sundials and water clocks to candle clocks, were absent from the daily temporal structure of the rural population; they were the privilege of monasteries or the court. Time belonged to God: the eschatological time. The way people experienced and perceived time was connected to specific events or activities–a far cry from today's more abstract perception of time.

In an agricultural society, life and survival was dependent on external conditions like the wind, rain, sunshine duration, or the tides.[63] 'Collectively the daily, seasonal, lunar and tidal geophysical cycles regulate(d) much of the temporal biology of life on Earth.'[64] Daily rhythms (e.g. meal times) occurred

62 This notion of time is not in any relation to what Bauman describes in his book *Liquid Modernity*. His interpretation of liquidity is related to a constant process of change and instability.
63 Karlheinz A. Geißler, *Alles hat seine Zeit, nur ich hab keine: Wege in eine neue Zeitkultur* (Munich: Oekom Verlag, 2012), pp. 26-69.
64 Russell G. Foster and Till Roenneberg, 'Human Responses to the Geophysical Daily, Annual and Lunar Cycles', *Current Biology*, XVII, 18 (2008), R784-R794, 2008.

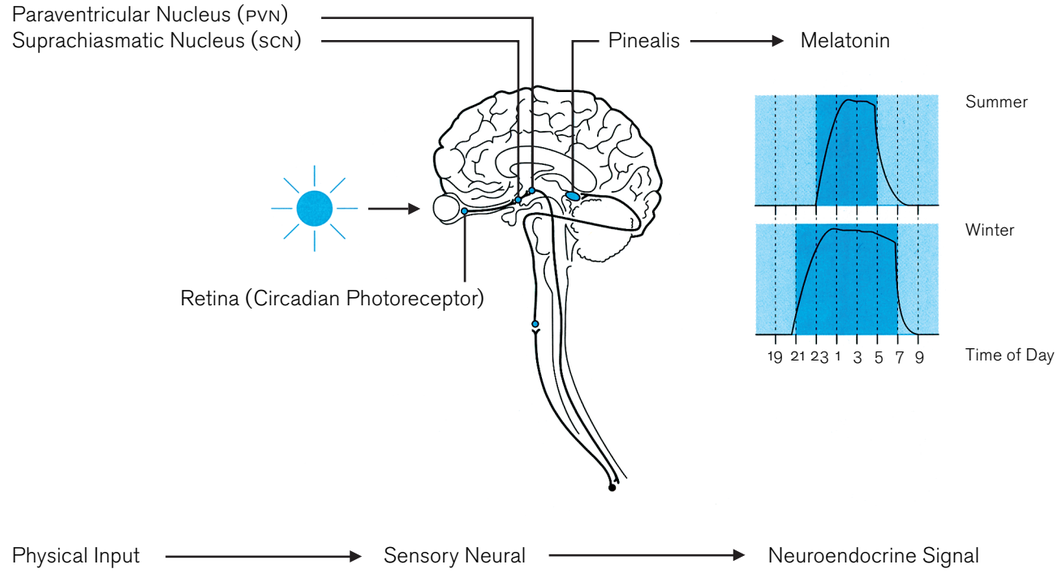


Figure 2.1: *Suprachiasmatic Nucleus* (2001), T. A. Wehr, redrawn by Décosterd & Rahm (2002).

frequently and without prior arrangement, since the life structure of each individual closely resembled that of others. Sunrise and sunset defined the hours of sleep and natural circumstances defined the daily workload; not surprisingly, humans had no knowledge of the circadian rhythm and the inner clock.

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[65]. This is expressed by peaks in cognitive performance, physical ability, alertness and sleepiness, or the body temperature. The main 'pacemaker' for orchestrating the circadian rhythm is the Suprachiasmatic nucleus (SCN), a small region on the midline of the brain that controls the hormone level, body temperature, immune function, physical and digestive activity, alertness and the sleep-wake rhythm.[66] (Figure 2.1)

The human body reacts to entrainment signals, 'by which a biological oscillator is synchronised to an

65 Till Roenneberg and others, 'Epidemiology of the Human Circadian Clock', *Sleep Medicine Reviews*, VI, 11 (2007), 429–438.
66 Foster et al., 2005, p. 243.

environmental rhythm such as the light/dark cycle'.[67] The most influential time-giver of the SCN is light, which, depending on its intensity, synchronises the biological clock with the outside conditions of day and night. This explains why the body clocks of our ancestors were adapted to the 24-hour day-and-night rhythm predetermined by nature. Furthermore, social time cues such as daily meal times or traditional annual festivities reinforced the integration into societal structure. In summary, 'regular physiotemporal and biotemporal patterns provide us with such a high degree of predictability that we can use our natural environment in itself as a fairly reliable clock or calendar.[68]'

The 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'[69], naively suggest we go back to this idyll, ignoring and romanticising the actual living circumstances of the current time period. In Chapter Four, I discuss this in greater depth. Referring to my own upbringing, as I was born and raised on a farm, I have experienced the contrast between agricultural and urban life. I do not glorify this period of time or way of living. 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 their present standards of living and do not understand the consequences of such a 'simple life'. A leap back in time is not the simple answer or solution for today's situation.

67 Foster et al., 2005, p. 245.

68 Zerubavel, 1985, p. 14.

69 Mindfulness meditation origins in Buddhist culture as a holistic way of living, paying attention to the experience of the present-moment reality. The current popularity of mindfulness, however, being marketed as a simple tool for stress reduction, is a far cry from its tradition. Critics even call this mainstream phenomena 'McMindfulness'. See Jon Kabat-Zinn, *Wherever you go, there you are: Mindfulness meditation in everyday life* (New York: Hyperion, 2005). Jon Kabat-Zinn, 'Mindfulness has huge health potential – but McMindfulness is no panacea', *The Guardian*, 19 July 2016.

DESYNCHRONISED TIME PATTERN

At the beginning of the 15th century, a continuous desynchronisation process began between the social construct of time and natural rhythms. Through the wide dissemination of mechanical clocks from the 14th century onwards[70], introduced by the Church, clock time found its way into the rhythms of everyday life, and thus changed the perception of time in people's minds. Moreover, the increasing availability of artificial light[71], from fire, candles and oil lamps to gas and electric lighting, disconnected people from the natural day-and-night rhythm, and the more

70 Before mechanical clocks, people developed all kinds of devices to measure time over the last thousands of years. Beginning with non-mechanical devices such as sun clocks or hourglasses, until the 11th century when the first water-driven mechanical clock was invented. The artefact Antikythera mechanism (2nd century BC) is an exception to this. The highly sophisticated, technological device is descriped as an analogue 'computer' with a complex clockwork mechanism. Only from the 14th century onwards, devices from comparable complexity have been found. See Jo Marchant, 'In search of lost time', *news@ nature*, 7119, 444 (2006), 534–538. Umberto Eco, Kristen Lippincott, and Ernst H. Gombrich, *The Story of Time* (London: Merrell Holberton in association with National Maritime Museum, 1998), p. 132.

71 In Chapter Eight, I give a detailed account on the effect of artificial light and light pollution on the human body.

natural and social time drifted apart, the larger the physical effects on the human body. During the industrial revolution, British factory workers protested against their substandard working conditions, but instead of destroying their machines, they smashed the clock at the entrance of their factory. Such attacks on a timekeeping device illustrate the extent to which society was forced into the 'denaturalization of time[72]. According to Mumford, 'The clock, not the steam-engine, is the key-machine of the modern industrial age.'[73]

In the course of the industrialisation, the desire for speed arose. The 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[74] and therefore to the present structure of today's timekeeping. In 1909, the Futurist Filippo Tommaso Marinetti declared that the magnificence of the world had been enriched by a new 'beauty of speed'.[75] He praised the natural purity of speed and characterised slowness as passive and backward-oriented. The production of timekeeping devices facilitated the capitalist notion of time as a commodity or, in Benjamin Franklin's words, 'time is money'. It could be 'saved', 'spent,' 'wasted,' 'lost', and much else.

72 Reinhart Kosselleck, "Is There an Acceleration of History?" in Rosa et al., 2009, p. 116.

73 Mumford, 1934, p. 14.

74 Hartmut Rosa, "Social Acceleration: Ethical and Political Consequences of a Desynchronized High-Speed Society", in Rosa et al., 2009, p. 88.

75 Marinetti, Filippo Tommaso. *The New Religion-Morality of Speed*. In Rosa et al., 2009, p. 57.

As a consequence of constant time keeping, the precise regularity of time entailed the establishment of a modern virtue: punctuality. As part of the system people have to function within, Nowotny explains:

> Laborious learning of punctuality, to which children were habituated at school from an early age – as a preparation for working life – a process which was implemented with brutal methods and required an extremely long time to lead to that internalization which has become a matter of course today.[76]

Mumford characterises the situation in the following way:

> A population trained to keep to a mechanical time routine at whatever sacrifice to health, convenience, and organic felicity may well suffer from the strain of that discipline and find life impossible without the most strenuous compensations.[77]

Indeed 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.[78]

76 Nowotny, 1996, p. 63.

77 Mumford, 1934, p. 271.

78 Till Roenneberg et. al., 'Social Jetlag and Obesity', *Current Biology*, x, 22 (2012), 939–943.

But not only the clock is used as a structuring tool in the modern era. The Gregorian or Western calendar was first introduced in 1582 and started henceforth a worldwide domination. It is currently the one calendar that can claim universal acceptance internationally for all temporal organisational purposes. Its years, month and days originate in natural rhythms, with weeks being artificial. 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.[79]

In contemporary time patterns, various levels of synchronicity are possible. Collective societal rhythms are still common[80], but the current development is towards temporal autonomy and flexibility. Clocks and calendars are the principal means of time management, but as these 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.[81]

79 Zerubavel, 1985, p. 47.

80 The standard working hours (40 hours and five days a week) are still the typical working model in Europe. The autonomy over working hours for employees in Europe is limited. Mainly the hours are determined by the company (40 to 85%). Agnès Parent-Thirion and European Foundation for the Improvement of Living and Working Conditions., *Fourth European Working Conditions Survey* ([n.p.]: European Foundation for the Improvement of Living and Working Conditions, 2007).

81 Thomas Kantermann, 'Circadian Biology: Sleep-styles Shaped by Light-styles', *Current Biology*, XVI, 23 (2013), R689–R690.

2.3 CONTEMPORARY SOCIETY: DYSCHRONIA

Han characterises the contemporary situation of Western societies as a time crisis, a so called dyschronia[82], which originates in the loss of a genuine rhythm. According to Rosa:

> Recent studies indicate that in fact people in Western societies do feel under heavy time pressure and they do complain about the scarcity of time. These feelings seem to have increased over recent decades, making plausible the argument that the 'digital revolution' and the process of globalization amount to yet another wave of social acceleration.[83]

In the 1970s, Jeremy Rifkin announced 'computime', which he defined as the 'final abstraction of time and its complete separation from human experience and rhythms of nature.[84]' Triggered by modern technologies such as computers, and later by mobile phones, the prevailing clock-based 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 (see Section 2.2) has given way to flexibility, which is now the decisive factor that keeps up the pace of 'hypermodern' life. Mobile phones and other smart devices allow us to be always available to others, enabling instant communication. The credo of today is 'Not Now! Now!'[85]

According to Rosa, there are three forms of social acceleration: technological acceleration (production, communication, transportation[86]), the acceleration of social change (cultural knowledge, social institutions, personal relationships) and the acceleration in the pace of life.[87]

82 Han, 2009, p. 7. In biological studies, the term dyschronia is used for symptoms of diseases related with the inability to assess the passage of time. The journal article Dyschronia' in a patient with Tourette's syndrome presenting as maternal neglect by McGilchrist, Wolkind, and Lishman, for instance, describes this phenomena in relation to the 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 <http://bjp.rcpsych.org/content/164/2/261.short><10.1192/bjp.164.2.261> [accessed 12 August 2016].

83 Hartmut Rosa, 'Social Acceleration : Ethical and Political Consequences of a Desynchronized High-Speed Society', in Rosa et al., 2009, p. 86.

84 Rifkin, *Time Wars*, p. 15 cited in Rosa et al., 2009, p. 189.

85 The title of an international conference and publication on the politics of time in an art and research context (Vienna, Austria, 2013). Renate Lorenz, *Not Now! Now! - Chronopolitics, Art & Research* (Berlin: Sternberg Press, 2015).

86 A powerful driver of technological acceleration is transportation. The cultural geographer David Harvey shows in 'The shrinking map of the world through innovations in transport which 'annihilate space through time', how the relationship between distance and travel time has changed over the past 500 years. Today, he says, the key factor is no longer the distance travelled but the transport connections and journey times. See David D. Harvey, *The Condition of Postmodernity: An Enquiry Into the Origins of Cultural Change* (Cambridge, MA: Blackwell Publishers, 1989), p. 241.

87 Rosa, 2013, pp. 71-80.

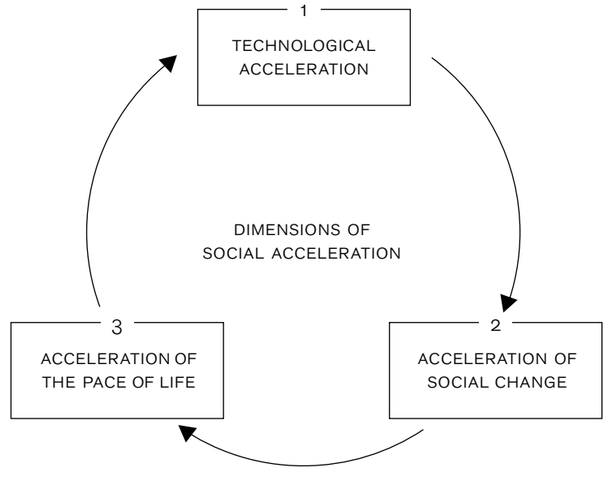


Figure 2.2: *The Circle of Acceleration* (2013), Hartmut Rosa

This leads to shifting temporal structures within our contemporary society. According to this argument, we are caught in a vicious cycle. The dimensions of social acceleration are depicted by Rosa in his diagram 'The Circle of Acceleration' (Figure 2.2). To take a single example, in contrast to correspondence undertaken by mail, electronic messages (e-mails) allow instant communication. Such a development accelerates the communication process and, according to Rosa, therefore leads to social change. That is, the number of e-mails compared to letters increases steadily, engendering the self-imposed need to answer more messages within the same time period. The speed of communication thereby increases, and the desire for a new technological solution to it is proposed—so called time-saving devices. The circle of acceleration starts anew.[88] Rosa continues that the ongoing processes of acceleration now even conflict with a number of deceleration processes and other limiting factors. Rosa discusses four categories of deceleration: places of deceleration (e.g. desert islands); 'slowdown as an unintended consequence of acceleration and dynamization'[89] (e.g. traffic jams);

88 Wajcman makes a similar point about time-saving devices in the household. She describes the paradoxical phenomena, that the devices alter behaviour and standards rather than saving time (e.g. cleaner cloth). See Wacjman, 2015, pp. 118-122.

89 Hartmut Rosa, "Social Acceleration: Ethical and Political Consequences of a Desynchronized High-Speed Society", in Rosa et al., 2009, p. 94.

'intentional forms of (social) deceleration'[90] (e.g. slow movements); and 'hyper-accelerated standstill or polar inertia.' Collectively, these mean that 'the system of modern society is closing in and history is coming to an end.'[91] Such a hyper-accelerated standstill was previously diagnosed by the cultural theorists Jean Baudrillard[92] and Paul Virilio, known for his concept of 'dromology' (the science of speed). Society is thus rushing towards 'uchronia', what Virilio interprets as 'the century of the speed of light'[93]. This leads in exaggerated form to notions such as the political and social theory of accelerationism: to accelerate the acceleration.[94]

TIME CRISIS AS A CONSEQUENCE OF THE VITA ACTIVA

In contrast to Rosa, Han poses that time has lost its regulating and organisational aspect. For acceleration processes, not only velocity but a direction or goal is needed, which he argues has been lost. Time lacks a sense of direction as well as duration, whereby events are not connected with each other anymore. Time is fragmented into the smallest possible unit of atomic particles, and the world shrinks to singular, punctual events. In Han's terms, 'the atomization of time, destroys the experience of continuity.'[95] This has alternately been described as 'instantaneous time'[96], and in the metaphor of 'timeless time[97].

They all agree on the loss of duration in today's rushed society. Heidegger discussed in this context the 'de-presenting of the today'.[98] This describes a pressure on the present moment and how time is perceived in contemporary society. It 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 therefore is not the scarcity of time itself; it is the present-day perception of being 'pressed for time'. As Wajcman demonstrates, 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 there is more time at hand than ever before; but by contrast, the *feeling* of being rushed is more present than ever before. Wajcman calls this phenomena the 'time pressure paradox'.[99] Nowotny elucidates that 'the impression of the scarcity of time arises only from overtaxing of experience by expectations'[100]. Experience and actions need time and can therefore be accommodated in a given span of time only in a limited fashion. Nowotny's argument is that the horizon of time and the structure of expectation must therefore be brought into line.'[101]

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.[102] In *24/7: Late Capitalism and the End of Sleep*, 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. In common with Nowotny, Crary indicates the necessity to reconnect with natural and physical rhythms'[103] 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.'[104] Nowadays this fact is often ignored or overwritten by stimulant drugs (from caffeine and nicotine to cocaine and amphetamines), which in the short-term increase alertness and activity. The rationale behind this is the 'hunger for time'[105].

The biologists Steven W. Lockley and Russell G. Foster state, 'society seems to be conspiring to demote sleep in our list of priorities.'[106] In fact, people reduce their hours of sleep so as to 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. Hence, the number of people diagnosed with 'Burnout Syndrome' in Western societies is rising.[107] The crisis therefore originates not in technological acceleration processes, but in the estimation of certain actions:

90 Ibid., p. 96. One example for the popularity of deceleration is the exhibition 'Die Kunst der Entschleunigung' (The Art of Deceleration) in Wolfsburg, Germany. Markus Brüderlin, Hartmut Böhme, and Kunstmuseum Wolfsburg, *The Art of Deceleration: Motion and Rest in Art From Caspar David Friedrich to Ai Weiwei* (Berlin: Hatje Cantz, 2011).

91 Ibid., p. 96.

92 In reference to Jean Baudrillard's essay 'The Pataphysics of the Year 2000'. Steve Redhead, *The Jean Baudrillard Reader* (Edinburgh: Edinburgh University Press, 2008).

93 Paul Virilio, *Ground Zero* (London: Verso Books, 2002), p. 15.

94 The idea of accelerationism is supported by two opposite poltical camps: The left-accelerationism aims to accelerate the capitalist system until it collapses by itself and a new era of post-capitalism begins. The right-accelerationism aims for an intensification of the capitalist sytem 'towards unparalleled technological singularity'. See Alex Williams and Nick Srnicek, '#Accelerate Manifesto for an Accelerationist politics' <http://criticallegalthinking.com/2013/05/14/accelerate-manifesto-for-an-accelerationist-politics/> [accessed 18 August 2016], and David Cunningham, 'A Marxist heresy?', *Article* (2015) <https://www.radicalphilosophy.com/article/a-marxist-heresy> [accessed 18 August 2016].

95 Han, 2009, p. 9.

96 John Urry, *Sociology Beyond Societies: Mobilities for the Twenty-first Century* (London: Taylor & Francis, 2000).

97 Manuel. Castells, *The Rise of the Network Society: The Information Age: Economy, Society and Culture* (Malden, MA: Blackwell Publishers, 1996).

98 Martin Heidegger, 'Entgegenwärtigung des Heute', cited in Han, 2009, p. 7.

99 Wajcman, 2014, pp. 61-65.

100 Ibid., p. 133.

101 Ibid., p. 133.

102 Crary, 2013, p. 11.

103 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).

104 John Urry, 'Speeding Up and Slowing Down', cited in Rosa et al., 2009, p. 182.

105 Nowotny, 1996, p. 133.

106 Steven W. Lockley and Russell G. Foster, *Sleep: A Very Short Introduction* (New York: Oxford University Press, 2012), p.119.

107 Roenneberg et al., 2012.

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 manifests itself in an exaggerated appreciation of what he calls the *vita activa* (*animal laborans*) over the *vita contemplativa*[108]. This matches with Wajcman's description of social shaping: acceleration is only a product of contemporary technological culture, rather than the trigger itself. Marinetti's praise of the beauty of speed proves true to this day (see Section 2.2). According to Wajcman, the fact is that technologies are a product of culture, and the relationship between temporal rhythms and technological devices is a result of cultural evolution: social shaping[109].

> 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.[110].

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

108 In reference to Arendt, 1998, in Han, 2015, pp. 16-20.
109 Wajcman, 2014, p. 28.
110 Ibid., p. 2.

TIME CRISIS AS AN INDIVIDUAL EXPERIENCE

The intensity of being pressed for time varies hugely from person to person. Individualisation emerged from the industrial era and continues to develop, leading to a hyper-individualised society. Zygmunt Bauman, in reference to Norbert Elias, 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.[111]

Society and politics are thus increasingly separate entities, detached from individual lives, and the dismemberment of societal structures is the consequence. Previous nine-to-five jobs[112], 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

111 Zygmunt Bauman, *Liquid Modernity* (Malden, MA: Polity Press, 2000).
112 Working hours (the nine-to-five model) are altered through changing working models in the form of flexible working patterns. 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 hour contracts. (Zero-hours is a type of work contract common in the UK. It does not guarantee any job security or permanent work, only the hours worked are getting paid. See OED Online, 'Zero-hours'. Available at: http://www.oxforddictionaries.com/definition/english/zero-hours [Accessed 20 August 2016].

hours–24/7. It is now all up to the individual.[113] They are free to decide on their life to a certain degree, whether in relation to jobs, relationships, or place of residence. This means an unprecedented freedom, but such hyper-optionality creates unprecedented problems. The same development is seen in work life, where people now often 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.[114] The extent to which a person is affected by acceleration processes depends on their status and position within society[115]. The impact on each individual is difficult to measure, but the common perception is of being pressed for time. Individualisation and desire for autonomy changes the societal pattern and fosters the desynchronisation of temporal structures.

113 In this context, Individuals are understood as the priviledged middle and upper class of Western societies.
114 A large-scale study on discretionary time in Australia, Finland, France, Germany, Sweden and the United States explored how life-style choices impact on work-life balance and temporal pressure on the individual. It suggests time as the natural metric for human welfare rather than the 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 to discuss 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).
115 Social groups are now divided into those at one end of the scale who can afford to take their time, those who are unbelievably busy in the middle, and at the other end, the unemployed. In this regard, Wajcman emphasises gender differences as well, with single mothers and career women as the most pressed for time.

ALTERNATIVE APPROACH TO THE TIME CRISIS

An understanding of the human biological clock lends support to the notion of flexibilisation and individual temporal rhythms. Now the individual and his or her individual 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. Here I position my design research, at the juncture between chronobiological and chronosociological research. I argue that the role of the body clock has to be taken into greater consideration in relation to contemporary time patterns. What will happen in the future relies today on the ethics of chronobiology and the politics of time. In the next section, I discuss my approach, which is based on the concept of uchronia. With the uchronian concept, I put in question whether the clock as a synchronisation tool is obsolete, and whether it can be replaced by alternative synchronisation models. Before I detail my methodology, I define uchronia and continue with a discussion on the potential of uchronian thinking.

2.4 UCHRONIANISM: THE POTENTIAL OF UCHRONIA[116]

THE DEFINITION OF UCHRONIA

The concept of uchronia was developed 140 years ago. However, up until now, the neologism pales beside its counterpart 'utopia'. Through an examination of various models, interpretations and ideas of what uchronia is, my research is intended to shed some light on a neglected area of contemporary significance.

Charles Renouvier coined the word in his novel *Uchronie*, published in 1876. Two subtitles offer two plausible interpretations of uchronia: 'utopia in history' (*L'Utopie dans l'histoire*), or 'an apocryphal sketch of the development of European civilisation not as it was but as it might have been' (*esquisse historique apocryphe du développement de la civilisation européenne tel qu'il n'a pas été, tel qu'il aurait pu être*). In other words, uchronia was originally conceived as an alternative history.

Renouvier's *Uchronie* consists of three parts, which are seemingly written by different authors. In the foreword (*avant-propos de l'éditeur*), an editor presents an overall characterisation of uchronia. The central text, a manuscript of the 17th century purportedly written in Latin by a victim of the Inquisition, posits the role of the Inquisition in the Holy Roman Empire in over a hundred pages. Finally, the afterword of the editor (*postface da l'éditeur*), signed by Renouvier, addresses the specific features of the literary form of uchronia.[117] According to Renouvier, the term denotes a *utopie des temps passés* or 'utopia of past times'. He elucidates his intention as promoting a new way of thinking as well as the creation of an unusual genre.[118] The underlying principle of telling a story that deviates from reality has existed since the dawn of humankind. In this sense, when the first uchronian work was written is still unknown. Pierre Versins was the first to identify one of the earliest uchronian works in *his L'Encyclopédie de l'utopie* (1972). Within the genre of science fiction, he acknowledges Louis Geoffroy's novel *Napoléon apocryphe, 1812-1832: histoire de la conquête du monde et de la monarchie universelle* as the first piece of uchronian literature.

116 The typeface used for the titles is called *Uchronia*. It is based on the hand-lettered covers of early 20th century French art books, designed by Mark Ho-Kane.

117 Christoph Rodiek, *Erfundene Vergangenheit: Kontrafaktische Geschichtsdarstellung (Uchronie) in der Literatur* (Frankfurt am Main: Verlag Vittorio Klostermann, 1997), pp. 77-79.

118 Paul K. Alkon, *Origins of Futuristic Fiction* (Athens, GA: University of Georgia Press, 1988), p. 305.

THREE FACES OF UCHRONIANISM

The meaning of uchronia or *uchronie* is distinct in different languages, leading to diverse interpretations of the term. Whereas in French, *uchronie* has its origin and is used synonymously with 'alternative history', this is not the case in Spanish, Italian and German. In English, the expression 'uchronia' is rarely used. The linguistic differences explain the conspicuous frequency of the word in the work of French writers and artists. Many of the books available on the topic are thus written in relation to alternative history and are initially published in French.

Lyman Tower Sargent talks about 'three faces of utopianism'.[119] 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. One widely shared view is that the term is coextensive to alternative history,[120] but even in Sargent's first category of uchronia, in the genre of science fiction, the definition varies. What is thus lacking is a comprehensive analysis of the various facets of uchronia as it is employed within other disciplines such as sociology, music and fine art. Taking a cue from Sargent's *Utopianism*, I suggest three faces of uchronianism. In the further course of the thesis, I argue that in the current debate on today's time crisis, a new approach, in form of a temporal utopia, is needed to imagine and explore alternatives to the present-day condition.

The first face is uchronia as alternative history, as previously explained. The second face of uchronia is equivalent to a 'temporal utopia' offering an imaginary escape in the form of a time paradise. According to 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.'[121] Uchronia in this sense is located in the now or the close 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 its more etymological sense. 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. Most of the work falling into this category is independent of the linear time concepts of past, present and future. Régis Messac, for example, offers in *Primaires* the following uchronian definition: 'a remove from time or outside time'[122], which is explored in the artwork of Matali Crasset's 'Voyage en Uchronie'. Another example is given by Leo Kreutzer in the Kyffhäuser myth that is discussed in relation to Heinrich Heine in a later section. In this regard, the German neologism *nirgendwann*, meaning anytime and never, expresses the uchronian concept.

119 Lyman Tower Sargent, *Utopianism: A Very Short Introduction* (Oxford: Oxford University Press, 2010), p. 5.

120 Hellekson, 2001, p. 14.

121 Nowotny, 1996, p. 139.

122 *Voyage en Uchronie—Galerie Thaddaeus Ropac* (2013), <http://ropac.net/exhibition/voyage-en-uchronie> [accessed 12 August 2016].

I will now explain in more depth each of the faces I am suggesting. By using historiographical methods, I explore the existing definition of uchronia in alternative history, gaining authoritative knowledge about its current definition. I explore the terminology further reaching in the fields of sociology, politics, chronobiology, fine art, literature and music. As a result of analysing the various definitions in these fields, I build a broadened perspective on the term, contributing empirical knowledge to the etymological understanding of uchronia. In addition, I present a visual summary of the various uchronian definitions. Drawing upon my practice as a designer, I have adopted the form of double-sided, screenprinted cards, for which a set of 15 graphical representations of uchronian models (Figures 2.10-2.24) have been designed. The intent of these cards is to make visible what might be considered complex ideas of uchronia. The diagrams are a continuation and extension of Renouvier's original representation of uchronia (Figure 2.3). In this section I diversify the definition of uchronianism, and in the same way, I broaden its diagrammatic representation. I align my new diagrams to the visual language of Renouvier's original drawing: line drawings and single characters (e.g. certain point in time = 0, uchronia = A). (Figure 2.7-2.12, Appendix A)

UCHRONIA AS ALTERNATIVE HISTORY

Within accounts of alternative history, the first intensive study of uchronia was written by the French author Emmanuel Carrère in *Le Détroit de Behring: Introduction à l'uchronie* (The Behring Strait) in 1986. Subsequently, a few authors have dedicated themselves to uchronia, with disagreements on the assignment within the genre of science fiction. Whereas the writer Karen Hellekson in *The Alternate History: Refiguring Historical Time* (2001) equates the term with alternate history, alternative history, subjunctive conditionals, or counterfactuals; the literary scholar Christoph Rodiek, in his book *Erfundene Vergangenheit* (*Reimagined Past*, 1997), limits uchronia to a narrative form within the genre of alternative history. Further differentiations occur in terms of its concept of temporality.

Here Rodiek suggests the following criteria:

No. 1: Uchronia is limited to the past. At a particular historical event, the course of history changes and continues as reinvented past. Here the alternative story ends before the present day, like in Louis Geoffrey's novel *Napoléon apocryphe* and Charles Renovier's *Uchronie*.

No. 2: Uchronia as alternative past history and of the future, like Louis-Sébastien Mercier's *L'An deux mille quatre cent quarante: Réve s'il en fut jamais* ('The year 2440: A dream if there ever was one'). These uchronian stories are defined by the fact that they are 'chronologically connected to our past and present but even more crucially by characterizing that future as one belonging to progress and thus linked causally if not immediately to the reader's time'[123]

No. 3: The most comprehensive definition of uchronia includes alternative past history, futuristic uchronia, and literature which combines both No. 1 and No. 2. George Orwell's *Nineteen Eighty-Four* (1949), for instance, was ranked among futuristic uchronia at the time it was published, and can now be understood as alternative past history or 'uchronia of future history'[124]. Researchers of science fiction argue whether the last category belongs to uchronian literature or not, but to go into this here would take it too far afield.

123 Alkon, 1987, p. 127.
124 Ibid., p. 156.

Renouvier included a tree diagram in the postscript of his manuscript that acts as a visualisation of the uchronian plot in contrast to the course of history[125] (Figure 2.3). In a typical model of uchronia, an historical event changes at a given point in time, leading to alternative consequences – reality and uchronia bifurcate into different plots. It becomes obvious that within the category of uchronia, definitional disagreements show the complexity of uchronia as alternative history. For my research, the following elements come to the fore: uchronia is located between reality and the imaginary, uchronia is not necessary limited to the past, and at a point of divergence, a parallel narrative unfolds.

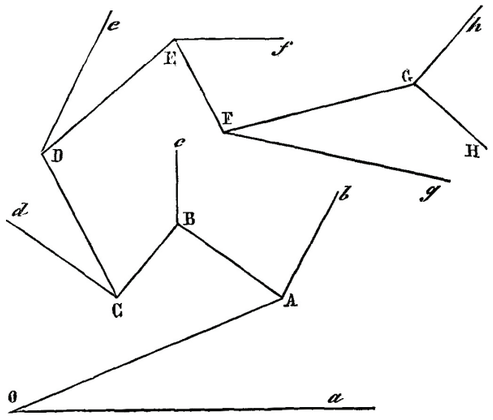


Figure 2.3: *Uchronia Diagram* (1876), Charles Bernard Renouvier

125 The uchronian diagram represents a form of historical story-telling, discussed in the book *Cartographies of Time* as a relevant example for the visual representations of time. See Daniel Rosenberg, Anthony Grafton, and Princeton Architectural Press Staff, *Cartographies of Time* (New York: Princeton Architectural Press, 2010), p. 23.

UCHRONIA AS TEMPORAL FORM OF UTOPIA

The first to introduce the term uchronia to sociological theory was Nowotny. Her model of uchronia is fundamentally different to alternative history. According to Nowotny's definition, uchronia is closest to the idea of a 'temporal utopia', but she also distinguishes between uchronia and utopia. For her, utopias are fictional places located in the distant future, whereas uchronia is located in the present or the extended present.[126] Uchronia is an attempt to escape the rigidity of clock time through the development of novel time concepts. The intention of new temporal structures is to achieve a better experience of time. Nowotny's uchronia aims for a new time structure of social time in contrast to the present model, whereas in alternative history, uchronia is a genre or specific narrative form, but in terms of content does not explicitly refer to alternative time structures.

To introduce her concept in sociological theory, Nowotny suggests three ways to uchronia: The first way expresses the desire for more time, for example in the idea of a 'cockaigne full of time,'[127] cockaigne meaning an imaginary place of plenty.[128] In such a place the hunger for time would be satisfied by all the time in the world, combined with all the money in the world, and consequently, life would be a paradise of leisure, pleasure and consumption. It would be a mythical place which is utopia and uchronia all in one.

126 The term *extended present* was coined by Hermann Luebbe, expressing that categories 'past', 'present' and 'future' cease to exist. *Was ist Zeit?/ [1], Zeit und Verantwortung in Wissenschaft, Technik und Religion*, ed. by Kurt Weis (Munich: Akademischer Verlag, 1995), p. 53.

127 Nowotny, 1996, p. 136.

128 The Editors of Encyclopædia Britannica, 'Cockaigne | imaginary country', in *Encyclopædia Britannica* <http://www.britannica.com/EBchecked/topic/123616/Cockaigne> [accessed 12 August 2016].

Nowotny's second way to uchronia is more complex in its approach and oriented towards self-determination and temporal flexibility (as discussed in Section 2.2). The current strict division of work and leisure time is expected to disappear, giving the individual the right to structure their time for themselves. The current development of flexible time management paves the way for this uchronia. For instance, personal e-mails are written during the working day, while work e-mails are answered on the weekend. Work and leisure can become 'one time' again.

Ideally the experience of time would be perceived as unitary passage of time and not as fragmented parts of hours and minutes. However, there are two sides to this. On the one hand this development can lead to true sovereignty and temporal freedom—the feeling of being pressed for time can wane as the strict categories of work and free time disappear. On the other hand, in reference to Han's argument (see Section 2.3), if the appreciation of the *vita active* over the *vita contemplativa* is the status quo, this might lead to an intensification of time pressure.

One project that largely falls into this category is Fiete Stolte's 'The Eight Days Week' (2006) (Figure 2.4). Although the artist never labelled it explicitly an uchronian project, he developed an alternative pattern for organising time. In line with Nowotny's intention to offer a new experience of time, he divided the seven-day week, based on 24-hour days, into an eight-day week with only 21 hours per 'day'. Over the period of three years, he conducted a self-experiment in which he desynchronised himself from society, nature and his own bodily rhythm. He invites others on his website to do the same. Stolte emphasises: 'As your days are shorter than everyone else's you are ahead of people's time while sharing time zones with places in other parts of the world.'[129] He raises the question of whether a person has to live by local time, or if in a globalised world a person can share certain time frames with multiple time zones. Thereby, Stolte addresses the two stipulations Nowotny demands in the second uchronia—temporal flexibilisation and self-determination. However, the demand for the perception of a unitary time passage remains unfulfilled.

129 Fiete Stolte, *21/8*, <http://www.theeightdayweek.com/> [accessed 12 August 2016].

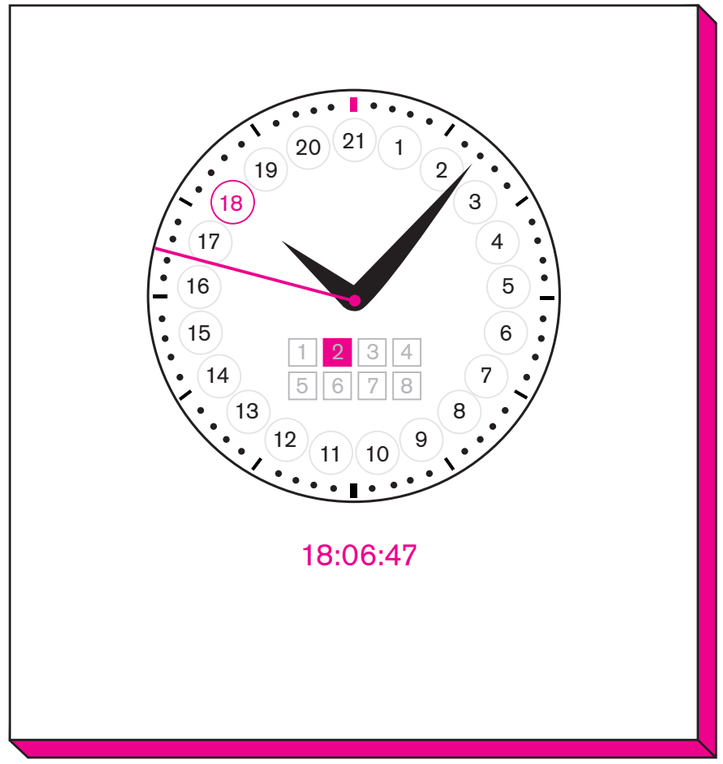


Figure 2.4: *The Eight Days Week* (2006), Fiete Stolte

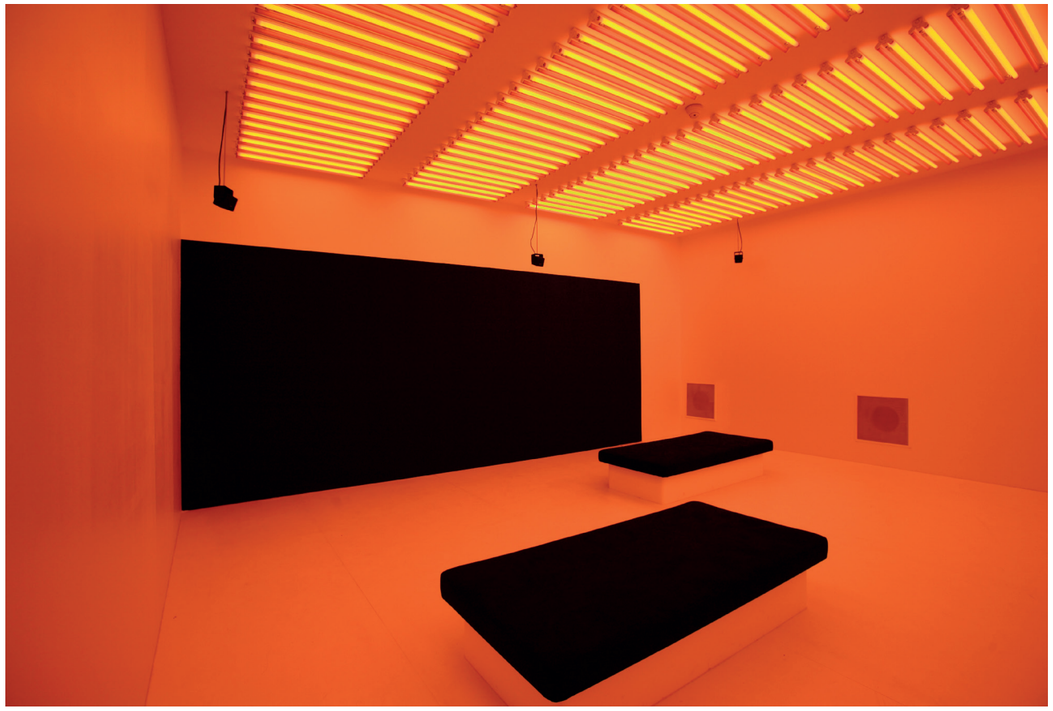


Figure 2.5: *Diurnism* (2007), Phillippe Rahm Architectes

Nowotny's third way to uchronia is one in which there is a breaking out of rigid, standardised time, and in its place, a search for the spontaneity of the 'vicissitudes of life'.[130] Through a rediscovery of natural rhythms, 'the battle against nature is to be brought to an end and homeostasis replaced by homeorhythmics.'[131]' By proposing a return to the 'biological and cultural heritage'[132], supported by chronobiology and chronosociology, the individual daily experience has to open up for the unpredictable and unknown. This type of uchronia asks for new periods of time, outside of the categorise of work and leisure time.

In the context of art and design practice, there are only a few key projects which directly address the visualisation of human biological rhythms. The closest example to my practice (especially the project concept for Circadian Space detailed in Chapter Eight), is developed by the architect Phillippe Rahm. He refers to his project work as 'physiological architecture'[133] and developed his ideas in collaboration with the Centre for Chronobiology UPK Basel, including projects such as 'Melatonin Room'(2001)[134] together with the architect Jean-Gilles Decosterd, or 'Diurnism' (2007). For instance, in the project Diurism (Figure 2.5) Rahm takes on a new approach to the concept of day and night. Rahm creates an artificial night, in contrast to today's constantly lit environments. He illuminates a museum space with 'orange-yellow bright light which wavelengths, upper than -570 nanometers, are perceived by the body through the melatonin rhythm as a true night.'[135] The project could find a real application for night shift workers to get a good artificial night's sleep. In an art and design research context, Diurnism is an inspirational example of a spatial experience developed in collaboration with chronobiologists. The interdisciplinary nature of this project provides an effective working model for collaboration between science and design, and therefore makes it relevant for my research. Thematically, while Rahm criticises the current non-stop society dependent on electric light and utterly unaware of the human bodily rhythm, he does not refer to Nowotny's uchronian vision of alternative models of time. A popularisation of her ideas and uchronia as temporal utopia could contribute to the development of this or similar projects.

130 Nowotny, 1996, p. 137.
131 Ibid., p. 137.
132 Ibid., p. 141.
133 More details on physiological architecture, see *Décosterd & Rahm: Physiologische Architektur,* ed. by Urs Staub and Bundesamt fur Kultur (Basel: Birkhauser Verlag AG, 2002).
134 *Melatonin Room* (2001), <http://www.chronobiology.ch/chronobio-art/melatonin-room/> [accessed 10 September 2016].
135 Philippe Rahm Architectes, *Diurnism* <http://www.philipperahm.com/data/projects/diurnisme/index.html> [accessed 12 August 2016].

In summary, all three of Nowotny's types of uchronia pursue the goal of removing the 'I have to ...' from daily life and replace it by 'I feel like doing ...'. The essential aspects that characterise uchronia for her are:

(1) uchronia is linked to the concept of a temporal utopia, and thus a time paradise, offering a new experience of time;

(2) uchronia is now or in the extended present;

(3) uchronia is about the right use of time with regard to today's social time;

(4) uchronia is a new approach to understand and use time.

On the basis of Nowotny's uchronianism, the political scientist Valerie Bryson discusses possibilities for a new politics of time. She stresses that 'thinking about non-existent ways of understanding and using time opens up a range of radical alternatives outside the framework of patriarchal norms and the short-term logic of capital accumulation.[136]' Bryson uses uchronia to criticise and reflect upon contemporary time norms, conditions and values. Rather than imagining an ideal time paradise or the perfect timing, her female-oriented uchronia is a method to challenge today's politics of time by suggesting a list of new, negotiable criteria. The role of uchronian thought for her is to ask: What time culture is worth striving for, and what is the set of criteria to organise social time? Bryson's uchronian ideas are intended for the here and now, and whether particularly female or not is negligible in this context. Primarily, uchronia is a useful tool to initiate a discussion about the politics of time.

Other sciences refer to Nowotny's concept as well, for instance in the field of chronobiology. In their study of biological rhythms, the scientists Foster and Kreitzman conclude their book *Rhythms of Life* with a chapter on 'Future Times: Uchronia or Dyschronia'. According to them, the notion of time in the future can lead in one of two directions which conform, from their point of view, to the time paradise of uchronia or to Bryson's politics of time. The uchronian ideas are meant to influence today's temporal structures through suggesting a set of criteria to organise future times, more precisely *euchronia* (the Greek *eu* meaning good), or the time hell of *dyschronia* (the Greek *dys* meaning difficult or of bad status), which conforms in their approach to a 'temporal dystopia'. It is not surprising that Foster and Kreitzman mention the term 'dyschronia' in contrast to the uchronian concept of Nowotny. The manipulation of the biological clock can have all sorts of implications in relation to the rhythm of life.

136 Valerie Bryson, *Gender and the Politics of Time: Feminist Theory and Contemporary Debates* (Bristol: Policy Press, United Kingdom, 2007), p. 169.

UCHRONIA AS NON-EXISTENT TIME

Uchronia as non-existent time is the most difficult to grasp and to define. Expressions like 'no-time', 'anytime' or non-existent time', derived from *ou-chronos*, encapsulate the commonalities of this uchronian model. Here, uchronia is removed from any temporality (past, present, future) and deviates significantly from the previous categories. In the essay *Wege nach Uchronia* (Paths to Uchronia)[137], Klaus Mehner suggests a third 'qualified' way to uchronia based on Nowotny's approach. Referring to her third way to uchronia (breaking out of rigid standardised time structures and the search for the spontaneity of the 'vicissitudes of life'), Mehner develops his concept in the domain of music theory. He criticises Nowotny's proposal for being superficial, as it does not fundamentally question the linear way of thinking about time. Mehner explains his view by referring to John Cage's 'Variations I for David Tudor': Cage's intention was to overcome the Western concept of time in order to create independent and free processes. Through the great degree of abstraction of Cage's composition and notation, an enormous flexibility is afforded in the interpretation of the piece. In general, Cage's 'anarchistic way to compose'[138] creates an unprecedented degree of freedom, leading to a radical understanding of time.

In music, Mehner defines uchronia as the dream of temporal freedom. With reference to Nowotny, he argues that his way of conceptualising uchronia is more progressive and successful in terms of achieving a high degree of individual freedom. It remains highly questionable, however, whether his abstract model is comparable to the applied approaches of Nowotny. Mehner suggests a new temporality apart from both linear (e.g. clocks, calendars) and cyclical structures (e.g. days, seasons), but leaves the question open as to whether the freedom afforded in Cage's composition can transfer to other areas.

Whereas alternative history mainly refers to a past event, the temporal utopia or time paradise suggests temporal perspectives for the present and the future. This third model of uchronia can thus in no sense be located on a timeline. In *Träumen Tanzen Trommeln* (Dream Dance Thrum), an essay on Heinrich Heine's work, the author Leo Kreutzer sets out an appropriate example of this kind of uchronia. In the Kyffhäuser legend, the emperor Barbarossa sleeps in a secret chamber underneath the Kyffhäuser hills. As a sign of his presence, ravens circle the Kyffhäuser. Only in the extreme misery of his nation will the emperor get up and restore the country's former prosperity. Heinrich Heine interprets this legend as a poetic uchronia, referring to it as *nirgendwann*, a newly coined German word, combining 'anytime' and 'never'. A translation in English could be the word *when-never*. Since uchronia can happen at anytime and also never, the legend provides infinite hope for the waiting population—the emperor Barbarossa can wake up 'nirgendwann'. Where utopia suggests an ideal place

137 Klaus Mehner and Tatjana Bohme-Mehner, *Zeit und Raum in Musik und Bildender Kunst* (United States: Bohlau Verlag, 2000), pp. 179-191.
138 Ibdn., p. 189.

Figure 2.6: *Voyage en Uchronie* (2013) Matali Crasset

in the nowhere, the right moment for uchronia is at a non-existent time.

Along these lines, the French artist Matali Crasset conceives uchronia in the project 'Voyage en Uchronie' (Voyage to Uchronia). Crasset refers to Régis Messac's definition from 1936: 'An unknown country, discovered by the philosopher Renouvier, located at a remove from time or outside time, to which, like old moons, events that might have happened but did not are relegated'[139]. Crasset's installation displays a place of memory and introspection inside a mountain, inhabited by humans (Figure 2.6). The experimental environment serves as a method to suggest a hypothesis which can not be located on a timeline. The ambiguity of whether it is past, present or future adds to the utopian place, uchronian time.

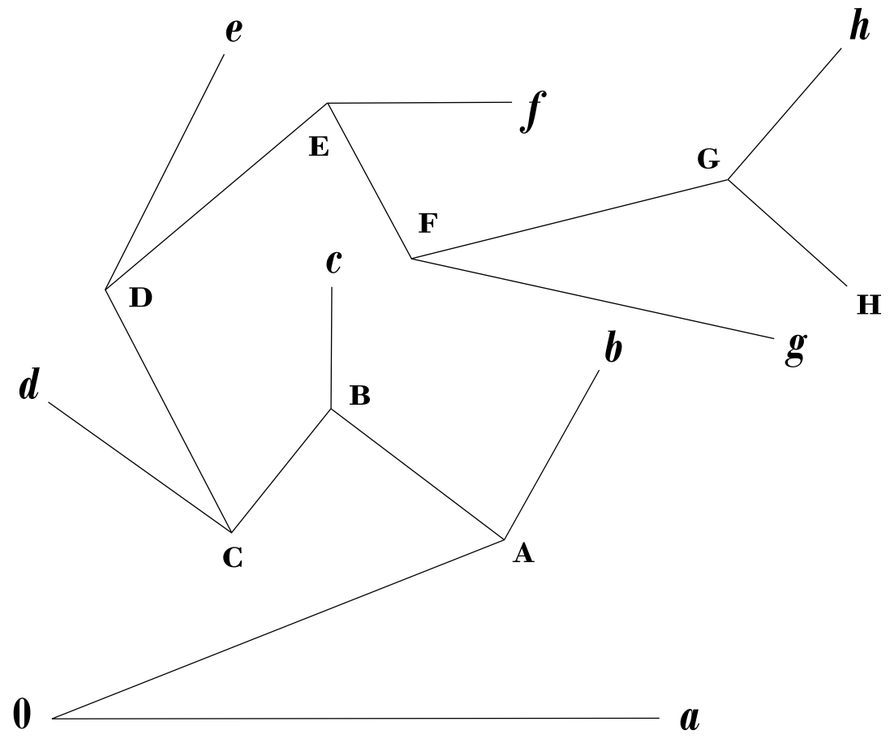
139 Translation of Regis Messac's quote, see *Voyage en Uchronie - Galerie Thaddaeus Ropac* (2013), <http://ropac.net/exhibition/voyage-en-uchronie> [accessed 12 August 2016].

2.5 SUMMARY: DESIGN, CHRONO-SOCIOLOGICAL AND CHRONO-BIOLOGICAL RESEARCH

I have briefly explored the various uchronian models. (Examples of diagrammmatic representations are shown on the following pages, Figure 2.10-2.15, and see Appendix A) I categorised them into three faces of uchronianism. I concentrate on uchronia as temporal utopia, with a focus on Nowotny's third vision of uchronia, the breaking out of standardised time. At its heart is the search for the spontaneity of the vicissitudes of life. Natural rhythms, especially the human circadian rhythm, are suggested as an alternative to current social time norms.

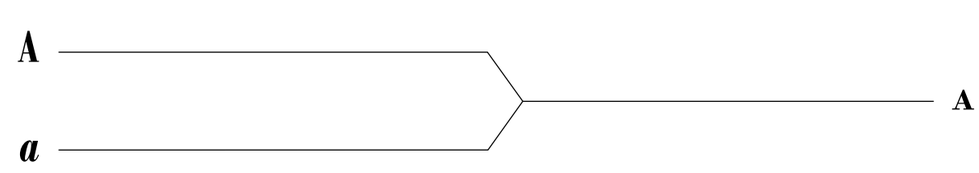
Nowotny indicates a connection between the two fields of chronosociology and chronobiology. Likewise, the chronobiologist Foster refers to her, especially in using the terminology of uchronia. However, the effective implementation of inter-disciplinary and collaborative work is at present largely absent. The sociological research allows for an understanding of social time in relation to the past and the development of time structures in Western societies, while the chronobiological research creates an understanding of the functioning of the bodily rhythm. In particular, the experimental practice and research methods of chronobiological research influence and foster my practice-led work. Through a combination and integration of theories and methods into practice, my research intertwines the two disciplines. The novelty of my approach presents a fresh perspective on the issue, whereby I can make a significant contribution to current debates in the field. The historical perspective on previous temporal structures discussed in this chapter informs and fosters the methodology and concept development in Chapters Three and Four. Together with an interdisciplinary approach, it opens up opportunities to enrich and influence the discussions on the present-day perception of time.

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, in reference to historical events (*b,c,* …).

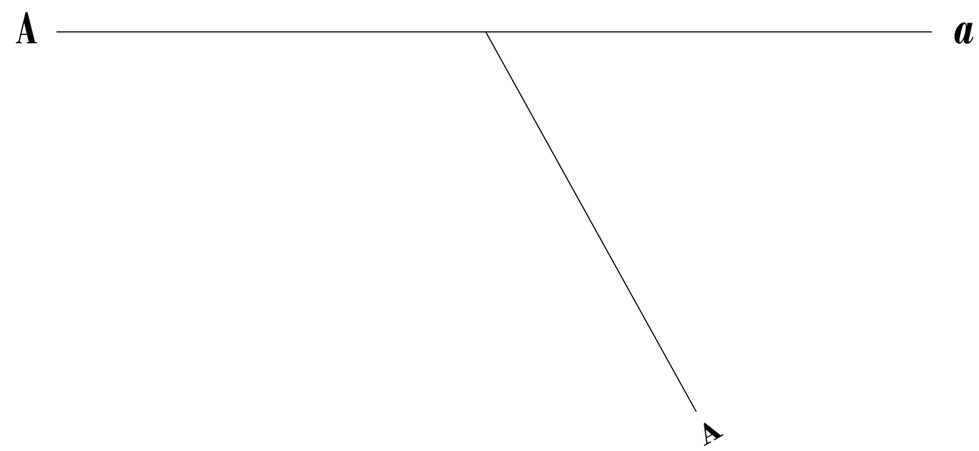


Uchronie (L'utopie dans l'histore), Charles Renouvier, 1876

Uchronia (A) bridges the gap between reality (*a*) and the imaginary (A).

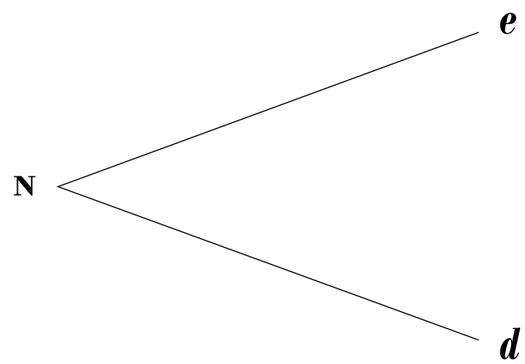


Uchronia (A) swings between two poles, fantasy-madness (A) and truth-reality (*a*).



Uchronia (A) contradicts reality (*a*) and disrupts the peaceful coexistence between reality and the imaginary world.

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



CHAPTER 3

UTOPIAN METHOD AND UCHRONIAN METHODOLOGY

In Chapters One and Two, I explained the etymological relationship of the terms utopia and uchronia, and drew similarities between utopian and uchronian thinking. In Chapter Two I outlined the causes of the contemporary time conflict, including a historical perspective. Nowotny brought forward the approach of a temporal utopia to address the crisis. Others (e.g. Bryson, Foster) have picked up on her approach, but have not investigated uchronia in greater depth. This realisation provides the basis for my thesis, leading to the following research questions: What characteristics of contemporary temporality does uchronia address? The main question includes two secondary questions: What are the possible *applications* of uchronian thinking in design research? What are the *implications* of uchronian thinking in design research and more broadly?

In Chapter Two, I elaborated on this relationship, drawing from similar models of thinking to formulate a methodology for design research. Nowotny and Bryson have already linked the two terms, similar to sociologist Ruth Levitas' definition of utopia. Levitas is renowned for her research on utopia, and recently published the book *Utopia as Method–The Imaginary Reconstitution of Society*. She summarises her understanding of utopia as a method in the following way:

> A utopian method … provides a critical tool for exposing the limitations of current policy discourses about economic growth and ecological sustainability. It facilitates genuinely holistic thinking about possible futures, …. And it requires us to think about our conceptions of human needs and human flourishing in those possible futures. The core of utopia is the desire for being otherwise, individually and collectively, subjectively and objectively. Its expressions explore and bring to debate the potential contents and contexts of human flourishing. It is thus better understood as a method than a goal ….[140]

Levitas points out aspects of utopia which are highly relevant for the development of uchronia toward similar ends: concept as method or critical tool, debate, possible futures, holistic thinking and being otherwise. In her earlier work *The Concept of Utopia*[141], she defines utopia in reference to the philosopher Ernst Bloch as an anthropological constant. In brief: 'utopia is the expression of the desire for a better way of being or of living, and as such is braided through human culture.'[142] On the basis of Levitas' understanding and definition of utopia, Bryson defines uchronia as a 'temporal utopia'[143], with a strong focus on the feminist politics of time. Moreover, Nowotny argues that 'uchronias, like utopias before them, have a central social function to fulfil: they contain proposed solutions to particular unsolved problems in a society.'[144]. My work builds upon these sociological references, and applies them on a practice-led level to design research.

140 Levitas, 2013. p. xi.
141 Levitas, 1990.
142 Levitas, 2013. p. xii.
143 Bryson, 2007, p. 169.
144 Ibid., p. 102.

First and foremost in importance is the understanding of uchronia as a tool for action and practice rather than a defined and unimpeachable goal. Levitas construes three different modes within her utopian method: archaeological, ontological and architectural. She describes the archaeological mode as 'piecing together the images of the good society that are embedded in political programmes and social and economic policies'[145], her ontological mode entails the 'historical and social determination of human nature'[146], and in the architectural mode she discusses 'the imagination of potential alternative scenarios for the future'[147] in relation to space. She outlines that in the past, utopia as a method has been neglected in sociology, because of the institutionalisation of the discipline as an empirical, respectable academic field.[148] Her intention is to reintroduce utopian thinking to social science. H.G. Wells' lecture 'The So-called Science of Sociology' (1906) underpins her argument: 'the creation of utopias—and their exhaustive criticism—is the proper and distinctive method of sociology'.[149]

Levitas' definition of utopia as a method is the key inspiration for my uchronian thinking. However, she limits the utopian method to social science. She concentrates exclusively on the relationship between sociology and utopia, without encouraging a general application of utopian thinking outside her discipline.

145 Levitas, 2013. p. 153.
146 Ibid., p. 153.
147 Ibid., p. 153. Levitas' uses 'architecture' as as a metaphor. For this reason, her 'architectural mode' is not discussed onwards in relation to the uchronian project ‚Circadian Space' (Chapter Eight). Levitas, 2013, pp. 197-220.
148 Ibid., p. 84.
149 H.G. Wells (1906) 'The So-called Science of Sociology', *Sociological Papers* 3:367. cited in Levitas, 2013. p. 65.

RESEARCH METHODS

Though my research is inspired by Levitas' conceptual framework, I frame uchronia as a methodology rather than a method. I understand and use uchronia as an umbrella term, under which I apply a series of specific research methods in order to address my research question. A visualisation of the interrelationship between the individual research methods and activities is shown in Table 3.1.

With reference to my main research question, I explore the characteristics of contemporary temporality through uchronia, first by using a historiographic method through which I define the term uchronia as temporal utopia. In this process I designed graphical representations of the various uchronian definitions 'Uchronia Models' (Section 2.4). This is followed by initial, unstructured observations 'Airport Observations' (Section 4.1) and reflective writing 'Moment Cards' (Section 4.2). The purpose of the latter two methods is to gain a direct understanding of the issues related to today's time crises by immersing myself in daily temporal conflicts. Therefore I use Donald Schön's model of reflection-on-action[150] to summarise my findings in the form of a typographical piece.

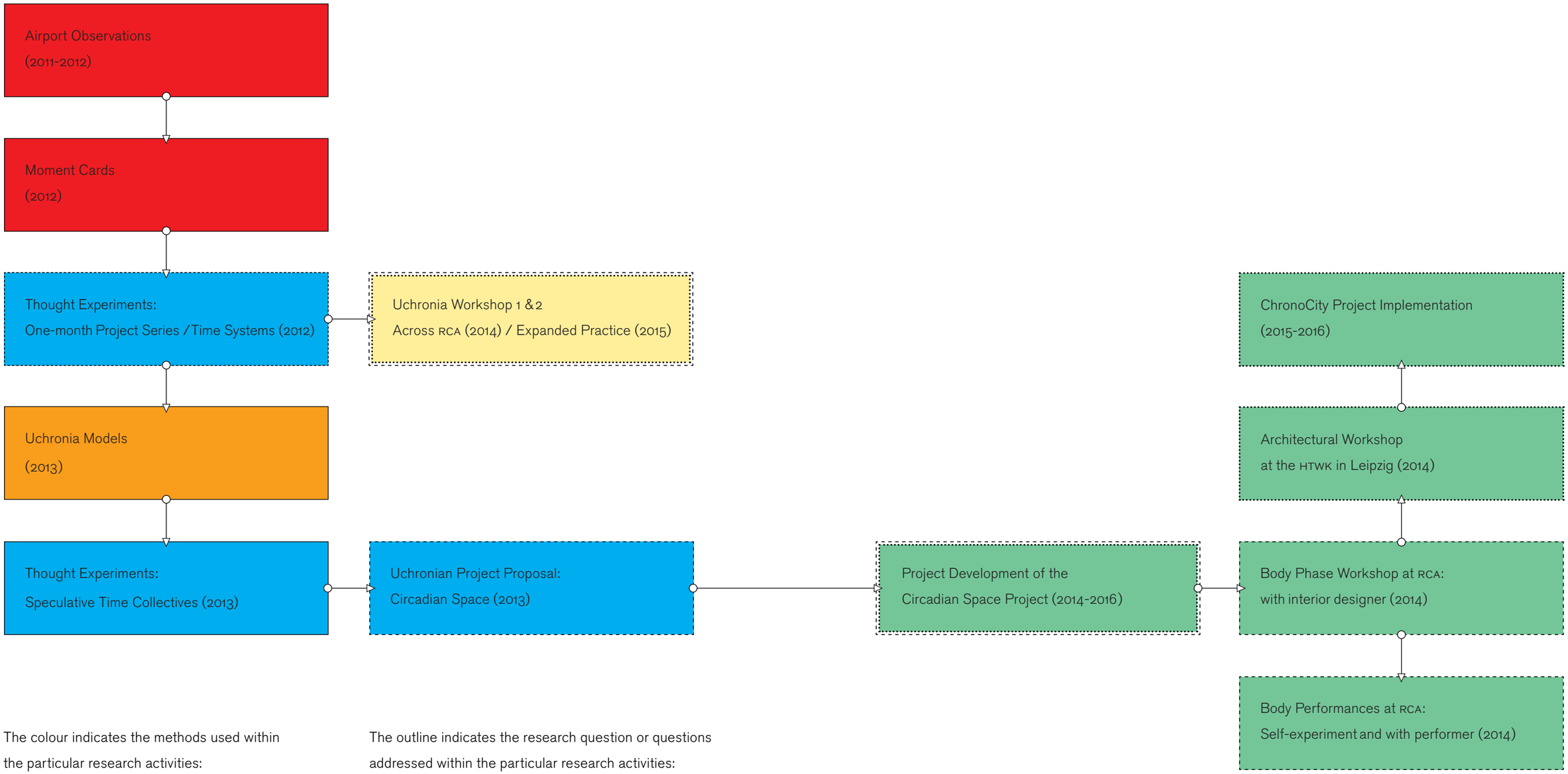
I continue my investigations by looking at the possible *applications* of uchronian thinking in design research. To this end I use artistic, critical and speculative design methods. Based on Olafur Elliasson's concept of 'Unlearning Space', and Cy Tyombly's artisitic method of 'unlearn', I investigate how we can free ourselves from deeply ingrained time structures (Section 5.1). Hereto, I apply the critical and speculative design method of thought experiments in the projects 'One-month Project Series and 'Time Systems' (Section 5.2). Subsequent to the thought experiments, I define a method I call the *zeitgeber* method (Section 5.3). It originates in chronobiological theory, interpreted in the context of design research.

In two 'Uchronia Workshops' (Chapter 6) with postgraduate students of the Royal College of Art, I test the *zeitgeber* method. The workshops are an example of a possible application (my first sub-question) as well as addressing implications (second sub-question) of uchronian thinking in design research.The method is used as a tool to introduce uchronian thinking. The participants were interviewed and given questionnaires (directly after the experiment, one year later and two years later), on the basis of which I analysed and evaluated the workshops. (Appendix c)

I continue my exploration of uchronian thinking by using the critical and speculative design method of thought experiments as an inspirational tool (Section 7.2). Again, I use it to look at the characteristics of contemporary temporality, which uchronia addresses (with reference to my main question). In the project 'Time Communities', I envision alternative time systems by developing four models in the form of time collectives. For the development of the scenarios, I interweave chronobiological and sociological theory with fictional elements. These models are the starting point for conversations with experts in the field of chronosociology and chronobiology. One of the speculative time collectives 'Circadian Space' led me to a project proposal which I elaborate collaboratively (Chapter 8). Together with interior designer Ulrike Lehner, I conduct a 'Body Phase Workshop' at the RCA. In the 12-hour workshop, we aligned the design process with the daily bodily rhythm. The outcome and analysis of the workshop results in a detailed project briefing for the 'Circadian Space'. The briefing builds the foundation for two 'Body Performances' (self-experiment and in collaboration with the performer Elina Loukou) and an architectural workshop together with Prof. Henning Rambow at the HTWK Leipzig. The analysis of the architectural models is used in consideration for the project implementation in the ChronoCity Project in Bad Kissingen. The key findings of these practices fed into the project development of the space, including experimental setting, spacial design, timeline for project implementation, audience engagement, and public exhibition. The project proposal sets an example for how uchonian thinking and the uchronian methodology can be applied and implemented in design research and more broadly (thereby addressing my sub-questions).

All the methods used reflect my own research process, moving my practice into a field I call chronodesign. But the uchronian methodology is not limited to these methods, nor to a particular discipline. Rather, I am the first to suggest uchronia as a methodology. I introduce it in my academic field of design research, and encourage it as a general mode of thinking within my interdisciplinary network and beyond.

150 Schön, 1991.



The colour indicates the methods used within the particular research activities:

- Historiographic Method (Chapter 2)
- Observational Studies (Chapter 4)
- Artistic Method of 'Unlearn' and Critical and Speculative Design Methods
- Zeitgeber Method (Chapter 6)
- Workshops and Experiments (Chapter 8)

The outline indicates the research question or questions addressed within the particular research activities:

_____ *What characteristics of contemporary temporality does uchronia address?*

- - - - - - - - What are the possible *applications* of uchronian thinking in design research?

..... What are the *implications* of uchronian thinking and the uchronian methodology in design research and more broadly?

Table 3.1: *Map of the Interrelationship between the Individual Research Activities* (2017), Helga Schmid

CRITICAL AND SPECULATIVE DESIGN

Before discussing my practice-led approach in detail, I want to position my methodology within the existing design practice of critical and speculative design. Over the years, Dunne and Raby's concept of 'critical design' expanded and the 'speculative' element became part of their design philosophy, manifested in their latest book *Speculative Everything*. Therein, they reason 'that many challenges we face today are unfixable and that the only way to overcome them is by changing our values, beliefs, attitudes, and behaviour.'[151] Therefore, their focus is on 'the idea of possible futures and using them as tools to better understand the present and to discuss the kind of future people want, and, of course, ones people do not want.'[152]

This is consistent, indeed almost identical with, Levitas' sociological approach I quoted previously: 'A utopian method (…) provides a critical tool for exposing the limitations of current policy discourses about economic growth and ecological sustainability. It facilitates genuinely holistic thinking about possible futures.'[153] In their definition, Dunne and Raby outline their position with regard to 'the future'. They differentiate between four trajectories, represented as cones in Figure 3.1 as probable, plausible, possible and preferable futures[154].

Their design work is situated in the field of the 'preferable future'[155]:

> Not in trying to predict the future but in using design to open up all sorts of possibilities that can be discussed, debated, and used to collectively define a preferable future (…). Designers should not define futures for everyone else but working with experts, including ethicists, political scientists, economists, and so on, generate futures that act as catalysts for public debate and discussion about the kinds of futures people really want.[156]

Along the same lines, Lyman Tower Sargent quotes Bauman in relation to social theory:

> To measure the life "as it is" by a life as it should be (that is, a life imagined to be different from the life known, and particularly a life that is better and would be preferable to the life known) is a defining, constitutive feature of humanity.[157]

The same quote is discussed by Levitas'[158], and Dunne and Raby define their understanding of utopias/dystopias in the exact the same words of Bauman[159]. Interestingly, Levitas' *Utopia as a Method* and Dunne and Raby's book *Speculative Everything* were both

151 Dunne et. al., 2013, p. 2.
152 Ibid., pp. 2-3.
153 Levitas, 2013. p. xi.
154 Dunne et al., 2013, p. 5.

155 The discussion on where critical and speculative design work is situated, will be followed up in Chapter Six. By taking into account James Auger's approach of alternative present, I will discuss another strand to the speculative, preferable future.
156 Dunne et al., 2013, p. 6.
157 In Sargent, Utopianism, p. 114. See Zygmunt Bauman, *Society Under Siege* (Cambridge: John Wiley, 2002).
158 Levitas, 2013. p. 106.
159 Dunne et al., 2013, p. 73.

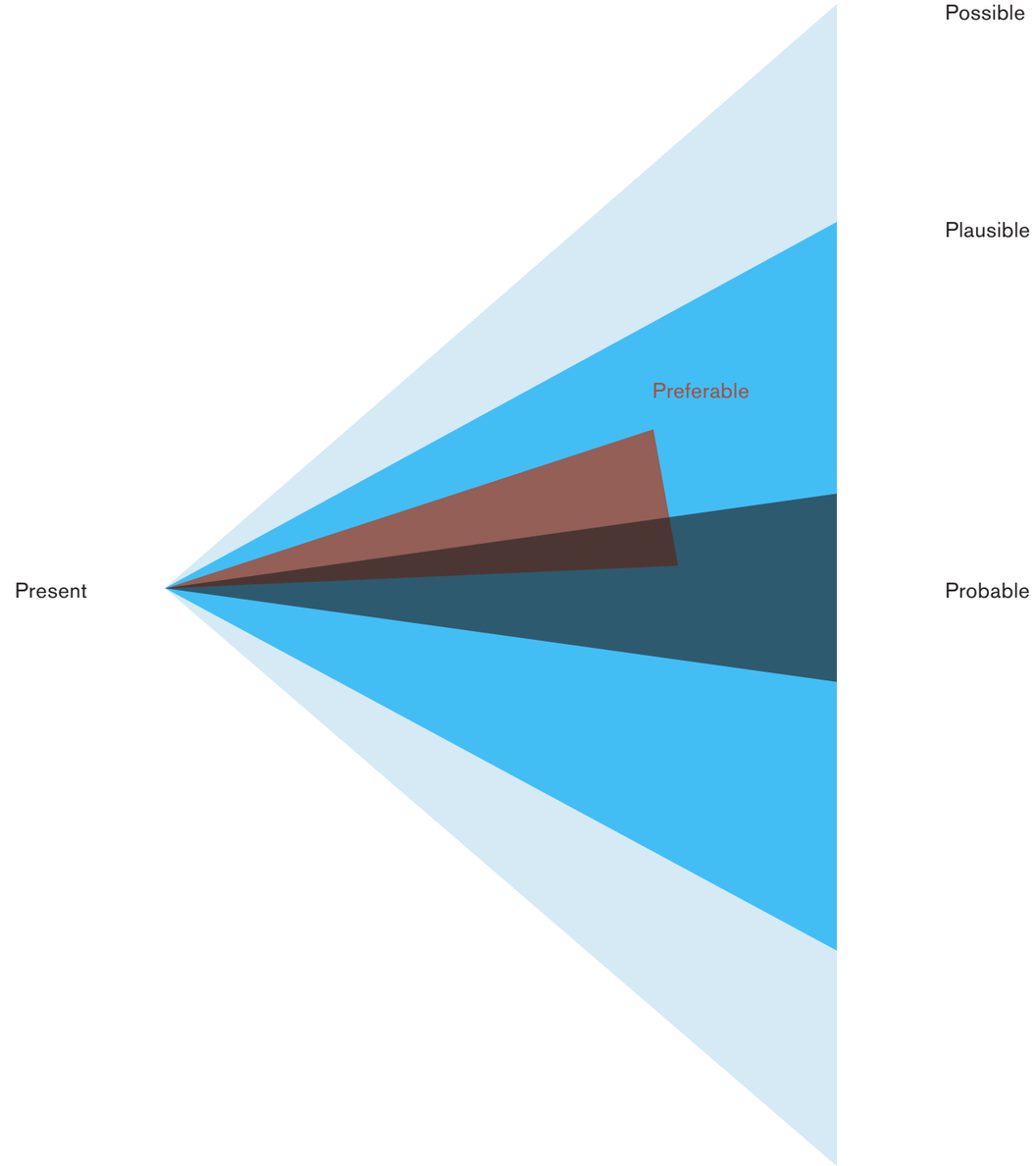


Figure 3.1: *PPPP* (2013), Anthony Dunne and Fiona Raby

published in 2013. These two works exist in parallel, defining a very similar conceptual understanding of utopia. Levitas even identifies her 'utopian mode as speculative sociology'[160]. However, both act within their own discipline, not recognising how their ideas of utopian thinking overlap with the complementary sociological and/or critical design approach. This is where my research and the uchronian methodology is situated. Over the course of the thesis, I will expand the design practice, from critical and speculative design further to visual communication. My research adds a new dimension to the discussion: uchronian thinking in design research. In this context, it must also be added, that uchronian thinking differentiates from 'future thinking (systematic study of the future)'[161]. The intent of uchronian thinking is not a prediction of the future in relation to temporality. Its purpose is to understand the present-day relationship with time, and on this basis, to discuss alternative thinking on time and temporal systems.

In summary, I develop the uchronian methodology as a general mode of thinking, specifically as a way of adding uchronian thinking to design research, and to inform a new area of design practice, chronodesign. Hereto I draw a link between utopian and uchronian thinking, rooted in sociological theory. In the field of design, I situate the uchronian methodology in critical and speculative design practice (expanding it later to visual communication) by drawing parallels between Levitas' concept of utopia and speculative sociology, and Dunne and Raby's philosophy of critical and speculative design.

160 Levitas, 2013. p. 153.

161 For more details on the approach of 'future thinking' in the context of design education, see: Martyn Evans and Simon Sommerville, 'Educating the future: Embedding futures thinking in the design curriculum', *DS 38: Proceedings of* E&DPE *2006, The 8th International Conference on Engineering and Product Design Education*, Salzburg, Austria, 2006. Martyn Evans,(2004) 'A Design Approach to Trends and Forecasting.' *Future Ground: Design Research Society International Conference*, Melbourne, Australia, 2004. Future thinking in the context of human-computer interaction, see Bonnie Nardi, 'Designing for the Future—but which one?' (2016), <http://interactions.acm.org/archive/view/january-february-2016/designing-for-the-future> [accessed 18 August 2016].

CHAPTER 4

OBSERVATIONAL STUDIES

My research seeks to gain new insights into contemporary temporality from uchronia in its definition as temporal utopia. In my practice, I start with an exploration of what uchronian thinking means, and then introduce this approach to design thinking and my discipline of design research. The uchronian methodology, which I outlined in Chapter Three, guides my practice-led process throughout the research.

In my observational studies, I address my main research question: What characteristics of contemporary temporality does uchronia address? As part of the reflection process, I looked at our present-day relationship with time, firstly, an observation of the characteristics of contemporary temporality in everyday, urban life. Specifically, I chose the airport as an example of two ambivalent time-related conflicts in everyday life: boredom and stress. These two perceptions of time are perceived as 'error signals'[162], and from a chronobiological perspective, can negatively impact a person's health. The concept of uchronia looks at both the social and physiological impacts, in this study specifically focusing on boredom and stress.

In this chapter I will focus on two projects, initial airport observations and a typograhic project called 'Moment Cards', which transforms observation as a primary method into critical reflection-on-action as part of my evaluation of the studies.

162 Marc Wittmann, *Felt Time: The Psychology of How We Perceive Time* (Cambridge, MA: MIT Press, 2016), p. 60.

4.1 AIRPORT OBSERVATIONS: BOREDOM AND STRESS

I started my research with initial, unstructured observations. I chose to examine the bustling activity at the airport, which represents a stereotypical 'non-place'[163], displaying the rhythm of a globalised 24/7 society. This first study contributes to my personal understanding of the current temporal conflicts. In a sequence of six sessions, I spent an average of six hours each at the departure gates of different airports in London (Heathrow Airport, London Stansted Airport, Gatwick Airport).

> Interruption, incoherence, surprise are the ordinary conditions of our life. They have become real needs for many people, whose minds are no longer fed … by anything but sudden changes and constantly renewed stimuli … We can no longer bear anything that lasts. We no longer know how to make boredom bear fruit. So the whole question comes down to this: can the human mind master what the human mind has made?[164]

During these sessions, I made the following observations: The atmosphere of the airports, as well as the behaviour of air passengers, differs from airport to airport. Generally speaking however, the activities practiced are alike: usage of digital devices (laptop, tablet or smartphone), reading (on screen or paper), eating and drinking (restaurants, coffee shops and pubs), shopping, talking (directly with a person or on the phone), watching people and/or the runway, listening to music, structured relaxation (massage shops, day spas, manicure, pedicure, facial treatment), taking a nap, sleeping, walking, strolling, sitting and waiting, exercising (airport gym), taking a shower, using the restrooms, watching TV or movie (on their own or installed screens), praying (chapels), and resting (quiet rooms).

What became obvious in my observations was the juxtaposition of two present-day syndromes: boredom and stress. Both temporal perceptions are deeply rooted in today's system, yet the terms are fairly recent in origin with their current connotations.

163 Marc Augé and John Howe, *Non-places: Introduction to an anthropology of Supermodernity*, 2nd edn (London: Verso Books, 2009).

164 Quotation from the poet Paul Valery in Bauman, 2012, p. 1.

'Boredom' was first used in its present-day meaning in 1852 in the novel *Bleak House* by Charles Dickens. 'Stress' appeared even later, initially in the work of the physiologist Walter Cannon (1926)[165] and further defined by the endocrinologist Hans Selye.[166] Not surprisingly, the need for a term like 'boredom' arose over the last hundred years. The complexity and chains of dependency in contemporary life led to an increase of situations that foster the temporal perception of boredom, for instance the act of waiting. Since synchronisation strategies can no longer keep up with the increasingly individualised way of life, 'standby' times become unavoidable, leading to the current 'waiting culture'.[167] On the other hand, 'stress' is the result of the Western achievement society (see Section 2.3). At the airport, these two temporal perceptions, boredom and stress, are experienced next to each other.

Interestingly, I assumed it would be a simple task to categorise activities as related to either stress or boredom. However, some activities are not distinguishable from one another. Shopping, for example, out of necessity or solely out of a lack of other entertainment? Initially, I also thought of these two temporal perceptions as opposite from one another, but research shows that they can be closely related. On the one hand stress can be caused by work overload, or on the other hand stress can be caused by being underworked and rooted in boredom[168].

The motivation of my observational studies at airports was not necessarily to observe something new. The intention was to familiarise myself with one exemplary situation of a present-day time conflict. It was an initial approach to immerse myself in the subject matter and in situations I experience on a daily basis but never observe closely. The findings, discussing further below, were fed into the next project of my research.

165 Gregg D. Jacobs, 'The Physiology of Mind–Body Interactions: The Stress Response and the Relaxation Response', *The Journal of Alternative and Complementary Medicine*, supplement 1, 7 (2001), 83–92.

166 In contrast to today's understanding, stress was not perceived as negative. Hans Selye differentiated between negative 'distress' and positive stress 'eustress'. See Hans Selye, *The Stress of Life* (New York: McGraw-Hill, 1956).

167 One single example for today's waiting culture is the fact, that Americans spend an average of 30 minutes a day waiting in a queue. Richard C. Larson, 'OR Forum—Perspectives on queues: Social justice and the psychology of Queueing',*Operations Research*, VI, 35 (1987), 895–905.

168 Alina Tugend, 'The Contrarians On Stress: It Can Be Good For You', *Your Money*, 30 December 2014.

4.2 MOMENT CARDS: SHORT STORIES

My observations led to an initial design project called 'Moment Cards' (Figures 4.1-4.6) in which I reflected in written form on my observations. The cards each include a short story on one side, linked with a theoretical underpinning on the other side. The stories–ranging from a single sentence to short stories–discuss subjective perceptions of time in daily life. Their purpose is to translate a common feeling in only a few words, with topics ranging from 'hyper-acceleration', 'proper time', 'polar inertia' to the 'rhythms of life'. They are each paired with a theoretical analysis of the described moment, explaining the deeper lying causes of the conflict.

The cards serve the purpose of mapping my interests in the field of chronosociology, interweaving my personal observations with my theoretical readings. The project took the form of cards (31 x 21 cm), as the loose nature of single cards, as compared with a bound book, is open for any kind of sequence, as well as any number of cards. They can be used as small posters, and beside others can combine their texts in series. The title of the project, 'Moment Cards', underlines the free, detached format. (Figure 4.1) The first card set the tone for the following cards. (Figure 4.2-4.4), and see Appendix B).

In our current understanding, a moment is loose, intangible, from an unknown length of time, and no longer an unit of time (*momentum*) as in medieval times[169]. My intention was to capture brief feelings, all of which lead to our present-day perception of time. Within the research, the cards function as a mind map and further underpin a better understanding of all the aspects surrounding today's time crisis. The texts provide the groundwork for my further research practice in theory and practice.

Figure 4.1: *Moment Cards* (2012), Helga Schmid

169 Willis I. Milham, *Time and Timekeepers: Including the History, Construction, Care, and Accuracy of Clocks and Watches* (Detroit: Omnigraphics, 1993)

Each of the following sheets tells you a short story on the front. These stories symbolise certain experiences in time, which could happen to you, to me or to anyone. They are followed up by a theoretical analysis at the back, with topics ranging from ‘hyperacceleration’, ‘proper time’, ‘polar inertia’ to the ‘rhythms of life’. Incomplete in its number so far, the text demonstrates the theoretical framework of my research and builds the groundwork for my further research practice.

Moments are ambiguous in their length – they can be as short as a millisecond, ten seconds or as long as three weeks – it is solely our feeling.

Photographs capture and freeze a certain moment in time. They preserve the scenery best possible within the technological restrictions and the photographer's skills. Besides, they immediately transform the present instant into a past experience. Later on the pictures serve as a memory aid to remember what was and to quieten the fear of forgetting. The question is why do people need to take so many pictures today? Do we not simply remember the moments that were truly important for us? Walter Benjamin already analysed our behaviour regarding memorising a certain time period. Instead of photographs he used the example of a souvenir, which he described as a 'prosthesis' to remember. As a consequence of an accelerated life-style in Western societies, people experience more in less time.[1] Expressed in an American advertising slogan –'Squeeze out the 150%'[2] – the credo of modernity is to live faster, more intensely, and up to the maximum. As a result single experiences, like a weekend trip to Paris, one to Berlin and back to London might not relate to each other or our life at all, whereas a true experiences of the past will become woven into the present and influence the future. The bought souvenirs or photographs are there to remember, because the trip might not have left an abiding memory in our brain. Whereas only a true experience broadens the wealth of experience, creates a true memory and therefore influences the future. The best example might be objects, smells, impressions, etc. of our childhood, which we will never forget even without any memory aid. In chronosociology the answer for the problem of progressive loss of experiences is seen in 'resonance'. The subject has to create a connection to the space, the object and/or others. Only if this is the case, the moment obtains a value which can never be kept within one or thousands of photographs. Therefore it is of interest to know how an experience which resonates can be created. One method is as simple as naming something, since the name gives it an identity and brings it to life.[3] The same happens when we repair an object. We devote time to it, and we add something of our own to it.[4] Ideas are now needed to create real moments instead of snap-shots. This has to do with time again. In his book 'The Tyranny of the Moment', Thomas Hylland Eriksen explains that 'the scarcest resource for people is neither iron nor a sack of grain, but the attention of others.'[5] Without an investment of time into a relationship, into a place or object, the intensity of the moment we are longing for can rarely be accomplished. Moreover we need to reflect on our experiences, in order that they resonate in our future life. The intensity of a moment, if good or bad, can not be bought, it mainly needs the investment of time.

references

[1] Walter Benjamin in Hartmut Rosa, Beschleunigung. Die Veränderung der Zeitstrukturen in der Moderne (Frankfurt am Main: Suhrkamp Verlag, 2005), p. 234.
[2] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 139.
[3] Umberto Eco, Kirsten Lippincott, E.H.Gombrich, The Story of Time (London: Merrell Holberton in association with the National Maritime Museum, 1998), p. 137.
[4] Talk by Hartmut Rosa, 'Bis zum rasenden Stillstand', DRadio Wissen, broadcast, 01.05.2012.
[5] Thomas Hylland Eriksen in Eva Hoffman, Time: Big Ideas, Small Books (London: Picador, 2009), p. 155.

Sometimes I wish I had a tiny photo camera integrated into the frame of my glasses. Each time during the one hundredth of a millisecond in which I blink, the camera would take a picture to capture the time when my eyes are closed. Therefore, I could see and remember the part of my daily life, I missed out on. Afterwards I create a stop motion film from these thousands of pictures. Only I hope I can find the time to watch it.

In current sociological theory, the prevailing opinion about the future of the postmodern society is expressed as the theory of the 'shrinking of the present'[1] (Gegenwartsschrumpfung), which was introduced by Herman Lübbe. In comparison to the visions of the future during the Industrial Age, the future today is coming closer and closer to the present. The idea of constant progress leading to a steady improvement of one's living conditions and therefore to a better future, is now replaced by the fear of worsening of the prospects. The future 'is increasingly overshadowed by the problems which are opening up in the present. The future no longer offers that projection space into which all desires, hopes and fears could be projected without many inhibitions because it seemed sufficiently remote to be able to absorb everything which had no place or was unwelcome in the present.'[2] The categories past, present and future stop to exist, as the future becomes the 'extended present.[3] For us, this means we lose the space for imaginations, hopes and new ideas, as they have to happen now, right in the present. The problem is that the perception of the future is too real. Looking at previous generations, their ideas of the future were much more open and optimistic compared to today's young generation. Our mindset is owed to the experiences we have made and are making as a generation. Like a liquid society and social time runs through our body, independently of each individual life.[4] The same applies for political and social events. Altogether they influence the individual biography as well as each generation. Consequently, the thoughts and expectations of the future deeply depend on each generations wealth of experience. To change the current mindset, the concept of what future means has to be explained again. Instead of treating it as a continuation of today, the future needs to have much more to offer. Therefore it is time to reinvent the future again and give space to an imaginary world.

references

[1] Herman Lübbe, Schrumpft die Zeit?, in Kurt Weis, Was ist Zeit? Zeit und Verantwortung in Wissenschaft, Technik und Religion, ed. by Kurt Weis (Munich: Akademischer Verlag, 1995), p. 53.
[2] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 50
[3] Ibid., 1996, p. 50

This one phrase 'the future is no longer what it used to be' scrawled onto the wall of a rundown building, always catches my eye, when I run past it. Once I asked my grandparents if this is true and they just looked at me with surprise.

4.3 DISCUSSION: TIME NOT CLOCKS

All of the cards display an awareness of the passage of time and the temporal duration of an event. These 'moments' capture and retain different perceptions of time on both extremes–too fast and too slow, too early or too late, too much and never enough. This comes not as a surprise. The psychologist Marc Wittmann explains in his book *Felt Time* that humans have a fairly accurate sense of time for short intervals of seconds up to a couple of minutes, and that 'the perception of time functions as an error signal indicating that something is amiss.'[170] The Moment Cards are a subjective take on my own perception of time, the expression of a personal perception of time, in which the number of daily 'error signals' seems to increase.

They further reflect an interest in not accepting the given, and question the Western relationship with time, in line with Levitas' intention of utopia:

> Utopia also entails refusal, the refusal that what is given is enough. It embodies the refusal to accept that living beyond the present is delusional, the refusal to take at face value current judgements of the good or claims that there is no alternative.[171]

The main finding of the two initial projects is related to the positioning of my work. I use Schön's model of reflection-on-action[172] to find my position within the discussion on the contemporary time-crisis. My observational studies of everyday situations at airports revealed some of the contemporary time conflicts around the temporal phenomena of boredom and stress. In the subsequent reflective writing about 'moments' in which I experience a noticeable or conflicting perception of time similar to stress or boredom, I incorporated my subjective experiences of temporal discomfort in daily life. The work makes explicit my reflection on my observations and personal experiences, and links them with theoretical readings. The learning outcome of both projects is not necessarily a new insight on the present-day time crisis, rather the process allowed me to find my approach in relationship to exisiting work providing a critique of today's temporal system.

170 Wittmann, 2016, p. 60.

171 Levitas, 2013, p. 17.

172 Schön, 1991.

Figure 4.5: *Durr* (2013), Skrekkøgle

The scarcity of time, the feeling of time pressure, or the notion of freeing oneself from the ticking clock has been expressed in numerous projects. They discuss, question or reject the current temporal rhythm and look for alternatives. One popular approach in such projects is to modify the object symbolising time: the clock. To give one example of an alternative clock, the Norwegian designers Theo Tveterås and Lars Marcus Vedeler, collectively called Skrekkøgle, developed the watch *Durr* that, instead of telling the time, vibrates in intervals of five minutes. (Figure 4.5) The watch demonstrates the perception of the passing of time in different situations, through a haptic experience[173]. But what does it actually do? It follows the clock-based system by splitting up time into segments of five minutes. I argue that this bracelet spilts up time even more than a typical time measurement device by adding interruptions or temporal reminders twelve times an hour. This product raises questions like: Why would I, as a user, want to be interrupted every five minutes? Is this device meant to increase my productivity and make me work faster? This watch is just one example, where I feel a lack of in-depth development. In my eyes, most of these redesigned objects only scratch the surface of today's time crisis, without offering or provoking a new relationship with time. Through my observations and reflections, I clearly understood that this type of (re)design is not the area of interest I want to pursue in my research. I am looking for a more holistic approach about time and not a redesign of clocks.

173 More details about the product, see DURR, <http://skreksto.re/products/durr> [accessed 14 August 2016].

A more profound alternative is suggested in the 'slow movement', which began in the 1980s as a counter-movement to the acceleration processes of the previous few decades. The movement consists of independent intellectual and grassroots groups. In the tradition of Paul Lafargue[174] and Bertrand Russell[175], intentional deceleration is claimed as a form of critique against contemporary culture and society. Commonly, their fundamental goals are to simplify life, fight for a right to pause, improve well-being, and return to a natural pace of life.[176]

One example of design inspired by 'slow' principles is the 'Slow Messenger' (Figure 4.6) by Julian Bleecker. This device artificially delays the delivery of electronic messages, particularly important and meaningful e-mails.[177] It could be argued, however, that slowing down instant communication does not positively affect the pace of life, or specifically an overflowing e-mail account. For the sender, nothing changes except a delay in the delivery of their message, and for the receiver the same applies. Therefore, the Slow Messenger does not add to the quality of or improve the communication process of today's society.

Slow does not automatically mean better or from higher quality. Deceleration itself does not lead to a change of the system. Of course, this slow design is intended to provoke thought, rather than suggesting a solution. This provocation seems superficial, or in Rosa's terms, is not breaking out of the 'Circle of Acceleration'.

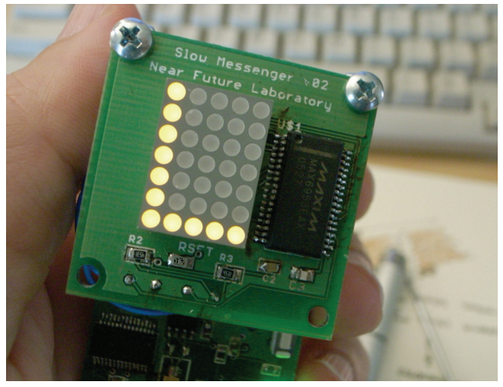


Figure 4.6: *Slow Messenger* (2010), Julian Bleecker

174 Paul Lafargue, *The Right to Be Lazy* (Chicago, IL: C.H. Kerr, 1975). The original essay *Le Droit à la Paresse* was written in 1880/1883.

175 Bertrand Russell, *In Praise of Idleness and Others Essays* (London: Routledge, 1984).

176 Rosa, 2013, pp. 85-87.

177 Tod Perry, 'Hurry Up and Wait', *Good Magazine*, 2010), <http://www.good.is/posts/hurry-up-and-wait> [accessed 13 August 2016].

My position in relation to the slow movement is torn, as each organisation or group has their own approach. On the one hand, I agree with independent groups like the Slow Research Lab[178]. Their multidisciplinary platform understands 'slow' as an inspiration for a different pace of life. They 'investigate an expanded terrain of individual and collective potential that brings balance to the pace at which we encounter the world, and integrity to how we position ourselves within it.' On the other hand, there is the popularised concept of slowness in contemporary culture. Carl Honoré, the author of the bestseller *In the Praise of Slow*[179] coined the term 'slow movement' and argues for the right speed for everything. He boiled slow down to a fast self-help solution. What is particularly problematic is its commercialisation, up to his 'Quick Tip to Slow Down'[180]. In contrast, uchronian thinking calls for more courage to break with the existent temporal patterns.

As discussed in Chapter Two, the romanticising of past times does not correlate with today's living standards. What is often missing in projects like alternative clocks and concepts like the slow movement is a forward-looking, holistic approach that facilitates a new way of thinking into our future relationship with time. For this reason, I agree with Dunne and Raby[181], who argue that a fundamental change in behaviour, beliefs and values is needed in order to overcome today's challenges. With respect to time, this requires a radical break with the existing model of clock time through an uchronian approach. These initial studies helped me to identify my position. I gained an understanding on how to approach alternative time as the basis for my further research.

178 Slow Research Lab, <http://www.slowlab.net/> [accessed 11 September 2016].

179 Carl Honoré, *In Praise of Slowness: Challenging the Cult of Speed* (San Francisco: HarperCollins Publishers, 2005).

180 Carl Honoré, <http://www.carlhonore.com/> [accessed 31 August 2016].

181 Dunne et al., 2013, p. 2.

CHAPTER 5

5.1 UNLEARNING CONTEMPORARY TIME STRUCTURE

After my reflective insight on the airport observations and 'Moment Cards', I realised the need for a radical approach on alternative time, breaking free from the concept of clock-based time.

A conversation of Olafur Eliasson, Bruno Latour and Peter Weibel, entitled 'Spaces of Transformation: Continuity/Infinity' held at Tate Modern in April 2013 influenced my thinking and further research. Eliasson discusses the concept of 'Unlearning Space–Space Unlearning':

> It is necessary to unlearn space
> in order to embody space.
> It is necessary to unlearn how we see
> in order to see with our bodies.
> It is necessary to unlearn knowledge
> of our body in three dimensions
> in order to recover the real
> dimensionality of our body.
> Let's dance space.
> Let's re-space our bodies.
> Let's celebrate the felt feeling of presence.[182]

During his presentation, a performer ran on stage in slow motion. The idea behind was to explore and experience the space fundamentally anew. This gave the decisive impulse to develop a method of 'unlearning time'. As mentioned in Chapter One, our cultural temporality becomes embodied, almost like a sixth sense.[183] The overall aim of my research is to step away from the current system of clocks. In this context, Han has suggested relearning the art of lingering, and Nowotny argues for a rediscovery of

182 Olafur Eliasson. *Spaces of Transformation: Continuity/Infinity video recordings* (2012), <http://www.tate.org.uk/context-comment/video/spaces-of-transformation-continuity-infinity-video-recordings> [accessed 12 August 2016].
183 Elias, 1988, p. 33.

the vicissitudes of life. Taking these two approaches into account, I am not only aiming for relearning or rediscovery, I am aiming for unlearning.

The term 'unlearn'[184] in general usage means to discard something from one's memory, for instance learned false information or a bad habit. I refer to the idea of unlearning in relation to artistic practice, rather than an educational approach. The 'Blackboard' paintings Cy Tyombly created in the 1960s are a suitable example of an unlearning process. He was drawing in the dark as a method to unlearn the drawing skills he had acquired during his previous art education–a technique relating to to the Surrealists' 'automatic' drawing. 'Twombly explored the mark as the material product of the body'.[185] In parallel, I explored time as a process of the body. In order to accomplish a new relationship with, and behaviour within, time, the essential initial step is to move away from its linear time structure towards a new rhythm. The thought behind this was to explore anew what we call time, similar to Twombly's drawings and Eliasson's concept of 'Unlearning Space'.

184 See OED Online, 'Unlearn'. Available at: http://www.oxforddictionaries.com/definition/english/unlearn [Accessed 11 May 2016].
185 Cy Twombly (1994), <http://www.cytwombly.info/twombly_writings3.htm> [accessed 14 August 2016].

I'm losing as much
time as possible.

I'm sick of paying
so much for
being faster.

I don't care about
being on time or
missing out
on something
or keep
saving time.

Let's lose it.

5.2 THOUGHT EXPERIMENTS: ONE-MONTH PROJECT SERIES

My approach to tackle the method of unlearning was conceived in a series of one-month-long self-experiments. By using a critical and speculative design perspective, I developed a number of thought experiments, in which I propose to unlearn the current time system through questioning present perceptions of time.

Initially, I suggested four unlearning concepts (Figures 5.1-5.4): Have all the time in the world!, Waste your time!, Lose as much time as possible! and Dream away your time! These ideas are in relation to current understandings of time, all rooted in Franklin's adage 'time is money'. According to the anthropologist Thomas Hylland Eriksen, 'the scarcest resource for people (…) is neither iron ore nor sacks of grain, but the attention of others.' In this expression, he rationalises time as a good that can be devoted to someone else, and furthermore discusses it as the most valuable asset of contemporary society. In everyday life this is expressed in phrases like 'wasting time' or 'losing time'—an unthinkable concept in a premodern, agricultural society. Only through the invention of the clock, as discussed earlier, the abstract idea of time became measurable. In order to unlearn, I turned these expressions into questions: What does it mean to 'waste time'? What do you actually do or not do, when you 'waste' your time? Levitas did a similar thought experiment with her students in an utopia course she runs. She asked them how they would spend their time if they were financially independent. As she elucidates, many students answered 'nothing', but the activities meaning 'nothing' were related to the arts, music, sports, socialising or cooking: play time instead of working time.[186]

I aimed to explore other thought experiments, designed to experience extreme situations while being desynchronised from the rest of society. For instance, my Time System No. 4 (Figure 5.9) addresses the perception of time: The concept is that every person perceives time differently, regardless of any clock or other measuring device.

Figure 5.1: *One-Month Project Series* (2012), Helga Schmid

186 Levitas, 2013, pp. 203-204.

I have time for
everything.

Whatever it is.

There is nothing
that wouldn't
be worth
my time.

Whatever
happens
happens.

The psychologist William James notes:

> In general, a time filled with varied and interesting experiences seems short in passing, but long as we look back. On the other hand, a tract of time empty of experiences seems long in passing, but in retrospect short.[187]

This phenomenon is commonly seen in extreme situations such as accidents, crimes or natural catastrophes, where both emotional involvement and the amount of informational input are high. My proposed experiment focuses exclusively on the personal perception of time as the only 'true' time that matters. Time becomes an individual and private concept, not accessible to outsiders. When applied to broader society, an image emerges of shared clock time being dissolved in a sea of individual times all operating at various speeds. Through this temporal reorganisation, days might be said not to have the same length.

Other thought experiments evolved around ideas of surprise, values, decision, multiplication, time-giver and dream. Like the example described above, all the concepts are grounded in my previous theoretical research. (Figure 5.5-5.12) These time systems are again treated following a critical and speculative design approach 'as thought experiments– constructions, crafted from ideas expressed through design–that help us think about difficult issues.'[188]

187 William James, *Psychology, Briefer Course* (Cambridge, MA: Harvard University Press, 1984), p. 248.
188. Dunne et al., 2013, p. 80.

In their form as one-month experiments or suggestive alternative time systems, they were used as a starting point for conversations with my supervisor and fellow research students. However, after a period of critical reflection with my supervisor, the scope of the experiments was deemed too great for implementation in this PhD research. Consequently, I decided not to engage in putting these experiments into action, instead, I decided to focus on developing in more depth the thought experiment Time System No. 6 on time-givers. (Figure 5.11) The proposal was a practical experiment focused on the use of new external time-givers instead of social or natural rhythms. The idea was to explore four different time-givers, each over the course of one week. In the first week, I would internalise the rhythm of another person; in the second, I would adapt to the temporal pattern of of an animal (e.g. a cat); in the third week I would live in synchrony with a plant (e.g. a carnivorous plant); and in the fourth and final week I would internalise the rhythm of a technological device. The experiment was not enacted due to time restrictions, but the initial proposal did however inspire me to look in more depth into the meaning and possibilities of time-givers, also called *zeitgeber.*

Figure 5.2-5.4: *One-Month Project Series* (2012), Helga Schmid

Figure 5.5-5.12: *Time Systems* No.1-7 (2012), Helga Schmid

I'm wasting
as much time
as possible.

I'm sick of efficiency,
work overload,
multi-tasking or
what other
'useful' time
management
strategies
are out there.

I close my eyes
as often as I can.

My dreams
become my reality
and reality
becomes a
total waste
of time.

Excuse me,
it's time to sleep.

Time System No.1: VALUES

Economic prosperty, growth and freedom of choice promise personal happiness today.

Changing focus on values like patience, respectability and love transform the behaviour in time.

A lifelong schedule based on novel values shapes the lifetime of each individual anew.

Time system No.2: SURPRISE

Time managment has lost its relevance.
Optimisation has lost its importance.

Life becomes a series of coincidences.
People do what they want to do.
Nothing is planned anymore.

Life is full of surprises from now on.

The
Marvellous
Orchestra
of Time

Imagining time means imagining life.

Time to
think about
Uchronia

Time System No.3: DECISION

It knows your schedule,
It knows your body,
it understands you
(sense and sensibility)
and decides everything
for you.
A small and cosy object–
close to you, very personal,
trustworthy, intimate and
only accessible to you.

Time System No. 4: PERCEPTION

The clock is obsolete!
Your time is not the
same time as my time.
Once, with clock time,
it was all the same.

Now perceived time is the
only real time that matters.
The ‘one time of society’
dissolves in a sea of
times of various speeds.

Time System No.5: MULTIPLICATION

Split yourself up.
Reach out to not miss out.
Take every option you can.
Parts of you take part.
Optimise yourself.
Multiple being instead
of multitasking.

Time-compression at its best.

Time System No. 6: TIME-GIVERS

Look out for a new time-giver.
Forget about sun and moon,
clocks or society.

Everybody has their own
time-giver.
Your neighbour lives the time of his
lawnmower, your girlfriend of her
cat, and you of … .

Time System No. 7: DREAM

Each individual body clock has
its own rhythm. Being awake
and asleep, when and wherever,
means truly living the rhythm.

Closed eyes and open eyes are
everywhere: Dream and reality
are equally important for living,
content-wise and time-wise.

5.3 ZEITGEBER METHOD

The term 'Zeitgeber' (German for time-giver) was introduced to the science community by the chronobiologist Jürgen Aschoff. As it is now understood in chronobiological research, zeitgeber are entrainment signals: A zeitgeber causes an impulse for a biological oscillator to react and synchronise to external rhythms.[189] For instance, one of the main influences on the human body is light, and therefore the daily day-and-night rhythm serves as a strong zeitgeber. (Section 2.3) The chronobiologist Till Roenneberg uses Aschoff's terminology, and explains in his research how a zeitgeber influences our being in time, in relationship to our bodily internal time.

As shown in Figure 5.13, a swing[190] and its rhythmic movements represent the human biological clock of its user, swinging in a rhythm of 24 to 25 hours per day. The other person pushing represents external forces that influence the internal body clock, like social time or environmental cues.[191] There are a number of possible forces to define the speed and amplitude:

(1) The person on the swing defines the rhythm through their bodily movement;

(2) external forces influence the person on the swing and therefore influence the rhythm;

(3) or both external and internal forces define the rhythm with varying strength (e.g. pushing at the wrong time or strength can disrupt the natural 'resonant frequency' of the swing).

In Roenneberg's study, the focus is on the timing or onset of the pusher and how this influences the body clock.

For my research, I use the concept of the zeitgeber and the image of the swing set as a tool in an unlearning method, as a part of the uchronian methodology. Particularly relevant are the external forces that influence the rhythm, the rhythm created by the interplay of internal and external time-givers, and especially the relative strength of each of the forces. In contrast to Roenneberg however, *when* the zeitgeber influences the rhythm is not particularly relevant for my purposes. My focus is rather on the explanation and exploration of uchronian thinking, whereby the metaphor of the swing, set in relation to the impulse of zeitgeber, allows a simple and easily accessible method to think outside the common category of clock time. By removing the standard division of time into specific segments of a certain duration, the concept of zeitgeber follows a more holistic approach by shifting the perspective to a number of forces that influence people's perception of time. Currently, the most influential zeitgebers are natural rhythms, social time, and the human biological clock. The zeitgeber method is enacted in the uchronian workshops in the next chapter.

189 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.

190 The swing is also used as a common example to demonstrate a resonant system. See Trevor Cox, *Simple harmonic motion SHM*, <http://www.acoustics.salford.ac.uk/feschools/waves/shm3.php> [accessed 18 August 2016]

191 Till Roenneberg, Serge Daan, and Martha Merrow, 'The Art of Entrainment', *Journal of Biological Rhythms*, III, 18 (2003), 183–194.

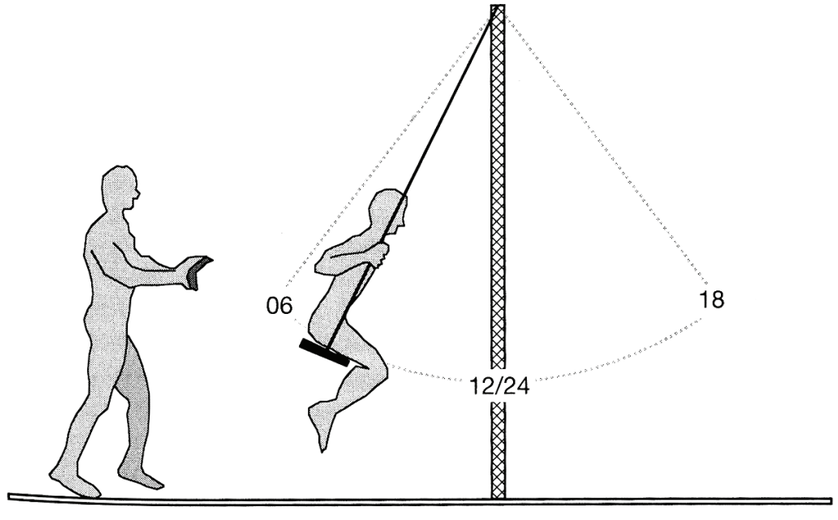


Figure 5.13: *The Motion of the Swing Represents The Body's Internal Clock* (2003), Till Roenneberg, Serge Daan and Martha Merrow

5.4 SUMMARY

In this chapter, I explored uchronian thinking in design research, to address my secondary research question: What are the possible *applications* of uchronian thinking in design research? I addressed the fact that clock time is such an integral characteristic of contemporary Western understanding of time. The focus was therefore on the development of a method for how to unlearn contemporary time structures. The questioning of the current temporal conditions and necessity to 'unlearn' was developed on the basis of my previous theoretical investigations, especially Han's suggestion of a reactivation of the *vita contemplativa*, my observations on present-day time conflicts at airports, and the reflective typographic piece Moment Cards.

Influenced by Eliasson's presentation on 'Unleaning Space', I investigated the possibilities for how to unlearn, specifically looking into the artistic practice of the Cy Tyombly.

The thought experiment One-month Project Series, served as the first attempt to remove categories of thinking about time as a commodity, as expressed in phrases like waste time, lose time or have time. In the process of developing the thought experiments, I explored the concept of the zeitgeber. Reflecting on the impact and duration of the one-month projects, I changed my original plan in order to focus specifically on the concept of the zeitgeber.

To think about zeitgebers rather than clock-based time, offers an unconventional approach to think about temporal influences. It frees time from the internalised categories of hours, minutes and seconds. After gaining this insight and reflecting on the possible impact and applications of a zeitgeber on the relationship with time, I developed the zeitgeber method. In the following chapter, I explore the zeitgeber method through two workshops undertaken with students at the Royal College of Art which were designed to test the method in a pair of controlled experiments.

UCHRONIA WORKSHOPS

CHAPTER 6

6.1 FIRST UCHRONIA WORKSHOP

In two uchronia workshops with students of the RCA, I tested the zeitgeber method developed in the previous chapter.[192] Thereby I address the research questions, what are the possible *applications* of uchronian thinking in design research?, and what are the *implications* of uchronian thinking and the uchronian methodology in design research and more broadly? Students were asked to question contemporary temporality by exploring their individual and collective perceptions of time, by developing criteria for their temporal system — their uchronia.

Firstly, I introduced the students to the zeitgeber method and uchronian thinking; secondly, they explored their zeitgeber in a 48- or 72-hour-long experiment; and thirdly, they presented some implications of uchronian thinking in symposia and through practical design work.
The workshops are described here in detail.

192 All images used with permission.

WORKSHOP PROCEDURE

The first workshop ran over five days, Monday to Friday, 27th to 31st of November 2014, inclusive of a 48-hour experiment. Twelve students were selected from across the college, including 1st and 2nd year MA students from Architecture, Sculpture, Visual Communication, Information Experience Design, Fashion Womenswear, Jewellery and Metalwork, and Critical Writing in Art and Design. On Monday, the students were briefed for the experiment. At the beginning I asked them to talk about their own interest in the topic of time, by answering three questions:

1. How do you perceive time in your everyday?
2. How would you like to spend your time (in an ideal world)?
3. How have you explored temporality/ time in your own practice?

I then grouped them into three teams of four. In the afternoon, the groups were asked to decide upon a zeitgeber (external time-giver, see Chapter Five) they wanted to live by for the 48-hour experiment. On Tuesday the actual experiment began. I allocated each group an experimental space which I had selected beforehand. The groups did not know what to expect. They were free to choose what to bring, but all three groups had to leave their phones and any other time-giving devices with me. I equipped them with a basic mobile phone (with time and date display obscured) for emergencies, and instructions on how to get to their designated space.

At approximately 2 p.m. each group started their experiment, lasting until Thursday approximately 2 p.m., in order to guarantee similar experimental conditions. I visited one group directly, and telephoned the other two groups to signal the end the experiment. Afterwards, I interviewed each group about the course of the experiment. The project ended with presentations by each group in one of the experimental spaces. For this experiment, RCA research ethics procedures regarding the use of human subjects were followed.[193] The next section describes the settings and general results.

193 The risk assessment and consent form cover the ethical issues, including health and safety, consent from the participants and confidentiality of the data.

GROUP ONE

In Search of Lost Time[194]

Rotherhithe Library

The first group carried out their experiment in the former Rotherhithe Library in London, a large, open space with a stage and an accessible rooftop (Figure 6.1). They choose to continuously read aloud Proust's *In Search of Lost Time* as their zeitgeber over the course of 48 hours. Each chapter of the book served as a time unit. By taking turns, always one member of the group read out loud a chapter, while another member was knitting for this period of time. As each person was given a different colour yarn, so the length of knitting for each chapter was thus visualised by the change in colour. This produced a visual output of each time unit. The other two students listened, wrote, cooked or slept meanwhile. (See Figures 6.2-6.9). Two of the students described their experience as follows:

> I think we chose this as a way of exploring the notion of time as an essentially human construct, and therefore as something we can construct in any way we want. Our project played with ideas of activities which have really endured over time: oral story telling and the childhood craft of dolly knitting. In the input it was interesting to see time construction as something which unites a group.

In the output it was interesting to see time visualised in a tangible sense.[195]

The experiment offered together an experience of escapism and returning …. Initially the desire to look at the time was strong and the necessity comfort of knowing what stage of the day it was challenging. But the reading continued and the knit developed, providing a new source of time and this eventually overruns the desire to look at the time.[196]

In the Uchronia workshop we switched off time for a few days—the replacement of time with the conceit of the new zeitgeber was the switch—and when we came back to it (almost like a space or a condition) it was like we could smell it again, or see its outline.[197]

194 Marcel Proust, *In Search of Lost Time.* (1913-27), trans. C. K. Scott Moncrieff and Terence Kilmartin, (Philadelphia, PA: Modern Library, 2004).

195 Student, Uchronia Questionnaire, 8 September 2015.
196 Student, Uchronia Questionnaire, 30 August 2016.
197 Student, Uchronia Questionnaire, 1 September 2016.

Figure 6.1-6.9 *In Search of Lost Time* (2014), Group One, Rotherhithe Library, London


HOUSE ROUND
LIBRARY

GROUP TWO

Time to Eat

Pumping Station

The second group choose hunger as their time-giver. They were send to a remote place in the outskirts of London: a former pumping station, surrounded by forests and meadows (Figure 6.10). Away from social rhythms, they focussed on their bodies, specifically their feelings of hunger, and explored these by cooking, under the additional temporal influence of music. This was their manifesto:

> We will respect our companion's chronobiology.
> We will live without traditional time conventions for 48 hours and enjoy the pleasure of eating and listening to music.
> We will aim to consume 3 meals a day together.
> We will aim to document this experience and produce a book and film.
> We will use music as a measuring unit.
> Music will be an ingredient.
> Music will be the authority.
> We will decide on the music together in response to our mood, weather, food and surroundings.
> We will let our stomachs tell the time.[198]

The group documented their mealtimes by texting me, when they where about to eat, and made a guess about the actual time (Figure 6.11).

One student wrote about the experiment:

> I'm always hungry so I rely heavily on the time to dictate when I eat. I'd like to say that this experiment taught me I should just eat when I'm hungry, … it also taught me that … time is a key ingredient.[199]

Figure 6.10-6.15 *Time to Eat* (2014), Group Two, Pumping Station, Cheshunt, Hertfordshire

198 Manifesto, Student Group Two, 31 November 2014.

199 Student, Uchronia Questionnaire, 1 September 2016.

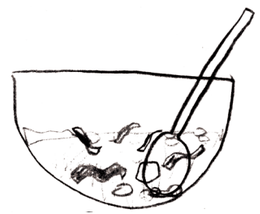
28.10.2014 19:13
Hihelga we r jus abt to hv dinner,wanna eat at 1830 but had some trouble with the oven . think its around eight now?:p x

28.10.2014 20:41
Cake and i think arond 10 now?

29.10.2014 11:14
We have been cooking and eating for an hour now.. around 1130?

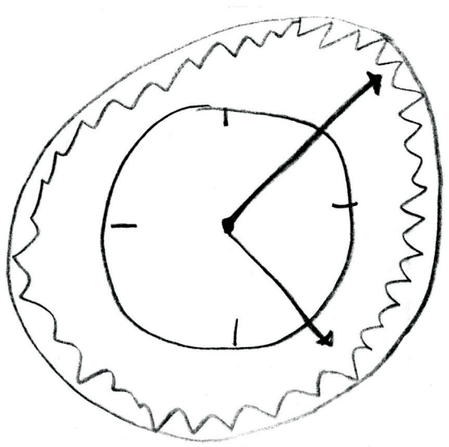
29.10.2014 17:20
We are having "late lunch" haha more like starter of dinner

29.10.2014 19:11
Ccchorizo dinner & 30



30.10.2014 10:40
Hi helga we are just sitting down for breakfast now estimated time 12

30.10.2014 12:58
Having cake 2pm




Burgen
WHOLEMEAL
Half price
30 OCT
TESCO
Arborio Risotto
£2.50

GROUP THREE
Space as Zeitgeber
Eaton House Studio

The third group was send to a pink mansion in Essex (Figure 6.16). They decided on the space as their zeitgeber, with the intention to create a narrative around the (elaborately and thematically decorated) rooms of the house. The French novel *Against Nature* [200] by Joris-Karl Huysmans served as their inspiration. The novel is about a French aristocrat who leaves his decadent upper-class life in Paris for a remote villa in the countryside. Isolated from society, he creates his own artificial world full of eccentric art, luxury perfumes, exotic jewels and classic literature. Interestingly, the owner and creator of the pink mansion identified many parallels between her work and the novel. [201]

Over the course of the 48 hours, the students individually wandered through the house, from room to room. The numerous bed rooms and showers dictated the rhythm, leading to a polyphasic sleep pattern, in contrast to our societal day-and-night rhythm (monophasic sleep pattern). [202] The intensity of the space has been summarised by one student:

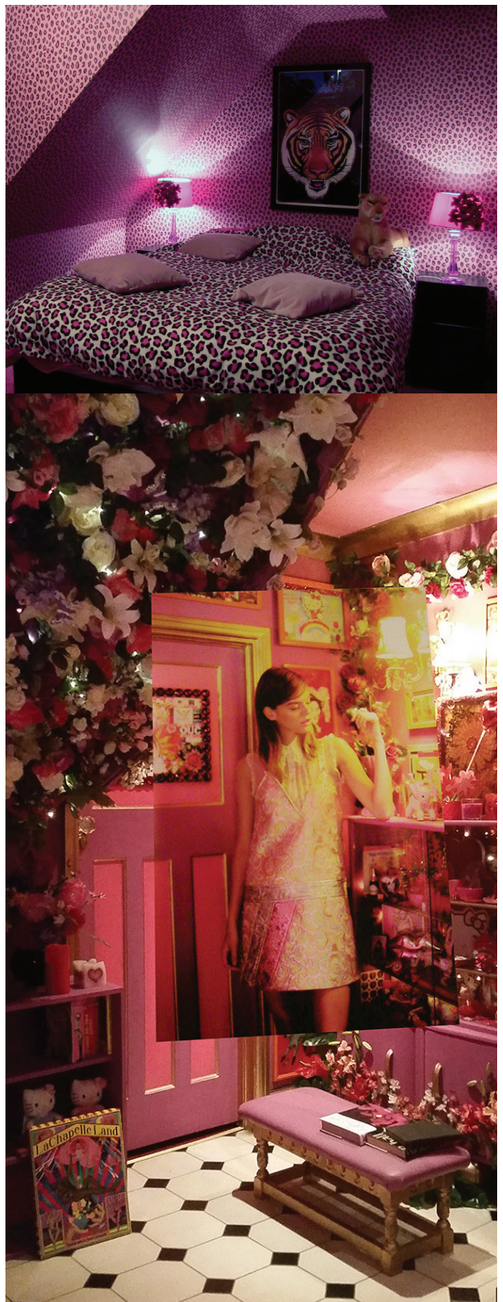
> I spent 2 days in the 'pink house' which was full of objects, very strong colours and every space had a distinctive mood. Time in this artificial space became associated with place, context. The house imprisoned me and dictated my time. [203]

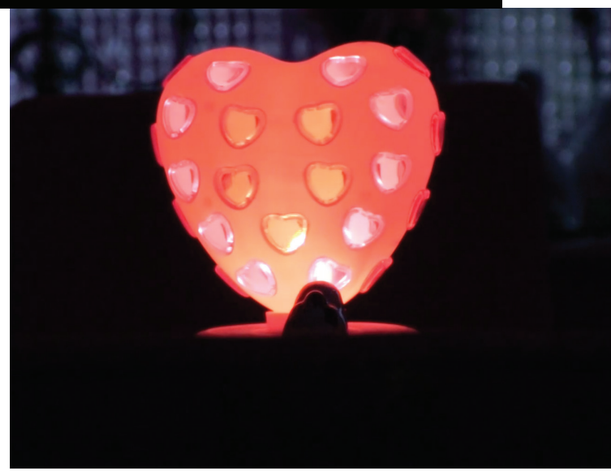
Each of the students created work, from short films, images and drawings inspired by the different rooms and invented imaginary additional rooms. In this experiment, the space indeed became the dominant zeitgeber. (Figure 6.17-6.24) In Chapters Seven and Eight, I will discuss the translation from time to space in the form of a larger project proposal.

200 Joris Karl Huysmans, *Against Nature* (Los Angeles, CA: Green Integer, 1999).
201 Amy Griffith in our e-mail correspondance (27 October 2014): 'I can't believe how many similarities there are between my work and the fictional character! It's a bit spooky.'

202 The psychiatrist Tom Wehr suggests that the natural sleep of human beings shows a biphasic pattern, in contrast to the monophasic pattern today's society so strongly believes in. In one of his studies, electric light, or rather a lack of it, was the focus of an experiment conducted in 1990. He asked volunteers to live their regular lives, only without modern light sources. In the winter months, when the experiment was carried out, the participants' daily routine was limited to the daylight hours. As in the premodern era, the twelve or more hours of darkness were no longer perceived as an 'active' timeframe. After recovering from a chronic sleep depth in the first month, subjects slept an average of eight hours a night, separated in to two segments (biphasic sleep). It would seem that the homeorhythmic pattern of sleep has been overwritten by the societal concept of monophasic sleep, probably to fit better into an efficiency-driven world. See Thomas A. Wehr, 'In Short Photoperiods, Human Sleep is Biphasic', *Journal of Sleep Research*, II, 1 (1992), 103–107. Buckminster Fuller carried this idea even further and followed the polyphasic sleep pattern *Überman:* 20 minutes sleep every four hours.The variation in sleep patterns are listed on the website of the Polyphasic Society, *Sleep Schedule Overviews* <http://www.polyphasicsociety.com/polyphasic-sleep/overviews/> [accessed 12 August 2016].
203 Student, Uchronia Questionnaire, 30 August 2016.

Figure 6.16-6.24 *Space as Zeitgeber* (2014), Group Three, Eaton House Studio, Tiptree, Essex





ANALYSIS AND REFLECTION OF THE FIRST UCHRONIA WORKSHOP

This workshop explored possibilities for new zeitgebers, and therefore alternative time systems, as a uchronian method. Like Eliasson's exploration of space, this workshop opened up an unexplored space for thinking about new ways of understanding and using time. The three groups stepped out of the societal system by each forming their own, independent collective. Although this experiment was only conducted for a short period of time, it had a lasting impact on the participants. Their reflection, based on material from interviews and questionnaires (see Appendix B) are explored more fully in the examples which follow.

All the students agreed in the interviews that they would like to do the experiment again and extend it to a longer period of time, ideally around a week. One of my questions addressed the difficulty of not knowing the time: *After leaving clocks and the digital world behind, did you feel the need to know the time or follow a certain kind of structure during the 48 hours?* Here the answers showed great deviation. Some students expressed a real necessity to know the time:

> I am somebody who habitually and constantly checks the time. During the experiment I found not being able to do this extremely frustrating. Afterwards I felt extremely grateful to be able to do this activity. As I was drawing these [animations] I was aware that 12 drawings equals one second of output (12 frames per second) and found that although I didn't really know how long it was taking me at least knowing how long what I was making would be gave me a sense of 'groundedness'. (I know that isn't really a word but 'security' felt like the wrong word.) In a way this was a device for determining a length of time in the future.[204]

Others experienced it as a form of freedom:

> I was surprisingly fine with not knowing the time. It was quite a relief actually. When the group would speculate about the time, I felt a bit apprehensive, as if it took away from the experience. Our experiment had quite a tight structure, which might be why we were more immersed and it was easier to forget about the clock or digital world.[205]

One of my main questions focussed on the impact of the workshop and experiment on the participants. *Did this 48 hour experiment change your thinking on the present structure of time? And if yes, how?* This is one of the answers:

> This experiment has had a profound impact on how I feel about time. Being constantly in the making or reading, really put me into a flow of productivity. Productivity being something more analogue and physical. It really makes me want to make things and keep going despite the hours of the clock.[206]

204 Student, Uchronia Questionnaire, 20 August 2016.
205 Student, Uchronia Questionnaire, 7 November 2014..
206 Student, Uchronia Questionnaire, 30 August 2016.

Around one year later, and again two years later, I asked the students again about the impact of the experiment on their relationship with time, to gather information on the longitudinal aspects of the study. One student expressed no effect of the experiment in relation to time, although subsequently said:

> I would love to do the experiment again. ... The present time has made man extremely materialistic. We are constantly doing something and don't have the time to get bored.[207]

Another student described the general impact as low, except it changed the behaviour and thinking in certain moments:

> A walk in the woods did not take as long as we expected it would. Now I sometimes just take a walk and time to chill when I feel stuck instead of forcing my brain to work at the desk. It shortened my time of procrastination at certain moments— I was reminded of how long the preparation of a meal could take vs. the time to consume it.[208]

For one student, the workshop as a whole was more impactful than just the experiment:

> I would say the main thing [the experiment] changed is that I am often recognising and thinking of alternative time telling devices. For instance a flickering light, or a rotating bus-stop billboard advert. (...) For several months after the experiment I thought about time a lot more but I would say this was a result, not of the physical experiment, but of the conversations surrounding the experiment and my experience with the participants.[209]

The majority of students, however, described the experiment and workshop as an impactful event:

> Yes. I think it has changed my thinking. Perhaps not limited just to time but more broadly on ideas that many human constructions that we live by without thought could be challenged to produce a creative output. I think it also challenged my thinking about reasons for constructing time; producing a society that is in sync is perhaps good for our wellbeing socially. The experiment would have been very different if it was a singular experience.[210]

> I believe more than ever I'm more conscious that measures of time are practically everywhere, I attempt not to be too attached or to set rigours time schedules that are unnecessary or overall could be detrimental. I have fun with matching an event or situation with alternative measures of time. I've also become far more 'Zen' to others time keeping, I've always had a respectable standard of timekeeping compared close friends

207 Student, Uchronia Questionnaire, 30 August 2016.
208 Student, Uchronia Questionnaire, 1 November 2016.
209 Student, Uchronia Questionnaire, 30 August 2016.
210 Student, Uchronia Questionnaire, 8 October 2015.

and familiar members and now and especially after the experiment I've become more sympatric to others relationship to time.[211]

It was a very special experience. One-year later after this workshop I am looking to continue to experiment (artistically, personally) with my own experience of spaces & time. Since the workshop I have been thinking how my own practices fits in to this; designing, redesigning spaces for a reflective, creative and slower pace.[212]

These examples beautifully express the profound impact of the experiment on the participants, though the intensity of course varied from person to person. One student expressed her relief from the daily temporal fragmentation by the experience of an uninterrupted work flow in the experiment, and this experience made her realise our 'atomised time', speculating that it might even influence her creative process and mode of working later on. The other student had a far-reaching insight, in line with Elias' understanding of time as 'a means of orientation in the social world'.[213] This was a result I was hoping for in this experiment: an essential and radical questioning of the given social construct of time.

The series of experiments allowed me to draw some initial conclusions: I agree with the students that the workshop should run over a longer period of time.

The success of such an experiment is highly dependent on the strength of the chosen zeitgeber.

GROUP ONE, reading Proust, had the most immersive experience, as the chapters gave the experiment a clear structure and defined time units.

GROUP TWO also chose a strong zeitgeber, hunger; however, the implementation of this in the experiment was rather fuzzy. *De facto*, they followed appetite rather than actual hunger. In their manifesto they talk about three meal times, which reflects the typical Western norm, and not necessarily the feeling of hunger. Indeed, this group expressed the strongest need to know what time it was. I argue that this is the result of their weak implementation of their time-giver, wherefore they were following the common societal norms of three mealtimes a day.

GROUP THREE had the most experimental approach by being guided solely by the space. What was interesting here is how the group immersed themselves in the space. For instance, the great variety of bedrooms in the mansion was reflected one-to-one in their sleep patterns: Over the 24-hour period they slept multiple times (polyphasic sleep pattern), rather than sleeping once in a single block of usually seven to nine hours (monophasic sleep pattern). Because of the uniqueness of the space, the group experienced a new rhythm apart from societal norms.

211 Student, Uchronia Questionnaire, 30 August 2016.
212 Student, Uchronia Questionnaire, 15 October 2015.
213 Elias, 1997, p. 3.

This workshop was the first exploration of the zeitgeber method under the concept of 'unlearning'. With the workshop, the method proved itself as an adequate tool to move the thinking about time away from societal, clock-based time. It allowed me to explain my research approach of 'uchronian thinking' or 'thinking about alternative zeitgeber', in an accessible and comprehensive manner to the workshop participants. The students understood the impact of zeitgebers on their being in time, rather than the fragmentation of time into hours, minutes and seconds. In the conversations and discussions later on, time in relation to the clock was no longer a topic of interest. The zeitgeber replaced the clock.

What it all amounts to for my research is the positive feedback of the students. The conversations with the students after the experiment, the feedback through the questionnaires, the symposium presentations (Figure 6.25-6.29) and project documentations, clearly showed the impact and change in thinking about time this workshop had on the participating students. The workshop, incorporating the zeitgeber method, turned out to be good to introduce uchronian thinking into design research. For this reason, I decided to replicate and test the uchronia workshop 1.5 years later, taking into account my findings informed by the first workshop. I reduced the size of the student groups from four to two to facilitate the development of an impactful zeitgeber. I changed the duration of the workshop to seven weeks, rather than one, allowing the students two weeks for the development of a zeitgeber, extending the experiment from 48 to 72 hours, and adding four more weeks for the documentation, reflection and project elaboration before a public, evening event.

Figure 6.25-6.29 *Uchronia Symposium 1* (2014), Rotherhithe Library, London

6.2 SECOND UCHRONIA WORKSHOP

Figure 6.30 *Uchronia Symposium 2* (2015), Victorian Warehouse, London

In January to March 2016, I carried out another workshop in the form of an 'expanded practice' project [214] with six MA students from the Visual Communication programme at the RCA[215]. It ran over the course of seven weeks. In the first week I briefed the students and asked them to develop and decide upon a zeitgeber. In the second week, they refined their time-giver, expressed their experiment in a hundred-word abstract, presented their concept to the group, followed by a group discussion and individual group tutorials. The experiment was carried out in three groups of two over 72 hours from Friday to Monday, 5th to 8th of February 2016. This time the experimental spaces were a converted Victorian warehouse in London (Figure 6.31-6.43); a windmill in Sudbury, Suffolk (Figure 6.44-6.49); and a Georgian town house in Broadstairs, Kent (Figure 6.50-6.54). After the experiment, we had a conversational session about their experience, sharing and discussing the different outcomes of each group and taking this as a starting point for the development of a practice piece in weeks three to seven. The students were asked to translate their experience into a project until mid-March. They also filled out a questionnaire, similar to the students in the first workshop, adjusted to their experimental conditions (72 instead of 48 hours). The project finished with an evening event and exhibition open to the public at one of the experimental spaces (converted Victorian warehouse) in London. The variables I changed in the second workshop were the number of students in each group (from four to two)[216], the length of the experiment (from 48 to 72 hours), and the duration of the entire project (from one week to seven weeks)[217]. The changes were based on the questionnaires and conversations with the first participants, and findings from the first workshop. To guarantee the development of a strong zeitgeber, I reduced the groups to two students each, which simplified the decision making process and implementation of the zeitgeber. Furthermore, the second group of students had more time at hand, prior, for and subsequently to the experiment. This allowed the participants beforehand to develop and prepare their zeitgeber, experience living by the new zeitgeber more in-depth, and after the experiment, have time to reflect on their experience and express their findings through an elaborated project (installations, books, photographs, sound and moving images pieces) and a performative presentation.

The second workshop showed similar, impactful results like the first workshop. The changes in duration of experiment and workshop turned out to be successful, as evaluated in the questionnaires and final student projects. The students had more time to immerse themselves in the experiment, reflect on their experience, and create work based on this. I do not go into a detailed analysis here for the sake of brevity, as these findings echo and reinforce those from the first uchronia workshop (Questionnaires in Appendix C). I simply summarise with a quote from a student of the second group:

> I definitely felt as if my lifestyle puts me completely out of tune with the natural rhythms of my body. It gave me an insight in how I structure the way I do things—I think the way I carry out my work is largely motivated by time. This seems unnatural—because it doesn't allow periods of reflection. These periods gave me extremely valuable opportunities to grasp and formulate my ideas. I left feeling incredibly inspired. It also made me think about the relationship between time and materiality. Before the experiment, I felt as if there was a direct correlation between physical activity, material and time. Time spent not physically doing work seemed wasted, non existent, lazy. Expending energy and creating material value seemed like a proof of time being used to its full capabilities. Now I feel as if time spent working mentally is extremely valuable, despite having nothing physical to show for it. …. Material objects seem as if they are a commodity—because they require time. I understand now that there is more to time rather than just physical objects. Time can be measured in emotions, ideas and plans for the future.[218]

214 'Expanded practice' is a seven-week-long course offered to first-year MA students in Visual Communication at the RCA.

215 All images used with permission.

216 In the first workshop the successful implementation of the zeitgeber was very dependent on the group dynamic of the four students. One student expressed 'the fact that the overall group did not have a strong will to set and respect rules collectively but rather loosely self-rule itself.' The student suggested a smaller group, in response to the question, if he would do the experiment again. (Student, Uchronia Questionnaire, 30 August 2016.)

217 In the questionnaires, all the students expressed the wish to extend the duration of the experiment, varying from three to seven days, and suggested a longer duration of the workshop.

218 Student, Uchronia Questionnaire, 10 February 2016.

Figure 6.31-6.43 *Time and Making* (2015), Group One, Victorian Warehouse, London

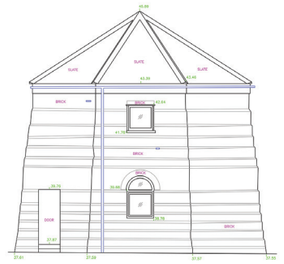


Figure 6.44-6.49 *Rhythm Experiment* (2015), Group Two, Windmill, Sudbury, Suffolk

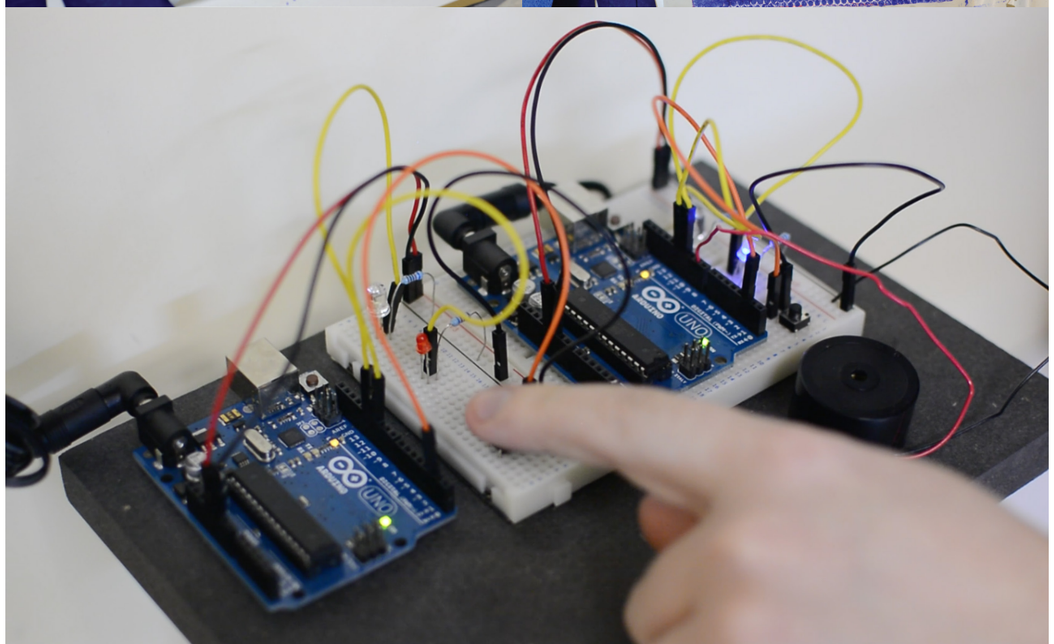


Figure 6.50-6.54 *Arduino Time* (2015), Group Three, Georgian Town House, Broadstairs, Kent

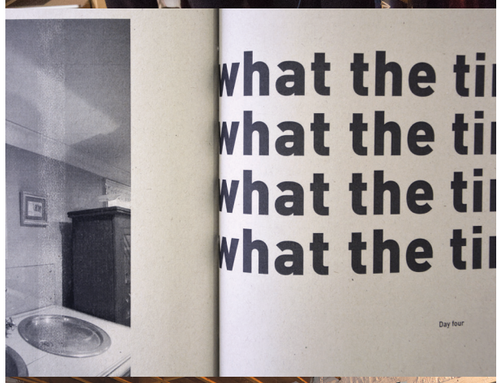
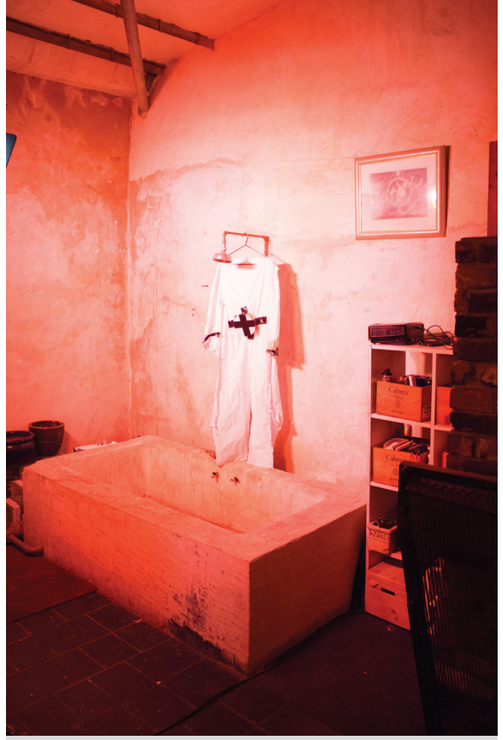


Figure 6.55-6.61 *Uchronia Symposium 2* (2015), Victorian Warehouse, London



Two Hours Four Seventy Thousand Three Hun dred and Twenty Minutes Two Hun dred and Fifty Nine Thou sand Two Hundred Seconds.

Uchronia Symposium

Tuesday the Fif teenth of March Two Thousand and Sixteen. Six till Late. 2 South gate Road N1 3DT

Figure 6.62 *Space as Zeitgeber* (2014),
Group Three, Eaton House Studio, Tiptree, Essex

6.3 SUMMARY

The uchronia workshops represent one application of the uchronian methodology within design practice. They open up a new perspective on today's temporality for the workshop participants through the exploration of alternative temporal structures. But not only through public presentations of the experiments and students' projects at the end of each workshop, the uchronian projects are open to a wider audience. The uchronia symposia were announced on the weekly newsletter of the RCA-wide event calender, on the website of the RCA programme Information Experience Design, and by a school-wide evite. The owners of the experimental spaces received a personal invitation. In addition, for the second workshop, posters were hung up and postcards handed out at the RCA and to local residents at the event space. The symposium had its own Facebook event page, with invitations open to the interested public. (Figure 6.55-6.61)

In both symposia, the students' experiments, the project documentation, and the resulting design projects were presented. At the beginning, I introduced the concept of uchronia and outlined the workshop idea, followed by group presentations. In the first workshop, two invited speakers contributed to the evening event, Amelia Groom, editor of the publication *Time* [219], and Kosta Tonev from Time/Bank [220]. I encouraged the students to talk about their experiences and open up the conversation to the audience. (Uchronia Workshop 1: Figure 6.25-6.29, Uchronia Workshop 2: Figure 6.30 and 6.55-6.61) First and foremost, the uchronia workshops serve as an example of how to implement Nowonty's third way to uchronia, the 'vicissitudes of life', as one student formulates it (Figure 6.62):

> [The experiment] did surprise me and excite me, it entertained me, and most importantly made me playfully aware of how little of my life is spent idling in free-form and experimenting away from the constrains of time. (…) I felt like an explorer in an extraordinary situation, so I decided to behave, at times, extra-ordinarily. For instance, I wore a one-piece tiger costume for the first day, finding it more apt to the place than any of the clothes I was wearing.[221]

219 *Time, ed.* Amelia Groom (London: MIT Press/Whitechapel Art Gallery, 2013).
220 E-Flux Time/Bank is an initiative and community, which started 2011 in The Haag. Time/Bank Hours are replacing money as the means of exchange. See *Your Time is Currency!* (Timebank.cc, 2013), <http://timebank.cc/> [accessed 12 September 2016].
221 Student, Uchronia Questionnaire, 30 August 2016.

CHAPTER 7

EXPLORATION OF
UCHRONIAN THINKING

This chapter investigates the potential of uchronian thinking by using critical and speculative design methods. It approaches the research question, What characteristics of contemporary temporality does uchronia address? By combining chrono-biological and sociological theory, these thought experiments explore aspects of the contemporary time crisis. In thought experiments, I envision alternative time systems through suggesting four different models in the form of time communities. To reiterate, the definition of thought experiments in Dunne and Raby's terms (see Chapter Five), is a method to free the thinking from conventional norms, and explore something outside of reality.[222] These thoughts are then implemented and visualised through design. As part of my research, this method opens up the possibility for an imaginary and radical break with temporal conventions. In setting them up, it enabled me to extend my ideas about alternative time systems beyond the scope and restrictions of the previous student workshops.

In these thought experiments, I take into account Auger's approach of a 'perceptual bridge'[223], for which I use chronobiological and sociological theory. He outlines that for the success and believability of a speculative design project, the 'design speculation requires a bridge to exist between the audience's perception of their world and the fictional element of the concept.'[224] That is why I introduce a brief history of the origins of chronobiological experiments beforehand, which builds the foundation for the speculative time communities. Each of the time communities is reacting to a current time conflict by creating their own temporal framework.

This work concentrates on two decisive aspects of uchronia. Firstly, it creates a link between chronobiology and sociology of time through design research. Secondly, for this very reason, the literature review moves through the chapters in order to incorporate the theories of both fields with a critical and speculative design research approach. In the practice-led process of developing these scenarios, I used my previous theoretical research on time conflicts (Section 2.3) and the Moment Cards (Section 4.2) as a basis and source of inspiration. Herein I thematised temporal phenomena like 'the shrinkage of the present' or 'frenetic standstill', discussed in the course of this chapter.

222 Dunne et al., 2013, p. 80.

223 James Auger, 'Speculative Design: Crafting the Speculation', *Digital Creativity*, i, 24 (2013), 11–35.

224 Ibid, pp. 11-35.

7.1 CHRONO-BIOLOGICAL THOUGHT EXPERIMENT

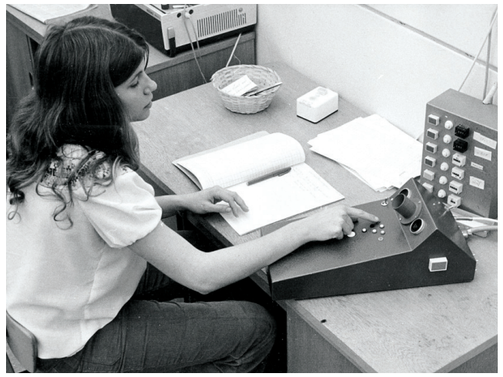
Around one hundred years ago, when clock time had long been ingrained into human minds and behaviour, interest in the human bodily rhythms emerged. The more disconnected people became from the natural environment, the more they felt the urge to understand their internal clock. A number of scientists began to explore the possibilities and limits of the human body and its endogenous clock.

In the 1930s, the physiologist Nathaniel Kleitman and his assistant placed themselves 400 metres underground in a cave in Kentucky. Over a period of one month they explored the rhythmic changes of their body temperature—the first evidence of the internal clock.[225] In 1962, a similar research project was carried out by the French speleologist[226] Michel Siffre. In this 63-day underground experiment, he isolated himself in a subterranean cave from all possible time cues (day and night, clocks and calendars) and created an environment that allowed him to focus on his own bodily rhythms of hunger and sleep. He continued his work with a series of 'Underground Time Isolation Experiments', all of them supporting the emergence of a new field of research called 'chronobiology'.[227]

225 Foster et. al., 2005, pp. 177–178.

226 Speleology is 'the study or exploration of caves'. See OED Online, 'Speoleology'. Available at: http://www.oxforddictionaries.com/definition/english/speleology [Accessed 11 August 2016].

227 Joshua Foer and Mishel Siffre, 'Caveman: An interview with Michel Siffre',*Cabinet,* 30 (2008), <http://www.cabinetmagazine.org/issues/30/foer.php> [accessed 12 August 2016].



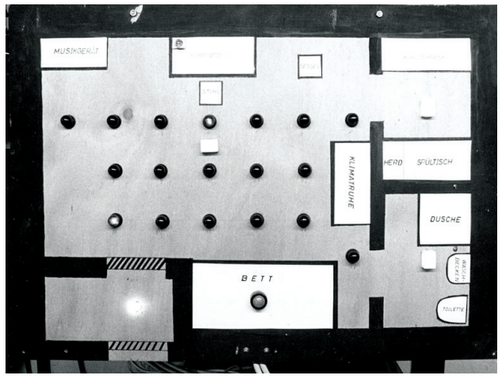


Figure 7.1-7.6: *Andechs Bunker Experiment* (1964-1989), Jürgen Aschoff

Prompted by the sharp increase of shift work in the 1960s and 70s and the resulting potential for health impairment, a long-term research project was started by Professor Jürgen Aschoff of the Max Planck Society in Munich, funded by NASA. From 1964 to 1989 the Andechs bunker, an institute with two isolated apartments situated inside a mountain at Andechs in Bavaria, served as a 'neutral', 'timeless' laboratory for Aschoff's chronobiological experiments (Figures 7.1-7.6). The rooms were shielded against every external time cue: light, sound, vibrations and electromagnetic variations.[228] Over 25 years, 446 people, mostly research students, stayed in the apartments for the duration of between one and several weeks. The subjects were identified by numbers from 1 to 446[229]. During the experiments, Aschoff and his colleague Rüdger Wever measured body temperature, urine output, sleep-wake cycle and physical activity of their subjects, and asked them to keep an in-depth diary about their physical and psychological wellbeing. After a short period of adaptation at the beginning of the experiment, most of the participants described the isolation as a very productive time, some even talked about an extended existence.[230]

228 Rütger. A. Wever, *The Circadian System of Man: Results of Experiments Under Temporal Isolation* (New York: Springer-Verlag, 1979).

229 Focus Online, *Ticken Sie richtig?* (Focus Online, 2000), <http://www.focus.de/gesundheit/news/chronobiologie-ticken-sie-richtig_aid_183639.html> [accessed 12 August 2016].

230 Roenneberg, 2012, pp. 41-42.

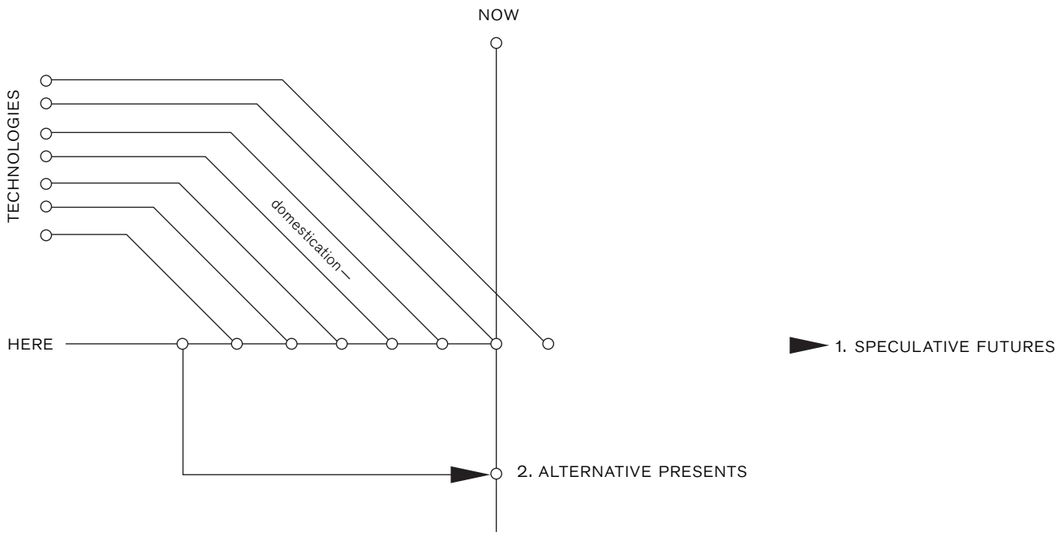


Figure 7.7: *Alternative Presents and Speculative Futures* (2013), James Auger

The Andechs bunker experiment is the starting point for this project. A fictional account of post-Andechs time collectives forms the framework for a series of uchronian scenarios [231] that allow speculations on alternative temporal structures in the present. Hereto I refer to Auger again, who suggests two strands in order to achieve a successful speculative design project (in Auger's case in relation to techno-logical development). In the diagram (Figure 7.7) he elucidates the positioning of speculative projects in relation to the now: alternative presents and speculative futures. As discussed in Chapter Three, Dunne and Raby situate their work in the first strand of the speculative futures, more precisely the preferable future, whereby Auger adds the second strand of alternative presents.

For this project I focus on alternative presents. I develop four concepts for time collectives for the purpose of the fictional account: The free-running rhythm group, the synchronisation zone inhabitants, the resonance collective, and the circadian space community. I speculate that, years after the Andechs bunker experiments, a number of former subjects get together and form several alternative time collectives. Based on their positive experiences in the time-free environment of the Andechs laboratory, they decide to eliminate the current temporal organisation to develop their own temporal framework in the socio-temporal and biotemporal spaces they have created. This is the point, where I separate my speculative scenarios from the course of history and re-imagine the present. (Figure 7.8) This method links back to uchronia as it was originally outlined by Renouvier, and its definition as alternative history. (Section 2.4) (Figures 2.3 and 7.8) Auger acknowledges the relationship by stating that 'this method is similar to the historiographical practice of counterfactual histories and the literary genre of alternate histories' [232]. In the next paragraph I elucidate these time collectives. The fictional elements are highlighted in colour so as to illustrate the application of the method.

231 The use of scenarios is not exclusive to critical and speculative design. In other areas of design education (e.g. product or industrial design), scenarios are used as an approach to develop 'simple or complex considerations of the future'. Organisations use 'scenario planning' as a technique for future thinking. See Martyn Evans et al., 2006. Martyn Evans, 'A Design Approach to Trends and Forecasting.' *Future Ground: Design Research Society International Conference*, Melbourne, Australia, 2004.

232 Auger, 2013.

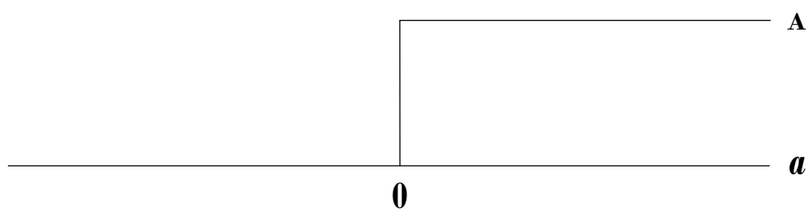


Figure 7.8: *Uchronia Models* (2013), Helga Schmid
Uchronia as Alternative History: a historical event changes at a given point in time (0), leading to consequences other than the course of history. Reality (a) and uchronia (A) bifurcate into two different plots.

7.2 SPECULATIVE TIME COLLECTIVES

ANDECHS ALUMNI: FREE-RUNNING RHYTHM GROUP

In the year 1997, six former subjects, No. 21, No. 83, No. 174, No. 211, No. 391 and No. 417 of the Andechs bunker experiment occupy the unused bunker in the Bavarian Alps as their prospective living environment. Isolated from all external conditions such as light, sound, vibrations and earth's electromagnetic variations, the bunker allows them to establish different models of temporal rhythms. Every six months in rotation, two people of the group are in charge of supporting and looking after the other two group members. In the original experiment, 'the apartments could be entered only through a corridor separated by two thick doors, each of which could be opened only if the other one were closed. This hallway served as a link between the time-free world inside and the time-driven world outside'.[233]

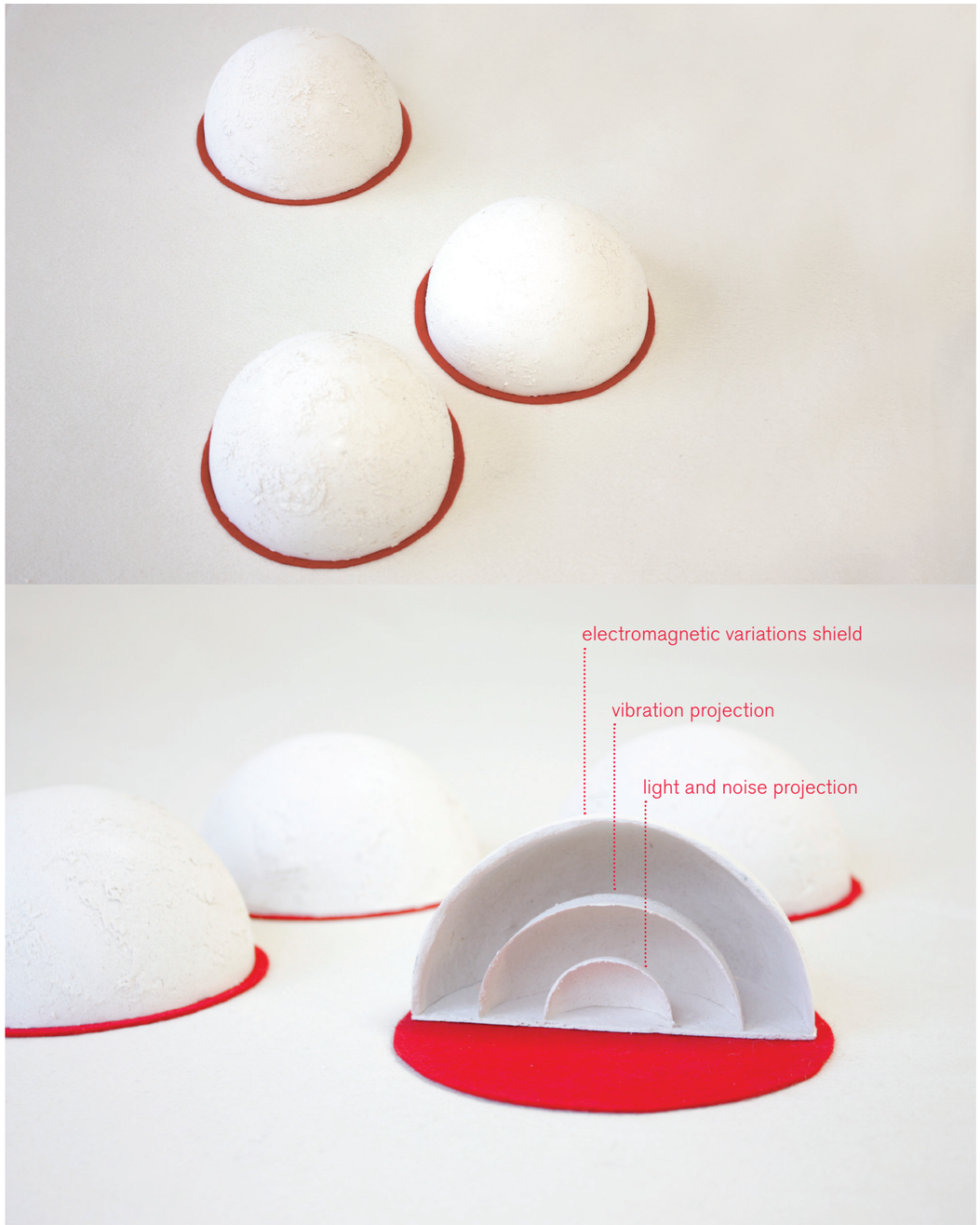
The same remains true for the conditions of the returning experimental time inhabitants. In complete isolation from all external time cues or temporal patterns of social life, the participants celebrate the free-running rhythm of their bodies.
All four individuals were among the one-third of subjects who, in the original experiment, experienced an internal desynchronisation, which meant that 'the sleep-wake rhythm together with the rest-activity rhythm continued at a slower pace than other, more basic bodily functions, such as waxing and waning of body temperature or of hormones'.[234]

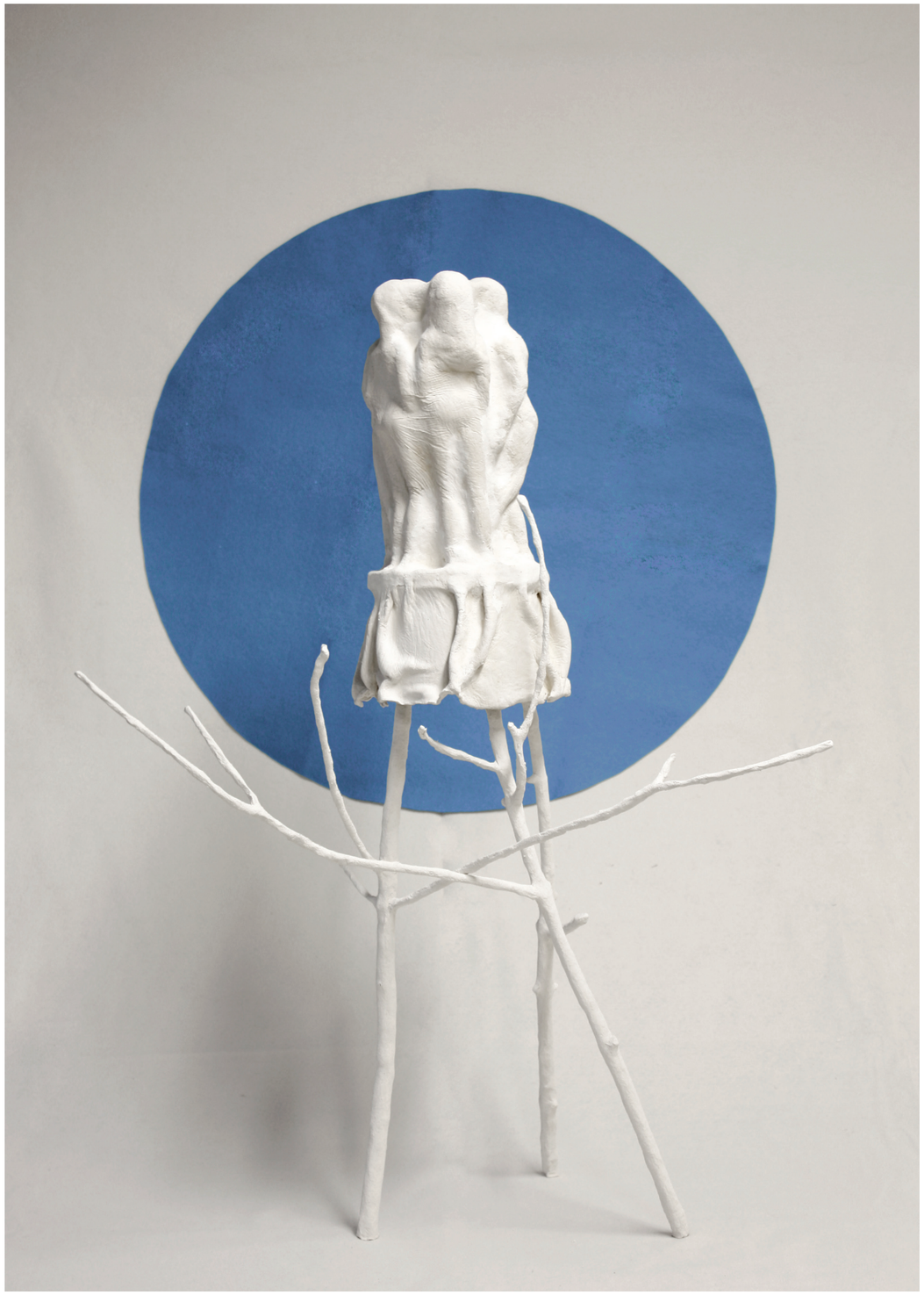
This new small time collective suggests what life would be like without the influence of any external time-givers either from nature or from society. It is a reaction against the embodiment of digital time or any other external zeitgeber. In a purely artificial environment, the ideal way of living is autonomous. The time concept of the community addresses the current process of individualisation, which has been described by Bauman in *Liquid Modernity* (see Chapter Two). They are taking it to such an extreme, that the unconditional focus on the self and the inner rhythm could lead to a new society of isolated individuals existing in their personal time capsules. (Figures 7.9-7.10)

Figure 7.9-7.10: *Free-running Rhythm Model* (2013), Helga Schmid

233 Roenneberg, 2012, p. 41.

234 Ibid., p. 43.





SYNCHRONISATION ZONE: TREEHOUSE COLLECTIVE

In the year 2010 a group of eight people build a spatial structure that allows for only the minimum of 'proper space' and 'proper time'. As an active response to the growing need for proper time, the time community aims to satisfy this longing by sharing each and every moment in extreme spatial closeness. The notion of 'proper time' or Eigenzeit[235], literally translated as 'time belonging to the self' or 'self-time', is explored in great detail by Nowotny.[236] She discusses the relevance of proper time within Western society and analyses why the need for proper time increases throughout modernity. Interestingly, the awareness of proper time was a result of industrialisation and the division of time into work and leisure. The need to spend time by oneself is a result of today's hyper-individualised world and the longing for temporal sovereignty.

Ideally, there would be no need to long for proper time at all, as it was centuries ago. The longing for proper time arises from a time conflict, and the more tangible the conflict situation, the more intense the longing for proper time. But the developing contemporary time structures do not leave time for self-time; instead, free time becomes rare and increasingly fragmented into ever-smaller segments.[237]

In opposition to this contemporary development, the collective coins the expression 'unitary time' to characterise their ideal of time as an undivided whole. Synchronisation processes by means of devices such as smartphones, computers or clocks are abandoned; instead, physical closeness allows for togetherness without any kind of time management. In order to achieve their objective—the highest possible level of synchronisation—the group has constructed a tiny tree house as their shared living space. Remote from society, their way of living suggests that an extremely limited space creates a kind of 'synchronisation zone'. This space opens up the rhythm of human activity to a time concept that does not rely on the regularity of clocks and calendars. (Figure 7.11)

235 More on proper time (Eigenzeit), see Helga Nowotny, *Eigenzeit: Entstehung und Strukturierung eines Zeitgefühls* (Frankfurt am Main: Suhrkamp, 1993).

236 Julius Thomas Fraser discusses proper time in the foreword of Nowotny, 1996, pp. 1-5.

237 Nowotny, 1996, p. 132.

Figure 7.11: Treehouse Collective Model (2013), Helga Schmid.

RESONANCE COMMUNITY: BACKWARD-ORIENTED TIME COLLECTIVE

In the year 1998, an unknown number of people, probably nine to twelve, occupy an old empty farmhouse somewhere in the Bavarian countryside. Quite unnoticed, the squatters live there for a couple of years without contact with their neighbours. Not much is known about them and their living conditions, except for a couple of artefacts left behind in the space. Notes and drawings, wiring systems, complex structures and so on help to draw some conclusions about the temporal regularity and structure of their social life. Analysing the material it becomes obvious that the group lacked interest in anything relating to the future.

The reason might be found in current sociological theory: the prevailing view of the future of post-modern society is expressed as the theory of the 'shrinkage of the present'[238],which was introduced by Herman Lübbe. Compared with the visions of the future that were current during the Industrial Age, the future today appears to be closer and closer to the present. The idea that constant progress leads to a steady improvement of one's living conditions and therefore a better future has been replaced by the fear of worsening prospects. The future

> … is increasingly overshadowed by the problems which are opening up in the present. The future no longer offers the projection space into which all desires, hopes and fears could be projected without many inhibitions because it seemed sufficiently remote to be able to absorb everything which had no place or was unwelcome in the present.[239]

The categories 'past', 'present' and 'future' cease to exist as the future becomes the 'extended present'.[240] As a result, people lose the future space for visions, imaginings and new ideas: these have to happen now, right in the present, the 'extreme present'.[241] In a similar way, Dunne and Raby describe today's relationship with dreams. Like for the future, all the visions are gone, and the dreams are reduced to hopes instead of imaginations.[242] The problem is that the perception of the future is too real. Previous generations' visions of the future were much more optimistic compared with today's young generation. This mindset is the result of the experiences people have made and are making as a generation.[243] The same applies to political and social events. Taken together, these factors influence individual biographies as well as whole generations. Consequently, the visions and expectations of the future depend heavily on each generation's wealth of experience.

238 'Shrinkage of the present', transaltion from the German expression '*Gegenwartsschrumpfung*', in Weis, 1995, p. 53.

239 Nowotny, 1996, p. 50.

240 Ibid., p. 50.

241 The 'extreme present' has been announced in the artistic guidebook *The Age of Earthquakes*, describing the phenomena that the future is approaching faster than expected. This leads to the same effect of losing the temporal categories of 'present' and 'future', only from the opposite perspective.
See Shumon Basar, Coupland Douglas, and Hans-Ulrich Obrist, *The Age of Earthquakes: A Guide to the Extreme Present* (London: Penguin Books, 2015).

242 Dunne et al., 2013, p. 1.

243 Weis, 1995, p. 15.

In 1998, the young time collective is tired of the contemporary view of the future, progress and growth, and decides to create their own temporal system. Instead of focusing on the future, they develop a backward-oriented structure. Rather than planning ahead, time is organised and categorised after the event. The future itself becomes an open, unknown field, devoid of plans and ideas, whereas the present is concerned with learning from the past. In some of the found notes and materials, the reflective involvement with their daily experiences becomes clear and, in particular, how these events resonate later on in their lives.

The past is seen as a process of constant change, or as Sigmund Freud suggests:

> We live forward, but we understand backwards. And, as we acquire new experiences, or new perspectives on the old ones, as we sometimes expand our understanding or deepen our insights, so the interpretation of the past can change over time. … we 'reframe' our view.[244]

It turns out that every individual member of the group has created a different 'calendar' system to record their experiences. It can be inferred that for this community, time organisation is an individual and probably very private concept.

244 Quote from Sigmund Freud, cited in Hoffmann, 2009, p. 107.

CIRCADIAN SPACE: BIOTEMPORAL AND SOCIOTEMPORAL LIVING SPACE

A group of Andechs alumni developed a novel architectural structure in the form of a biotemporal and sociotemporal living space. Similar to the social construct of time, represented by the symbol of the clock,[245] the architectural space represents a new way of social synchronisation. As a reaction to the feelings of impotence when dealing with man-made ideas of time, the architectural space suggests a new rhythmicity in the way we 'eat, sleep, breathe, use energy, digest, think, concentrate, communicate, and interact.'[246] By each listening to their own body clock and its various rhythms, the members of the collective focus on the experience of their internal time in synchrony with the social rhythm of the group.

For the human body clock, natural light is the most influential zeitgeber to entrain the internal to the external day.[247] However, people in Western societies spend only a few hours outside each week, with the consequence of a desynchronisation of the human body clock from the natural day-and-night rhythm.[248] The social time dominates the bodily rhythm with the consequence of shifting sleep pattern on workdays and free days. This often leads to a malaise similar to jet lag: 'social jet lag'.[249] However, its occurrence on a day-to-day basis—and not just occasionally on a long distance flight—is problematic. The phenomenon is particularly common among night shift workers, but is also increasingly encountered in a large proportion of the population in Western societies—in fact, 80% of the general population use an alarm clock to wake up.[250] Because of the low exposure to external light, specific 'chronotypes' (internal timing types) take on greater significance, from the extreme early birds rising at 5 a.m. in the morning to the very late risers at 1 p.m. The chronotype of each individual is predetermined by genes and depends on age and gender. The strict division into 'larks' and 'owls' is not representative of the diversity of chronotypes.[251] (see Figure 8.11)

The idea of the Circadian Space is underpinned by the circadian rhythm. The circadian community constructs a large circular building consisting of a series of rooms that together form a closed loop. The space itself resembles the scheme of the circadian rhythm. The members of the community pass through the various rooms, each at their preferred speed, according to their own rest-activity rhythm and their personal chronotype. The structure allows them to live in synchrony with their body time on the one hand, and, on the other, to be in synchrony with all those members of the collective who reside in the same room at a given time. The shared spatial situation allows for a straightforward synchronisation process between the inhabitants. All time measuring devices become obsolete, especially the alarm clock, as the circadian space predetermines a temporal structure itself. (Figure 7.12)

245 Elias, 1988, p. 23.
246 Adam, 1990, p. 73.
247 Kantermann, 2013.
248 A study by Kenneth Wright and his team showed the impact of living indoors (constructed environment) and electrical light in contrast to a camping experiment with natural light. The study revealed that the average artificial light exposure is insufficient as an entrainment signal for the human body. See Kenneth P. Wright and others, 'Entrainment of the Human Circadian Clock to the Natural Light-dark Cycle',*Current Biology*, XVI, 23 (2013), 1554–1558.
249 Roenneberg, 2012, p. 149.
250 Kantermann, 2013.
251 Roenneberg, et. al., 2003.

Figure 7.12: Circadian Space Model (2013), Helga Schmid

7.3 ANALYSIS

Each of the scenarios builds upon sociological and chronobiological research discussing temporal phenomena in everyday life (Chapter Two). Elements of the two scientific fields are interwoven with each other in order to achieve a plausible scenario and approach the topics from a different viewpoint.
I used these thought experiments to reach out to experts in both fields. I was honoured to have an interview with Professor Hartmut Rosa as part of my research, whose work has been highly influential in the field of cultural criticism of technological progress. Especially his theory on social acceleration has been relevant for this thesis.

In the interview with Rosa, it became clear that my design approach differs to his discipline of sociology, adding a new perspective:

> I think it is a highly interesting approach, not to look at routines or moral values [the approach of psychologists or sociologists], but rather through architecture or temporal structures. In contrast to routines or moral values, … they simply determine institutional patters and rhythms. … Perhaps this is a good thing for established academic disciplines, because [design research] is challenging these disciplines by using rather applied approaches.[252]

The four scenarios are a means of exploration of ideas and possibilities outside the societal norms. The uchronia workshops described in the previous chapter demonstrated how simple it is to step outside the system, and even the short experiments of 48 or 72 hours seemed to show a lasting impact on the participants. My intentions, in line with Nowotny's uchronian approach, were to influence the students' thinking about time, and therefore influence their understanding of contemporary time structures in the now. One student even said in the feedback session, right after the experiment ended, that he did not want his smartphone back, the phone representing the connection point between him and the external world. He did not want to give up the freedom he gained over the course of the workshop.

252 Conversation with Professor Dr. Hartmut Rosa (translated from German to English), 17 April 2013, Institute of Sociology, Friedrich-Schiller-University Jena, Germany.

In the second workshop, students responded in very similar immediately after the experiment. They did not feel an urge to stop the experiment and get back.

Similar to the uchronia workshops, the fictional groups isolate themselves from society in order to follow their own rhythm. The scenarios go one step further by proposing a radical escape and break from the Western norm; from an experiment to an actual way of living. The suggestion of time communities contrasts the current way of living, as Rosa points out:

> Modernity's overarching value is autonomy [in all areas of life], although I wonder whether or not we made a mistake here. …
> [Your projects] suggest a new form of standardisation, … geared to certain principles [for example] of the circadian rhythm—a fascinating approach. [Each scenario] implies processes of collectivisation.[253]

Rosa's comment confirms my intention of the thought experiment. In the context of critical and speculative design, the purpose is to provoke a discussion about today's temporal norms, and the understanding and usage of time. In the conversation with Rosa, one question became very clear: 'The central intuition is always the conception of autonomy: No one should tell me what to do! … The question is, if we as a society would want regular rhythms back?' The discussion and exposure of the work was achieved through my involvement at the contemporary art venue Platform[254] in Munich, Germany, and more decisively through interdisciplinary conversations.
I used the thought experiments as a starting point for further conversations with experts in other academic disciplines: Professor Karlheinz Geißler (sociology), Professor Till Roenneberg and Professor Anna Wirz-Justice (chronobiology). In the context of the research, the public presentation and interdisciplinary conversations were a useful tool to explain my understanding and definition of the uchronian methodology and how a practical project can be implemented.
What I discovered as useful balance of methods for my methodology was the combination of practical workshops and speculative projects. It allowed me a fruitful, mutual interplay of applied and conceptual ideas. Hence, as a result of these, I used one of the scenarios, the Circadian Space community, as the leverage point for a concrete project development in collaboration with chronobiologists and sociologists. The detailed collaborative work is described in greater detail in Chapter Eight.

This marked the point of departure from the Design Interactions programme at the RCA. The shift of my approach, to move the Circadian Space project forward as an applied project proposal rather than leaving it in its form as thought experiment, happened at the end of my second year of research. As a consequence, I continued my research in my home discipline of Visual Communication with Professor Teal Triggs and Jeff Willis as my new supervisors.

253 Conversation with Professor Dr. Hartmut Rosa, 17 April 2013.

254 Platform <http://platform-muenchen.de> [accessed 12 September 2016].

In a simliar move from thought experiments to applied work, Louis Buckley (previously in Design Interactions) explained in his final MPhil thesis:

> At present, most work that 'designs for debate' is created in an academic context and disseminated through exhibitions, websites, conferences, events and journal articles. Projects are presented, explained and exhibited, but despite claims made about their societal benefit, most debates seem to be largely neglected by the designer beyond this point, and the nature of the discussion sparked by speculative projects appear to be largely undocumented and unexplored. As a result, some design researchers have begun to ask: what is being debated? Who is debating it? And what is the significance of the debate?[255]

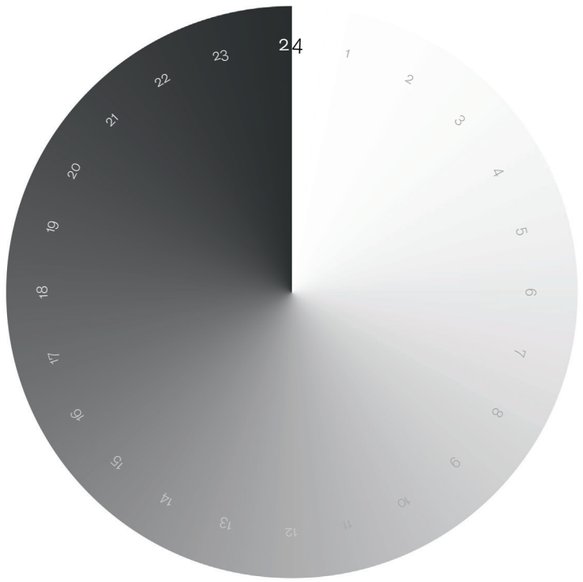
In my research, I wanted to be able to address these questions and generate an actual project, whilst maintaining a position as an active agent within the discussion. I also aim for a further outreach, outside the academic and design community. In the next chapter on the uchronian project proposal Circadian Space, I will discuss the transformation from thought experiment to an applied context.

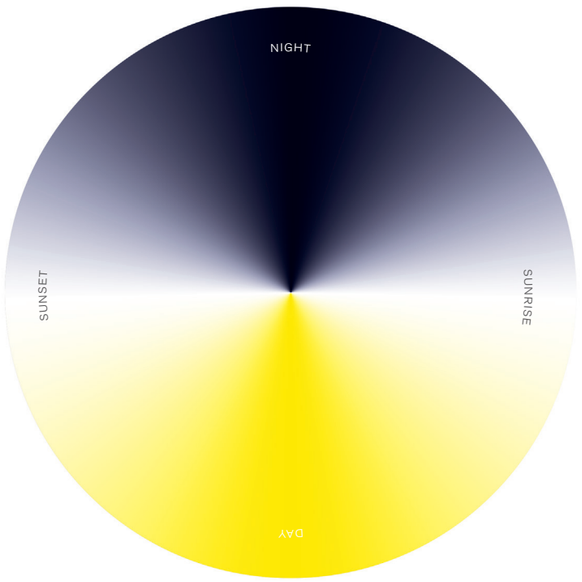
In this chapter I explore how the uchronian methodology can be implemented into design practice. I transform the speculative scenario of the Circadian Space into applied project concept. The intention is to state the concept as one example of an uchronia project and expose it to the design community on one hand, and a wider audience of scientists on the other. For that to happen, I initiated contact with the chronobiologist Professor Till Roenneberg of the Institute of Medical Psychology, Ludwig Maximilian University in Munich. Our first conversation was pivotal to establish the ongoing collaboration. In the meeting, I outlined the thought experiment through the visuals I had made, which became a useful mediator of my concept idea. I further suggested transforming this speculative scenario into an interdisciplinary, applied project. In the same conversation, Roenneberg and I began to brainstorm how an effective project concept could look like. Since then we have been in exchange about the further project development and realisation.

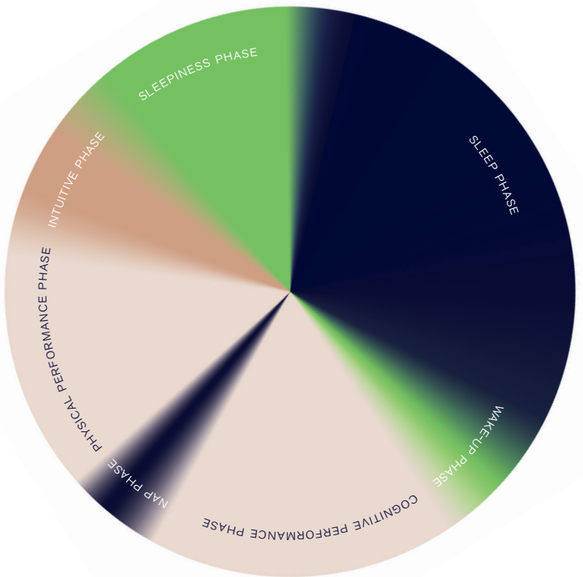
255 Louis Buckley, 'Suicide Walks & Scientific Holidays: Conversation and Participation in Speculative Design' (Unpublished MPhil, Royal College of Art, 2014), p. 45.

CHAPTER 8

UCHRONIAN PROJECT PROPOSAL:
CIRCADIAN SPACE







This chapter is divided into three main sections of project outline, project development, and analysis and summary. At the beginning of the chapter, I describe the 'Circadian Space' project proposal, to give the reader first a detailed understanding of the project itself, subsequent to going into detail on how the project has been developed. The project development is based on the outcomes and findings of three body phase workshops (interdisciplinary design workshop with an interior designer, circadian self-experiment, body phase workshop with a performer), and conversations with experts in chronobiology, sociology, interior design, lighting design and architecture. The evaluation and reflection on these projects, together with the interdisciplinary conversations, result in a detailed proposal for a large-scale experiment. The costs, scale, timeline and audience for the project implementation are only briefly discussed in the listed proposal here, as they are dependent on the project space. A detailed sample for a project realisation is available upon request.

Figure 8.1-8.3: Influential *Zeitgeber: Clock Time, Human Circadian Rhythm, and Day-and-Night Rhythm* (2014), Helga Schmid

8.1 PROJECT OUTLINE

CIRCADIAN SPACE: PROJECT 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 concept Circadian Space investigates an alternative time system based on the circadian rhythm. In collaboration with chronobiologists, sociologists and an interior designer, it will involve the construction of a temporary architectural space representing the body clock. In a seven-day experiment, five selected participants will live in the space, pursuing their own independent rhythms, irrespective of today's temporal organisation. Hours, minutes and seconds are meant to recede in importance as the space becomes the clock.
The aim of the project is to challenge thought patterns regarding the temporal structure of life, and to stimulate public discussion about imposed external time versus internal bodily rhythms.

CIRCADIAN SPACE: PROJECT DESCRIPTION

The starting point for the project is the human circadian rhythm. (Table 8.1) In a small-scale experiment, I will exemplify how daily life could be structured differently. This approach is an example of what Nowonty has described as the third way to uchronia: through the 'vicisitudes of life' (Section 2.4). The project is a novel exploration of how scientific research can be translated through design, into a lived, aesthetic experience.

TIME	PERFORMANCE	BIOCHEMISTRY
00:00-02:00	Sleep initiation Gastric motility	Growth hormone Uric acid concentration
02:00-04:00		Prolactin Glucose (under a constant routine) Triacyl glycerol (under a constant routine) Lymphocytes Eosinophils
04:00-06:00	Body temperature Concentration Deepest sleep Urine production Birth (natural, not induced)	Melatonin ACTH FSH LH TSH Glucose (under a constant routine)
06:00-08:00	Sleepiness/tiredness	Cortisol Testosterone Plasma catecholamines Fight or flight system Platelet viscosity Blood viscosity Fibrinolytic activity NK-Cell activity
08:00-10:00	Bowel movement Blood pressure	
10:00-12:00	Concentration Short-term memory Logical reasoning Blood pressure	
12:00-14:00	Concentration Short-term memory Logical reasoning Urine production Airway patency	
14:00-16:00 16:00-18:00		Insulin
18:00-20:00	Body temperature Alertness Cadriovascular efficiency Muscle strength Flexibility Grip strength Sleep propensity	
20:00-22:00	Gastric acidity	
22:00-24:00	Gastric acidity Bowel movement	

Table 8.1: *Rhythms of Humans* (2004), by Russell G. Foster and Leon Kreitzman

As a first step, the performance of the body, and consequently the circadian rhythm, is divided into approximately seven distinct phases of sleep, transition and activity. (Figures 8.4) These phases have been informed by chronobiological research, conversations with chronobiologists, the 12-hour design workshop (described in the following) and categorised in reference to BBC's Day of the Body Clock[256]. The actual duration of each phase, however, varies from person to person and day by day. According to Geißler, '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.'[257] In the project, this has been taken into account, and the alignment of hours to the phases is removed (Figure 8.5). The emphasis of the project thus shifts to the human circadian rhythm, incorporating the variety in duration.

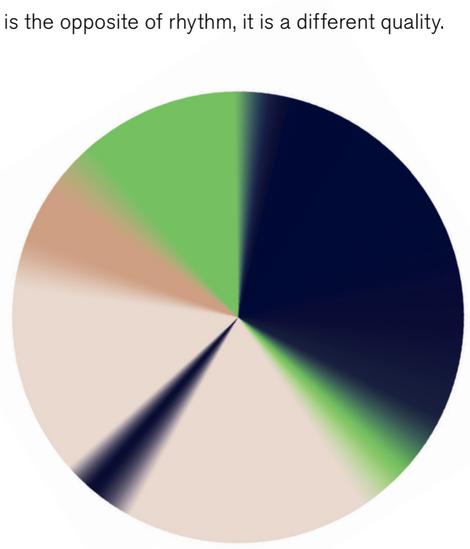
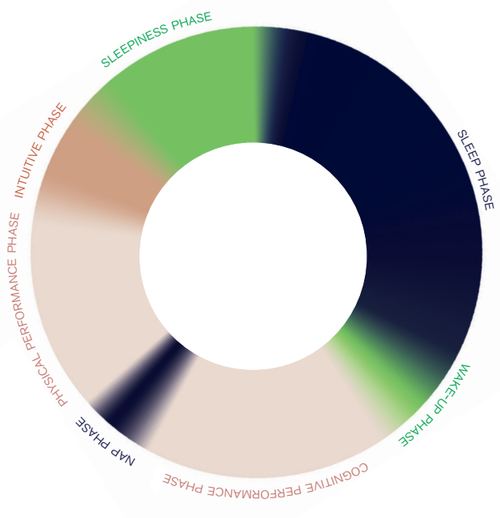


Figure 8.4: *A Classification of the Human Circadian Rhythm Into Seven Phases*, (2014), Helga Schmid



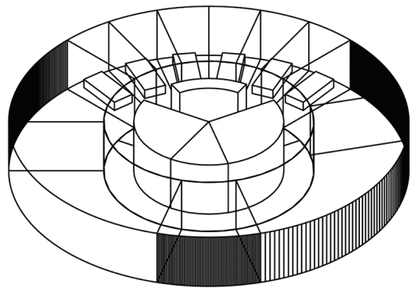
8.5: *Spacial Translation* (2014), Helga Schmid. The circadian rhythm is directly translated into an architectural space (e.g. 8 hours of sleep = 1/3 of the day, represents 1/3 of the space)

256 BBC, 'Body clock: What makes you tick?', *BBC Health*, <http://http://www.bbc.co.uk/news/health-27161671> [accessed 12 August 2016].

257 Conversation with Professor Dr. Karlheinz Geißler (translated from German to English). Geißler uses the German word *Takt* in contrast to rhythm. It is best understood as mechanical stroke. 18 March 2013, Munich, Germany.

CIRCADIAN SPACE: THE SPACE BECOMES THE CLOCK

The scheme of the circadian rhythm is translated into an experimental installation. Like the social construct of time represented by the symbol of the clock, a circular architectural space represents the body clock, or as the chronobiologist Anna Wirz-Justice phrases it, 'transforming internal time into external space'[258]. (Figure 8.6-8.7) In a week-long experiment [259], five participants are asked to live in this newly designed environment, pursuing their own independent rhythms, irrespective of the present-day temporal organisation.



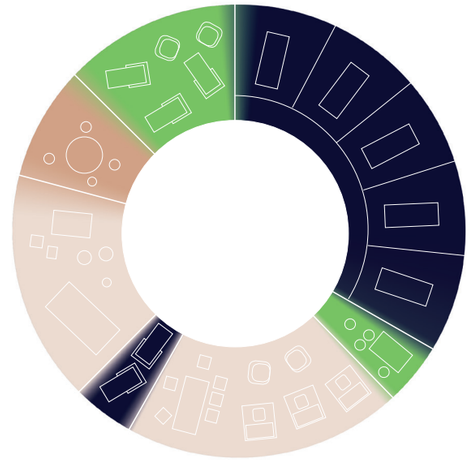


Figure 8.6-8.7: *Translation of the Circadian Rhythm Into an Experimental Space* (2014), Helga Schmid
Layout of the Circadian Space

258 Quote from written feedback on the initial project concept by Professor Dr. Anna Wirz-Justice, 19 March 2014.

259 The duration of the experiment has been discussed with the chronobiologists Anna Wirz-Justice and Till Roenneberg. For the purpose of the 'scientific performance', as Wirz-Justice frames it, seven days are a suitable period of time to observe how the individual sleep pattern and the endogenous rhythm will develop. In agreement with Roenneberg, the goal is to explore and exemplify, how a society could be structured differently based on the human circadian rhythm. In a purely chronobiological experiment, the duration of the experiment is three weeks.

CIRCADIAN SPACE:
OUTLINE OF THE EXPERIMENT

The participants live together in the space over the period of one week. The space is free of any time-giving devices. It is divided into seven rooms/ phases that form a closed loop.[260] There is only one possible walking directio: each of the rooms serves a different function (e.g. sleep, wake-up, concentrate, nap, move, create and rest). The five participants pass through the various phases, each at their preferred pace, according to their own rest and activity rhythm. In a 'timeless zone' (inner and outer circle) are nutrition zones, a sanitary zone and storage space for personal belongings. The hallway (white space) in the inner circle of the building allows access to all the facilities. The beginning and end of the experiment depend on the bodily rhythm of each participant. The entrance point of the space is in the sleep phase. Each individual enters the space and starts the experiment right before they fall asleep. The experiment ends individually for every participant, after passing through seven loops. They exit the space in their last sleepiness phase. This leads to an individual conduct of the experiment for each participant, following their chronotype. (Figure 8.8)

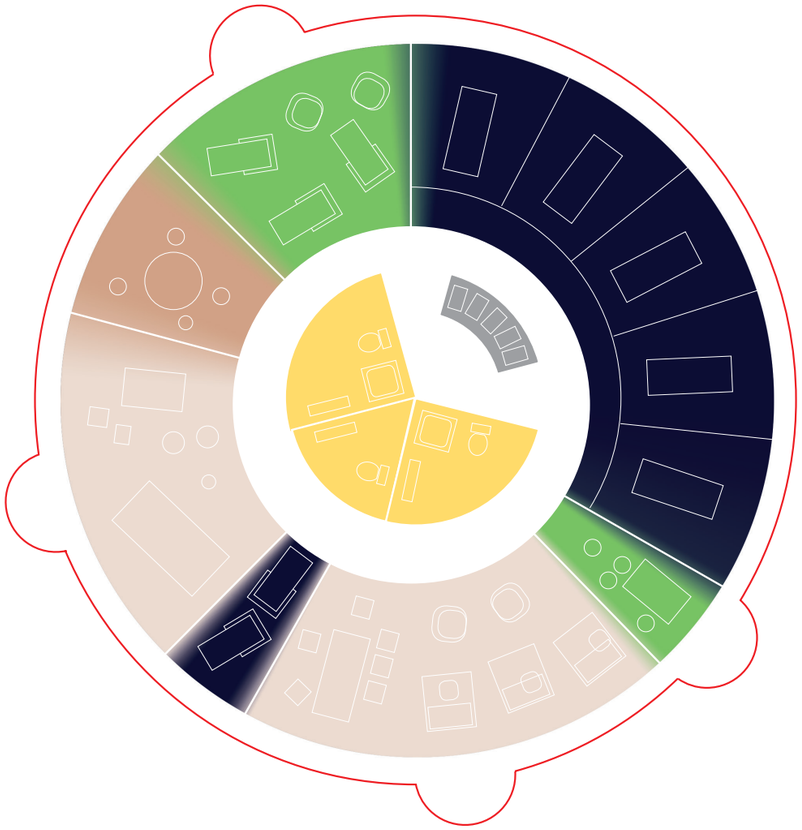


Figure 8.8: *Circadian Space Diagram* (2014), Helga Schmid. The dimensions of the space in this visualisation are 16 diameters.

260 The walking direction is predefined by one-way doors. In the event that a participant has left something behind in the previous room, it is possible to briefly access the room again through the timeless, inner circle.

THE INFLUENCE OF LIGHT

For the body, natural light is the most influential time-giver to synchronise the internal to the external day. However, in 2010 Westerners spent an average of around 2 to 2.3 hours outside each day. Figure 8.9 shows the development from the years 2002 to 2010, and the duration is further decreasing to one to two hours today.[261]

As a result, the impact of natural light (overcast day = 1,000 lux to brightest sunlight = 120,000 lux) on the body is decreasing, and the low light intensity indoors (e.g modern offic = 300 to 600 lux) is not compensating for the shortage.[262] The consequence is a desynchronisation of our internal time from the natural rhythm. (Figure 8.10 and Table 8.2)

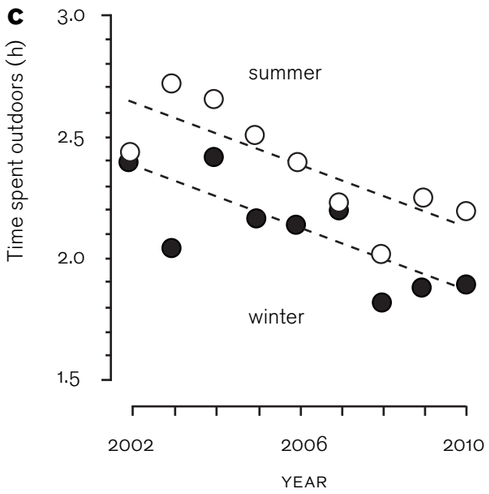


Figure 8.9: *Light Exposure Over the Past 8 Years* (2012), Till Roenneberg et al.

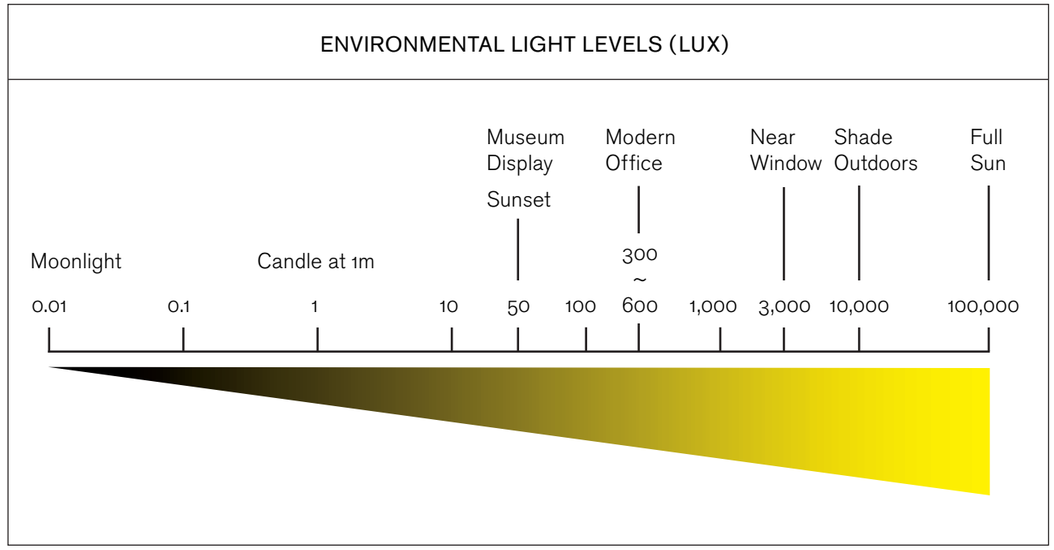


Figure 8.10: *Environmental Light levels (lux)*, Russell G. Foster

ENVIRONMENTAL LIGHT LEVELS (LUX) ~ 1 x 10^9

Illuminance	Example
120,000 lux	Brightest sunlight
110,000 lux	Bright sunlight
20,000 lux	Shade illuminated under clear sky at noon
1,000-2,000 lux	Typical overcast day, midday
<200 lux	Extreme of darkest storm clouds, midday
~50-300 lux	Sunrise or sunset
40 lux	Fully overcast, sunset/sunrise
<1 lux	Extreme of darkest storm clouds, sunset/sunrise
<1 lux	Moonlight
0.01 lux	Quarter Moon
0.002 lux	Starlight clear moonless night sky
0.00014 lux	Venus at brightest
0.0001 lux	Starlight overcast moonless night sky

Table 8.2: *Environmental Light Levels (lux) ~ 1 x 10^9* (2015), Russell G. Foster

261 Brian L. Diffey, 'An Overview Analysis of the Time People Spend Outdoors', *The British Journal of Dermatology.*, IV, 164 (2010), 848–54 <http://www.ncbi.nlm.nih.gov/pubmed/21128911> [accessed 12 August 2016].

262 Russell G. Foster, 'Light, Time and Health: Biology to Architecture' (Talk, Royal Institution, London, 2015).

Because of the low exposure to external light, specific 'chronotypes' gain in importance.[263] The problem of light indoors and the usage of artificial lighting is 'not too much light, but rather too little light across the 24-hour day [which] challenges circadian entrainment.'[264] The Circadian Space therefore reflects this. In most spaces it has no outdoor access and the only external light coming through windows is carefully regulated. This combines with internally regulated light adjusted to the rest-activity phases. In close collaboration with an expert in lighting[265], special consideration is given to the light intensity and the light spectrum in each of the phases, as these critically affect the internal clock.[266]

The light conditions of each phase of the Circadian Space are shown in the diagram[267]. (Figure 8.11)

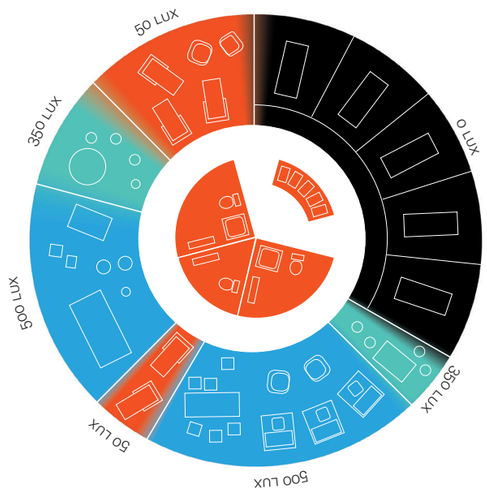


Figure 8.11: *The Characteristics of the Light Pattern in the Circadian Space* (2013), Thomas Kantermann and Helga Schmid

263 Societies, attuned to the day-and-night rhythm (e.g. agricultural societies) show only small variations between chronotypes since the strong zeitgeber sunlight overrides the individual chronotype. The camping experiment of Wright and his team depict, that after one week of camping the sleep-and-wake rhythms of the participants became almost identical. See Kenneth P. Wright et al., 2013.

264 Kantermann, 2013. Another problematic aspect for the circadian entrainment today is light pollution, the phenomena of unnatural luminescence of the nocturnal sky. Not only, but especially urban areas are affected of the illuminated night, so-called 'urban sky glow' through street lamps or lights from buildings. Light pollution and artificial light in the evening and at night affect the sleep-wake rhythm. Even light of low or moderate intensity (180-250 lux) can suppress the secretion of the hormone melatonin, which regulates the sleep timing in humans. This circadian disruption is associated with health issues like cancer. See Koukkari et. al., 2005, pp. 328, 408-411.

265 In conversation and e-mail exchange with the light designer Ulrike Brandi, she expressed her interest in the project and her commitment to collaborate: 'I think this project is exciting and important. The idea to translate space into time is very beautiful!' In terms of the project realisation, she will be in charge for the realisation of the light design.

266 Data is evaluated on how long each participant spends in each room. The individual exposure to light (light spectrum and light intensity) is then compared to the data of the actigraphy.

267 The light in the active phases is 500 lux. Compared to external light conditions of 1000 to 100.000 lux, it seems low, but the eye perceives 500 lux from an artificial light source as very bright.

CRITERIA FOR THE PARTICIPANTS

Through the low exposure to external light in the space, specific chronotypes take on greater significance, from the extreme early types rising at 5 a.m. to the very late risers at 1 p.m. The graph below shows the distribution of various chronotypes. (Figure 8.12) In consultation with chronobiologists, participants will be selected based on the MCTQ (Munich Chrono Type Questionnaire)[268].

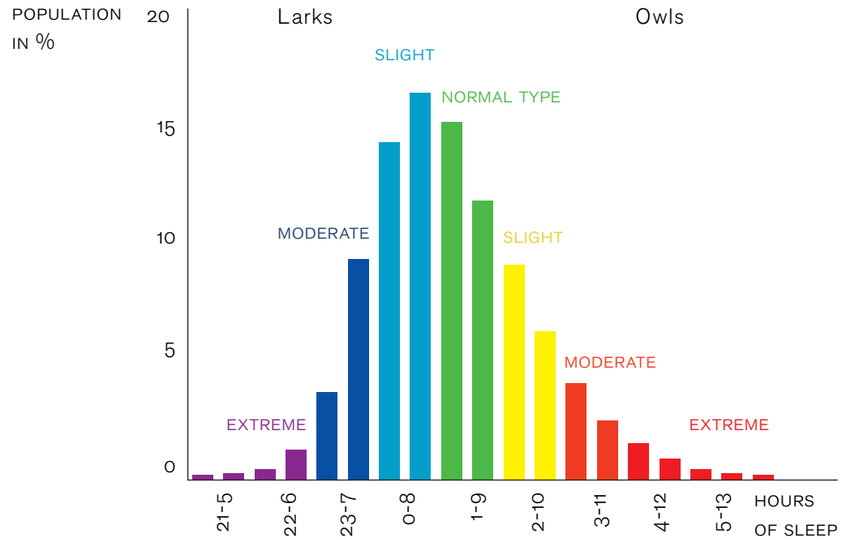


Figure 8.12: *The Distribution of Chronotypes in the Population* (2007), Till Roenneberg et al.

268 The selection of the participants is carried out by a public call for the Circadian Space project together with the Roenneberg Lab. The existing online questionnaire MCTQ is used with an additional password: 'Circadian Space'. Each participant, who includes the password, gets assigned a personal code (ideally 60 to 120 people). On this basis, the questionnaires are evaluated, a number of people selected, which then are contacted and invited to a chronotype casting (20 to 30 people). Details about the questionnaire, see: *MCTQ - main page*, <https://www.bioinfo.mpg.de/mctq/core_work_life/core/introduction.jsp> [accessed 12 August 2016].

The basic criteria for selection are good mental and physical health, aged between 21 and 50[269], similar sleep duration (approximately eight hours)[270], silent sleepers (no snoring). For the experiment, five distinct chronotypes are chosen, from extremely, and slightly early, normal to slightly and extremely late. The main instruction for the experiment is to follow the inner rhythm without any societal pressure.

269 Over the course of a lifetime, the average chronotype changes with age. From an early type as a child, to a late type in teenage and early years of adolescence. The genetically determined interindividual differences emerge after the age of 19.5 to 21. From this late peak onwards, the type becomes gradually earlier, until at the age of 50 to 60, the chronotype starts to be early again. The selected age of the participants is therefore choosen between the peak and low period. For details, see Russell G. Foster and Till Roenneberg, 'Human Responses to the Geophysical Daily, Annual and Lunar Cycles', *Current Biology*, XVII, 18 (2008), R784–R794.

270 Sleep duration varies from person to person, between four to eleven hours. See Till Roenneberg and others,'Epidemiology of the Human Circadian Clock', *Sleep Medicine Reviews*, VI, 11 (2007b), 429–438.

DOCUMENTATION OF THE PROJECT

The project will be captured through motion tracking sensors, biomedical data (continuous actigraphy[271], light acceptability assessment, dim-light melatonin onset and sleep diary), temporal tracking[272] and semi-structured interviews with the participants. I consciously dispense with video recording of the experiment to clearly distance my research work from 'fly-on-the-wall' TV reality shows. The motions of the participants will be tracked through detectors embedded in the flooring or passive infrared sensors in the walls. All the data will be used to analyse whether the bodily rhythm is in synchrony with the specific, designed room (e.g. peak of the hormone melatonin in the sleepiness phase). The experiment will be risk-assessed and approved to ethical as well as health and safety standards by the research ethics committee of a chronobiological institute (e.g. Sleep and Circadian Neuroscience Institute, University of Oxford, Roenneberg Lab, University of Munich). It will be ensured that the dignity, rights, safety and wellbeing of all participants are the primary consideration in the project.

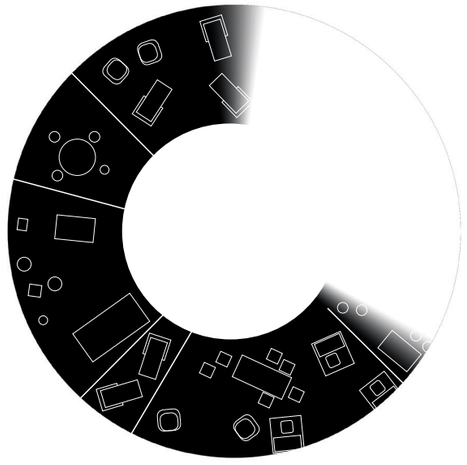


Figure 8.13: *Documentation of the Experiment* (2013), Helga Schmid

271 The participants wear a watch-like device with an actimetry sensor during the whole experiment. Actigraphy is a noninvasive way to record body movements continuously.

272 The duration each participant spends in a room is measured by a simple input at the exit door of each room. Before changing from one room/phase to the next, the participant enters their name and presses a bottom as temporal signal.

Another element of the documentation will be the subjective experience of the participants. At the beginning and end of the experiment they will be interviewed, first on their expectations, thoughts and feelings; and afterwards about their experience and what they have learned. During the event they will keep a diary, documenting their perceptions of time and bodily rhythms. The participants are not allowed to use computers or any display devices with light sources that influence the circadian rhythm. All the project material will be evaluated from the perspectives of the collaborative partners (design research and chronobiology).

Kantermann summarised the expected main research questions from his perspective:

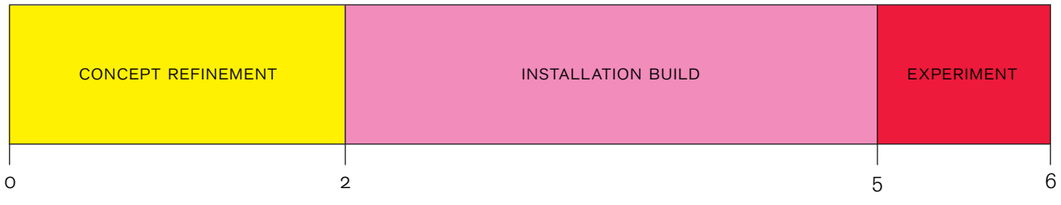
> Does the assessment of chronotype via MCTQ before the study mirror an individual's sleep timing during the experiment?
> (e.g. also via actigraphy and/or melatonin)
>
> Do individuals keep their chronotype or will extreme types centre around a group mean chronotype at some point during the experiment?
> (e.g. also via actigraphy and/or melatonin)
>
> Does sleep timing change after the experiment?
> E.g. re-assessment of chronotype via MCTQ at 4 or 8 weeks post study.
>
> Do individuals keep a 5-2-days week structure?
> Assuming we recruit only those that work 5 days a week with a 2 day weekend; or, do individuals in general would also 'create' free days or work-days when inside the circadian space? Or, would participants rather see the experiment as vacation completely living freely by their body clock?[273]

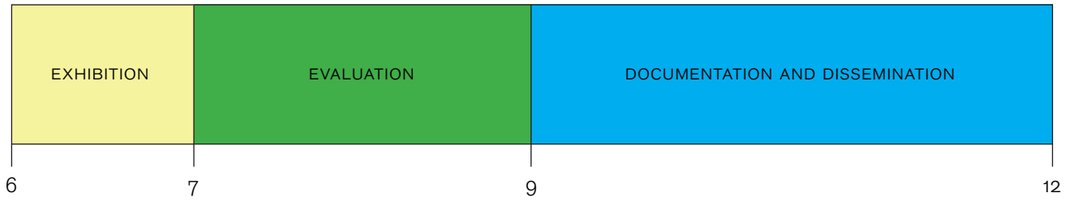
From a design perspective, these would be my main research questions in reference to this project:

> What impacts does the participation in the Circadian Space project have on the participants on a short-term and long-term basis?
>
> What contribution to scientific research can be made by the implication of the uchronian methodology in the interdisciplinary project?
>
> Can the project, displayed in a museum context and open to the public, spark a debate on the contemporary time-crisis, and foster the establishment of uchronia as a platform for critical thought and debate?

Based on the results, I plan outputs to include a compiled documentary publication, research papers in the field of design research, and in collaboration for chronobiological publications. The motion tracking will be edited to a large-scale video projection to be displayed in further exhibitions. The results will also be published on the websites (uchronia.world and chrono.design), and the project will be disseminated through conference contributions and talks.

273 Outline of the main chronobiological outcomes by Thomas Kantermann, e-mail correspondance, 9 July 2014.





TIMELINE FOR PROJECT IMPLEMENTATION

The following sections presents a brief example, a timeline for the project implementaion within twelve month, elaborated for the realisation in the ChronoCity, Bad Kissingen. (Figure 8.14)

AUDIENCE

The audience for the Circadian Space project is very dependent on the project location and duration of the experiment and exhibition. I can say in general that the intention is both an academic and popular dissemination of the project. In terms of the dissemination within academia, the collaboration with experts allows for a vibrant interdisciplinary exchange of thoughts and ideas. The intention is to present the research results at design, chronobiological and sociological conferences, symposia and research papers, in order to expose the work to a broad academic audience in these three respective fields.

In terms of the popular dissemination, the project provides an informal learning experience about the body clock, human circadian rhythm, chronotypes, social jet lag, and uchronia. Possible outreach will be achieved in the following: Firstly, the project space will be used as an exhibition space after the experiment, including visual material on chronotypes, chronotype test (MCTQ), and information on the functioning of the circadian rhythm. Secondly, the audience will be invited to identify their own chronotype and learn about the fundamental principles of the body clock in the exhibition. Thirdly, in the experiment itself, the participants experience a novel time system in an alternative living space. It is only a small experiment, but it provides an illustration of how this concept could be envisioned on a much larger scale. Their personal experience will be disseminated to their family and friends.

Roenneberg summarised the project goal as follows:

> [The experiment] displays, how a world would look like—you are building a miniutare representation of the world—in which everyone is free to follow their own, internal rhythm.
> … With the objectives of showing, that with the [individual], utmost of biotemporal freedom, the society would not fall apart into an autistic chaos. … [The project has the potential] to show, although the participants are utterly following their biological rhythm, and not other influences [fellow participants or societal norms], that the social life between the seven participants is not collapsing, but rather develops new dynamics.[274]

Figure 8.14: *Timeline for Project Realisation of the Circadian Space in 12 Months* (2015), Helga Schmid

274 Conversation with Professor Dr. Till Roenneberg (translated from German to English), 27 March 2013, Ludwig-Maximilians University Munich, Germany.

8.2 PROJECT DEVELOPMENT

The above outlined project proposal for the Circadian Space is the result of a series of practical work. In this section, I describe the process and projects which formed and informed the concept of the Circadian Space. The series consists of preparatory workshops, experiments and performances for the large-scale experiment. The outcomes and findings of these determined the final concept development.

INTERDISCIPLINARY BODY PHASE WORKSHOP

Preparatory work: In the first workshop, I related the design process to the the human circadian rhythm and the body clock. As a guideline, I used the table of the circadian rhythm by Foster and Kreitzman (Table 8.1).[275]

The idea was to design the interiors of the Circadian Space to follow personal daily rhythms. Prior to the workshop, I had elaborated seven phases of the space, in recurring conversations with the chrono-biologists Roenneberg, Kantermann and Wirz-Justice: Sleep phase, wake-up phase, cognitive performance phase, nap phase, physical performance phase, intuitive phase and sleepiness phase. These seven phases were the parameters for a workshop.

In a lively debate and exchange of ideas with the interior designer Ulrike Lehner, we sketched out possible plans for the space. On the premise of the original model of the speculative time community described in the previous chapter, and the above described interdisciplinary, preparatory work, Lehner and I ran the workshop on Saturday, 29th March 2014 at the Royal College of Art. Ideally the workshop would have had a duration of 24 to 25 hours, corresponding to the length of the circadian rhythm, but due to opening hours and space availability, the workshop was conducted over the course of twelve hours, from 10 a.m. to 10 p.m.

275 Foster et al., 2004, p. 248.

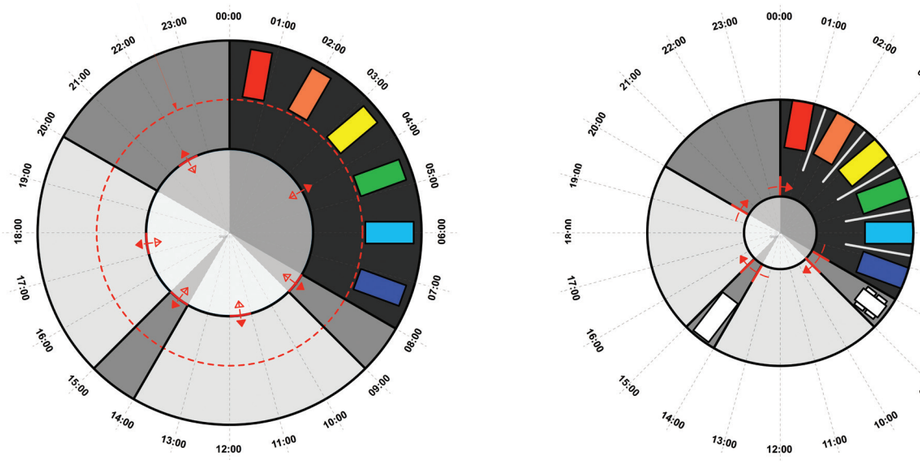


Figure 8.15-8.16: *Initial Architectural Sketchs of the Circadian Space* (2014), Ulrike Lehner

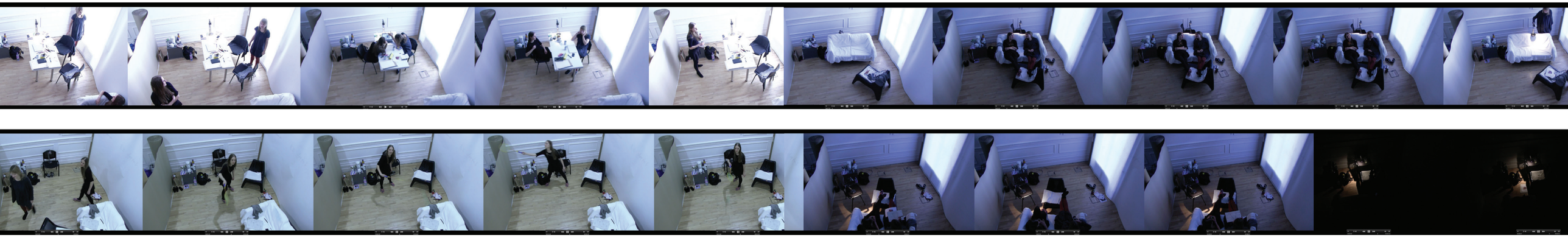


Figure 8.17-8.18: *Documentation of the Interdisciplinary Body Phase Workshop* (2014), Ulrike Lehner and Helga Schmid

WORKSHOP SET-UP

The set-up of the workshop was as follows: We assembled the structure of each room (different sized circle segments), one at a time, and drew sketches of the space layout, over the time period determined by our own body clocks[276]. In our previous collaborative work we had already determined a minimum space for the actual experiment, which we used as a point of reference (see Figure 8.15-8.16). Based on these initial architectural sketches, we outlined the space with adhesive tape and constructed the space with plain and moveable paper walls. As elaborated earlier, each phase had a different size, depending on the approximate duration of the phase—for instance the sleeping space was the biggest space, while the wake-up and nap phases are, due to their short duration, are the smallest circle sections.

There was light from above, but no windows. Clocks or other time-giving devices were removed, as well as phones. We used a laptop for sketches and notes, however without internet access and with the time display hidden. The furniture and equipment was reduced to the basic needs for each phase. The experiment was continuously recorded by a video camera (visible to us). Food and drinks were provided beforehand and always available.[277] During the experimental session, we had no encounter with other people. Only in order to use bathroom facilities, we had to leave the space.

276 Before the workshop, both of us filled out the MCTQ, with similar results of slight and normal chronotype.

277 In the workshop, we followed the current practice of chronobiological studies: stimulants were not allowed.

ANALYSIS OF THE BODY PHASE WORKSHOP

The simple mock-up of the space and the experimental set-up gave us a first-hand impression of the actual experiment. Even through the short period of twelve hours, we gained an insight into the immersive nature of the experiment. Especially the experience of time in this living situation, with a focus on the biological clock, was interesting. 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 with two times, mechanical time and body 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.[278]

Removing oneself from this way of thinking and structuring of time created a very unusual situation. We were almost left alone, reduced to our bodies. Not that we never had experienced time periods without clocks (for instance beach holidays), but in these cases natural influences like sunlight replace the clock. To consciously perceive your own body rhythms was a more difficult task than we had expected. The transitions from active to rest phases was very fluid, and not at all related to the contemporary fragmentation of time. We lived by body time, as Lightman's narrator describes:

> They 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.[279]

Another interesting aspect of the experiment was the enclosed living situation. Although most of us spend our time mainly indoors [280], not having the option to go outside was perceived by us as a strong disconnect from the outside world. The light from above gave us a clue about the time of day, even though it was not perceived as relevant information. The enclosed space, as much as it felt limiting from a spatial perspective, gave us freedom in the temporal sense.

I also note our experience between the relationship of the time of the day and our creative thinking and the design process. Analysing the bodily rhythm, we experience peak and low periods, for example a high concentration level in the first half of the day– what I call the *cognitive performance phase*. These qualities dropped over the course of a few hours to

278 Lightman, Alan, *Einstein's Dreams'*, New York: Pantheon Books, 1993, pp. 18-20.

279 Lightman, 1993, p. 18-19.

280 Diffey, 2011.

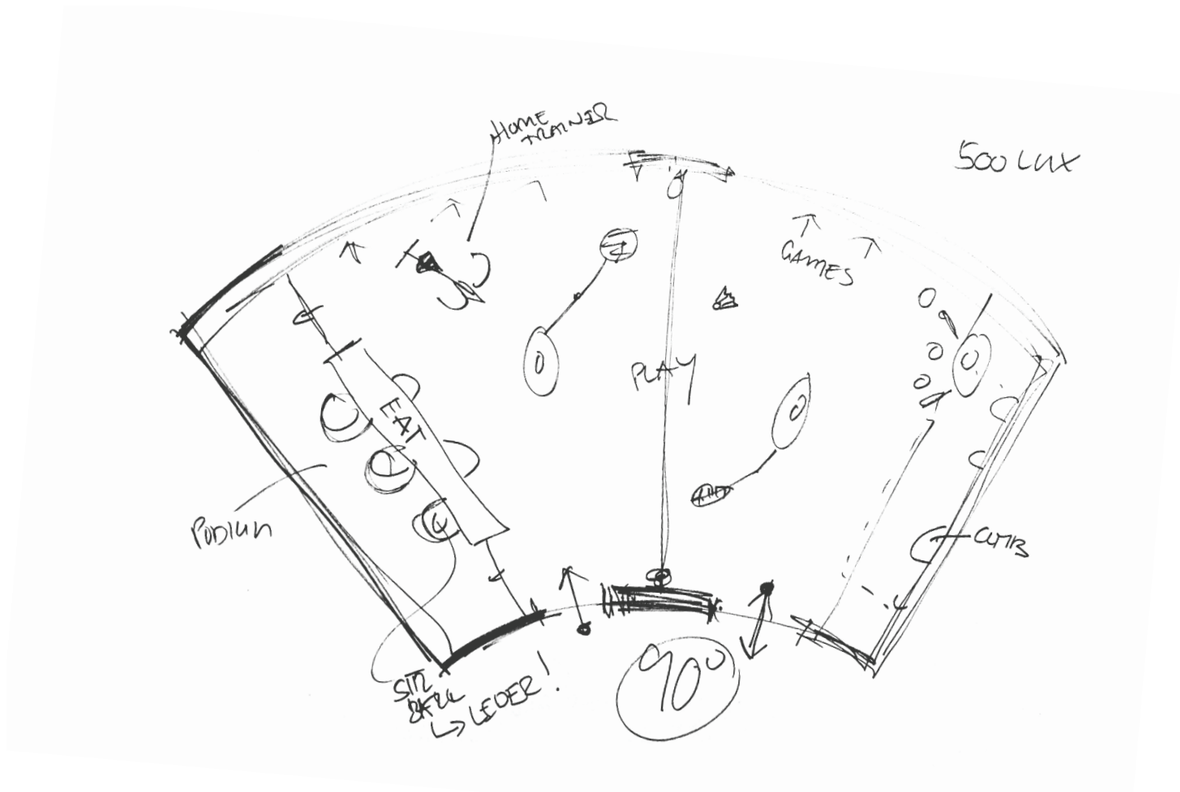


Figure 8.19: *Sketch of the Physical Performance Phase* (2013), Ulrike Lehner and Helga Schmid

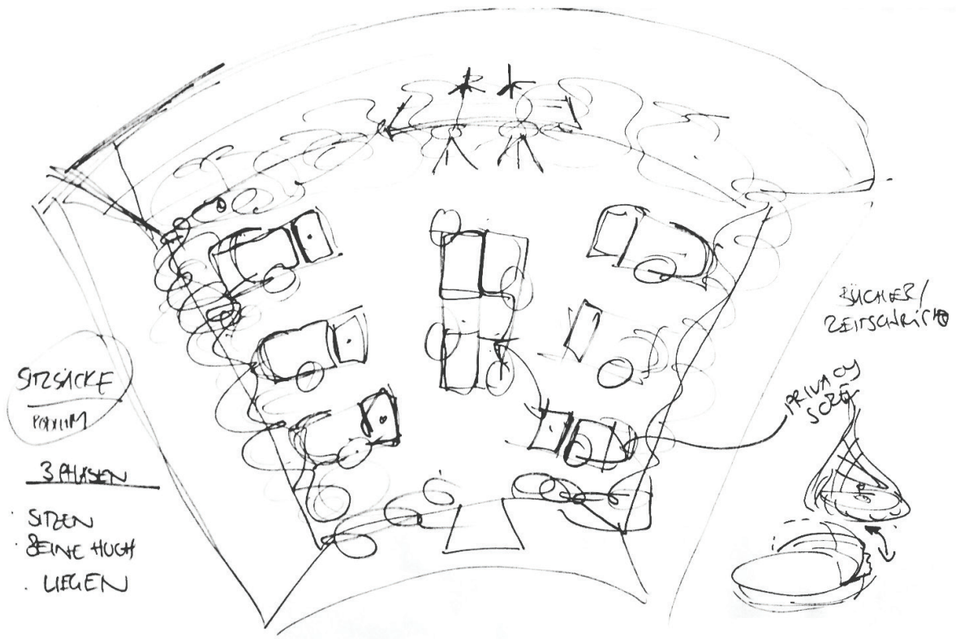


Figure 8.20: *Sketch of the Intuitive Phase* (2013), Ulrike Lehner and Helga Schmid

a low point, termed *nap phase*. While working on the design of the spaces, we always changed the size of the room, the lighting conditions and the furniture in relation to these rhythms. In the cognitive phase, this was a large space, brightly lit with desk and chairs, while the nap phase was one of the smallest rooms, dimly lit and equipped only with a couch. This turned our attention to bodily posture and movement, from upright standing and sitting, actively moving and running, to relaxed lying. During the whole experiment, we were in constant conversation, about the space, about our bodies and feelings. The design process was thus not limited to sitting at a desk and working at a laptop, but rather embedded in all our actions, from playing badminton to sleepy daydreaming on the couch.

The workshop was a very inspiring and productive practice for the further development of the interior landscape of the Circadian Space. It has implications for how we think about the ways we want to work, the creative process and what time of the day might be best for which task. It gave us a new perspective on dwelling, independent of the 'usual' typology of a house like bedroom or kitchen. The physicality of our bodies was at the centre of our considerations, and as the rooms in the Circadian Space are only used once a day during a certain period of the circadian rhythm, ideal conditions for specific bodily conditions can be created. This includes parameters like the light spectrum and light intensity, room temperature, colours, textures, atmosphere and furnishings.
This approach shows significant resemblance with Philippe Rahm's 'Interpretive architecture'. For him the focus is on climate; however, the methodological approach is comparable:

> 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 spacial organisation in which function and form can emerge spontaneously in response to climate.[281]

My focus is on the human body, especially the body clock as parameter for spatial development. Each phase is designed following the circadian rhythm rather than the standard room categories. In the terminology of Rahm, this constitutes a de-programming of the predetermined standards[282].
To give an example, the wake-up phase consists of three sections. In this phase the body undergoes a transition from sleep to wake, from lying to standing wide awake. This will be addressed in the room through 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 to an area

281 Gilles Clement, Philippe Rahm, and Giovanna Borasi, *Environ(ne)ment: Manieres d'Agir pour Demain / Approaches For Tomorrow* (Milan: Skira, 2007), p. 155.

282 What is special about the programming of the Circadian Space is its monofunctional usage of each room uniquely for one specific body phase during a single day, the conditions within the room are optimised for a certain body phase. This is in contrast to the usage of rooms in an everyday context. For example, the kitchen is used at several times a day.

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, low light intensity to an activating blue with higher intensity (lux rate). This reflects a sensual aspect of architecture, as shown for example in the exhibition *Sensing Spaces: Architecture Reimagined* at the Royal Academy in London, 2014:

> There is a sense of pleasure in moving from darkness to light or vice versa because as human beings we're cyclical. How light reflects and how light is contained is the stuff of architecture.[283]

One more crucial finding worth mentioning is related to the physical performance phase. With regard to our circadian rhythms, this phase has an average duration of around four hours, in which performance like muscle strength, grip strength and flexibility peak. In the experiment, we estimated that we spend less time in this active phase. As both of us are desk workers, the duration seemed unusually long. An average city dweller spends ten to fifteen hours per day sitting.[284] What the Circadian Space brings to the foreground is the conflict between the default body position of sitting in an urbanised, chair-based world and the physiology of the human body, by allocating around one quarter of each day to physical activity.

283 Grafton Architects, 'Sensing Spaces: Architecture Reimagined', Royal Academy of Art, exhibition visit on March 31, 2014. For more details, see Philip Ursprung and Kate Goodwin, *Sensing Spaces. Architecture Re-imagined* (London: Royal Academy of Arts, 2014).

284 James A. Levine, 'Lethal Sitting: Homo Sedentarius Seeks Answers', *Physiology*, v, 29 (2014), 300–301.

WORKSHOP OUTCOMES

The workshop resulted in a series of sketches and design ideas for the interior of the space. (Figure 8.19-8.20 and Appendix D) After the workshop I gathered all my material and wrote a detailed briefing for each of the body phases, which I used as the basis for the following practice projects (overview Table 8.3). This workshop also sparked the idea for a performative project, discussed subsequently, which in purest form concentrates on the timing of the day in relation to individual bodily rhythms.

Table 8.3: *Circadian Workshop Briefing* (2014), Helga Schmid, elaborated in reference to Table 8.1: *Rhythms of Humans*

ROOM	CIRCADIAN PHASE	DURATION	PEAK BIOLOGICAL ATTRIBUTE	LOW BIOLOGICAL ATTRIBUTE	LIGHT (LUX RATE)	BODY POSTURE
1	Sleep Phase	6-10h	Melatonin peak Gastric motility Deepest sleep	Body temperature Attention Vigilance	'NIGHT' dark: 0 lux	lying
2	Wake-up Phase	1/2-1h	Blood pressure (sharpest rise) Testosterone secretion (highest)	Melatonin secretion (stops)	'SUNRISE' dimmed: soft blue 350 lux	sitting stretching standing
3	Cognitive Performance Phase	3-4h	Cortisol level Logical reasoning Alertness Short-term memory Concentration		'DAY' bright: full spectrum 500 lux	sitting standing moving
4	Nap Phase	1-2h		Alertness	'SHADOW' dimmed: red-orange 50 lux	lying
5	Physical Performance Phase	3-4h	Alertness Grip strength Muscle strength Lung and cardiovascular performance Cardiovascular strength Core body temperature Blood pressure	Sleep prospensity	'DAY' bright: full spectrum 500 lux	moving
6	Intuitive Thinking Phase	1-2h	Intuitive thinking Creativity		'SUNSET' soft light: 350 lux	sitting standing moving
7	Sleepiness Phase	2-3h	Melatonin production	Body temperature drops Bowel movement suppressed	'DARKNESS' red-orange 50 lux	sitting lying

PERFORMATIVE EXPLORATION OF INTERNAL TIME

SELF-EXPERIMENT

In chronobiological research, human scientific self-experiments have been used to investigate the bodily, internal clock and its functional principles independent from external cues (see Chapter Seven). I draw inspiration for my own self-experiment from the initial 63-day underground experiment of Michel Siffre, which he documented in great detail in his book *Beyond Time*[285]. The intention of my experiment was to 'unmask' my own internal bodily rhythm. As previously explored in the body phase workshop, the perceptionof individual phases was challenging, as we are unused to listening to the internal clock closely. In this context, Foster and Kreitzman explain,

> 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'.[286]

In a film studio, I staged a performative exploration of internal time. The duration of the self-experiment was 16 hours, in a space without windows or other external light. During the session, I had the studio space to myself, uninterrupted and quiet. I reduced

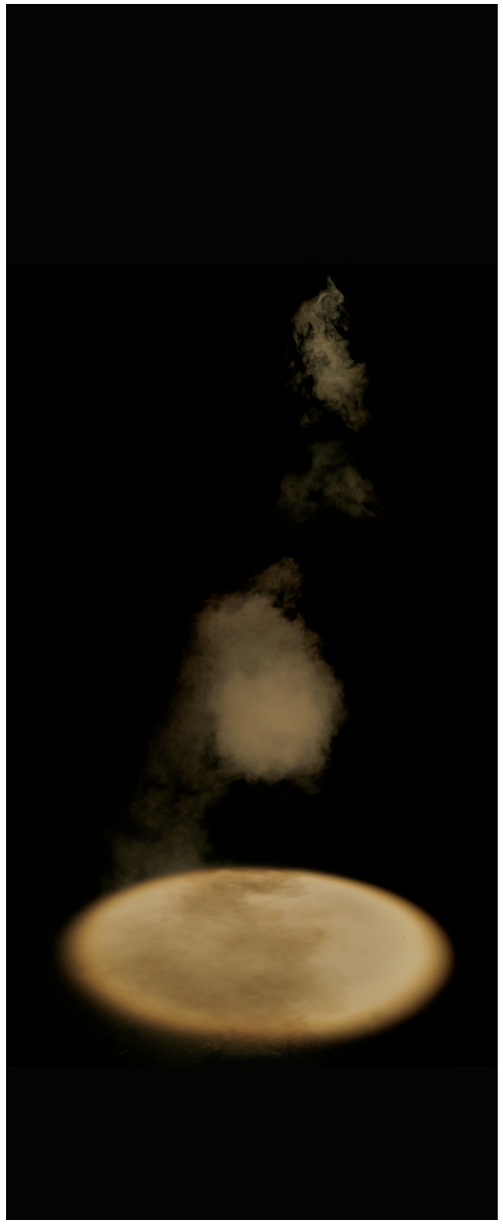


Figure 8.21: *Body Phase Workshop: Self-Experiment* (2014), Helga Schmid

285 Michel Siffre, *Beyond Time*, trans. and ed. by Herma Briffaulty (New York: McGraw-Hill, 1964) .
286 Foster et al., 2005, p. 10.

the setting to the absolute minimum, creating a space to unlearn and discover, reminiscent of Cy Twombly's technique of painting in the dark. I used one single spotlight as my only external influence, which created a light cone representing physical space. The reduction to almost nothing except light allowed for a highly concentrated and intensive, pure experience of time and space. (Figure 8.21) The body as my guide determined the rhythm of the experimental session, with no means to check the time. It was an eye-opening experience for me to solely perceive the body phases of my internal rhythm, comparable to what Nietzsche describes: 'Learning to *see*–getting your eyes used to calm, to patience, to letting things come to you;' [287]. Han builds upon on Nietzsche's thought by saying: 'that is, making yourself capable of deep and contemplative attention, casting a long and slow gaze.'[288] What the experiment brought to light was the artificial rhythm I live by on a day-to-day basis. Following the societal norms, the day already starts by an enforced point in time through the ringing of the alarm clock. From then onwards, the day is structured and fragmented into a range of tasks assigned to certain periods of time. In the experiment, however, time was perceived differently. Clock time or digital time lost its meaning in the time and space I was dwelling in, coming to feel almost like a foreign language. Even for such a short period of time, I lived beyond time. I got a notion of what Siffre describes of his underground experiment. He lost all notions of clock time: 'Time no longer means anything to me.'[289] Siffre elucidated:

> (…) 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? Both time and space were motionless and frozen in the depths of the earth.[290]

It was a freeing experience, as there was no necessity to know the time. Hunger did not disrupt the experiment; rather it was an embedded activity as part of bodily rhythmicity. In day-to-day life, meal times often structure the day into certain periods of time, dependent on specific cultural norms, as opposed to the actual feeling of hunger and thirst.

In comparison with the body phase workshop, the difference was the pure concentration on my own individual circadian rhythm: It was an isolated self-experiment, with no equipment except one light source, and no project task to fulfil other than listening to my body. (Figure 8.22-27)

287 Friedrich Nietzsche, *The Anti-Christ, Ecce Homo, Twilight of the Idols: And Other Writings*, ed. by Aaron Ridley and Judith Norman; trans. by Judith Norman, 6th edn (New York: Cambridge University Press, 2005), p. 190.
288 Han, 2016, p. 21.
289 Siffre, 1964, p. 121.
290 Ibid, p. 103.

Figure 8.22-8.27: *Body Phase Workshop: Self-experiment* (2014), Helga Schmid

During the experimental session, I perceived the passing of time as slow, and the 16 hours as longer than my average day. I had the feeling I was given time. With my body as the focus of attention, the slightest movement or action became important. I listened to my heart beat, pulse, my breathing, the blinking of the eyes or other muscle contractions. The unmasking of the circadian rhythm was simpler for certain phases (nap phase, sleepiness phase) than for others (cognitive performance phase, physical performance phase, intuitive phase). Especially the length of a phase, posture and bodily movement varied in clarity and definability. As described above, I perceived time passing as a continuous flow.

In chronobiological research, there is no single valid categorisation of the circadian rhythm into phases, as I suggest for the Circadian Space. As shown in the Table 8.1, chronobiologists instead discuss peak and low points in performance. This experiment provides support for their approach. The ideal translation of the circadian rhythm into a spatial structure would therefore be a transitional space, with the exception of the sleep phase as a clearly defined room. Over the course of the experiment, I was able to sense peak times and low points in performance, including the increase and decrease of concentration, activity and sleepiness.

During the experiment, however, I used the elaborated phases as a point of reference. In the project of the Circadian Space they become a means to visualise the circadian rhythm to a wider audience. The phases, however, should not be understood as rigid categories, rather as point of reference. At what point in time to move to the next phase is an individual decision, not an unalterable fact.

To summarise the experiment, it added a new dimension to my thinking about the contemporary temporal structure. The body phase workshop touched already on some points, like the liquidisation of time in comparison to the fragmented clock-based structure. But this performative workshop was much purer and concentrated on the perception of the inner clock. I realised how deeply embodied clock time is. I also understood how abstract and artificial this temporal construct of clock time appeared outside of the framework of the Western temporal system. The simple removal for only 16 hours made clear that 'time is a social construct', meaningful only in a particular context.[291] According to Siffre, 'I am free!'[292] The disconnect from clock time and connect with body time was a truly liberating and inspiring experience.

291 Elias, 1994, p. 73.
292 Siffre, 1964, p. 103.

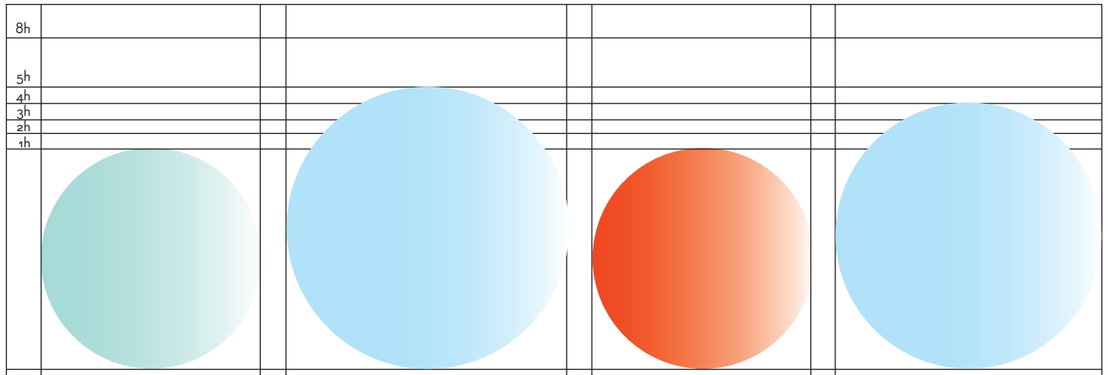
WORKSHOP WITH PERFORMER

Following up my self-experiment, I collaborated with the performer Elina Loukou. The intention was not to repeat the experiment, but to visualise the body phases as illustrative material for my research. I provided her with a briefing about the circadian rhythm and the phases, and discussed the performance with her in two preceding sessions. In these meetings I introduced her to the topic, but gave her the freedom to interpret it from a performer's perspective.
It was relevant for me to see her approach of bodily movements in relation to the phases. In my self-experiment I had neither intended nor put thought into the illustrative nature of my movements. In some phases, her interpretation and my movements overlapped obviously, like the sleep phase; while others, like the intuitive phase phase, differed considerably.

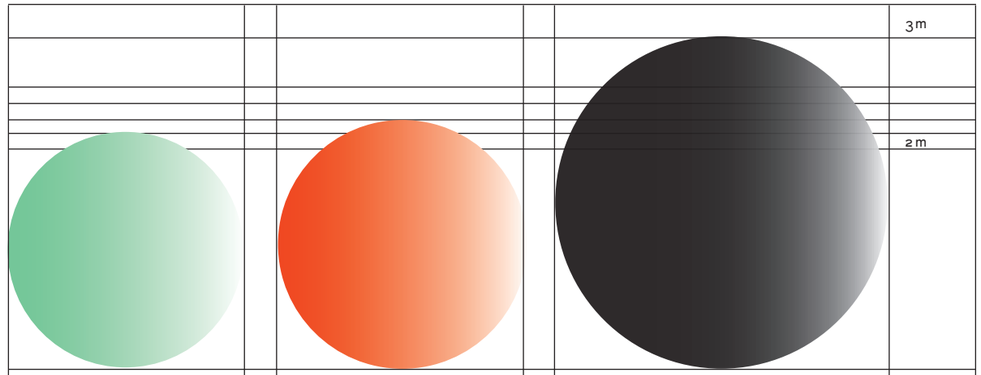
Preparatory to the performance (again in the RCA's Moving Image Studio), we discussed the addition of equipment and the particular clothing. Once again, I gave her the artistic freedom to decide upon her interpretation. She choose layered clothing in order to add or subtract an item contingent to the respective body phase. Otherwise, she decided to forego any additional equipment. Hence, the setting of the scene was identical, only with one other deviation: during each body phase, we changed the size of the light circle depended on the average length of the phase, following my shooting map. (Table 8.4) The light circle of the sleep phase, for instance, was the largest, due to the average sleep duration of eight hours, while the nap and wake-up phase were the smallest circles, due to their average duration of an hour. This is a relevant aspect for the visualisation of the circadian rhythm, to put the phases in temporal relationship to each other, whereas it would have been too disruptive to change the circle sizes during my experimental session. (Figure 8.28-8.33)

Over the course of two days, we worked on the body phase performance, with the support of technicians Rodrigo Canas and George Duck. In the shooting map, I set out different durations for each phase, in relation to a 24-hour day. The circadian day of most people has a tendency towards 25 rather than 24 hours. This, however, highly depends on each individual, and no universal length of the circadian rhythm can be determined (as the term's Latin roots already suggest: circa and diem, 'about a day'). Thus I decided to align the shooting duration with the established length of a 24 hour day. We shot three different sessions lasting two hours, 24 minutes, and 12 minutes, which I planned on using later for a variety of visualisations. Ideally, I would have filmed a continuous session of the performer's actual circadian rhythm, but the opening hours of the studio were restricted.

Figure 8.28-8.33: *Body Phase Workshop with Performer* (2014), Elina Loukou and Helga Schmid



	wake-up phase 1h		concentration phase 5h		nap phase 1h		physical performance phase 4h
	5 min		25 min		5 min		20 min
	1 min		5 min		1 min		4 min
	0:30 min		2:30 min		0:30 min		2 min
	performance times						
1	4-5		5-10		10-11		11-15
2	6-7		7-12		12-13		13-17
3	8-9		9-14		14-15		15-19
4	9-10		10-15		15-16		16-20
5	11-12		11-16		16-17		17-21



intuitive thinking phase 2h		rest 3h		sleepiness phase 8h	24h
10 min		15 min		40 min	2h
2 min		3 min		8 min	24 min
1 min		1:30 min		4 min	12 min
15-17		17-20		20-4	
17-19		19-22		22-6	
19-21		21-24		24-8	
20-22		22-2		2-10	
21-23		23-3		3-11	

Table 8.4: *Body Phase Workshop: Shooting Map* (2014), Helga Schmid

ANALYSIS ON THE BODY PHASE WORKSHOP

The collaboration with the performer was fruitful for the further project development. It was useful to see the interpretation of the brief from another practitioner's perspective. In comparison with my self-experiment, there were certain similarities, especially in the longer shooting sessions.
My experiment was a very calm but concentrated experience, and the same was true of our two-day session. Observing the scene, watching her sleep, waking up, etc, unfolded a beauty I did not expect. It revealed an internal process from a certain intimacy and sensuality. Particularly the sleep, wake-up and sleepiness phase are very private periods of time in everyday life, normally not exposed to a viewer.

This work reminded me of the artist Christian Marclay's installation 'The Clock'. In this work, he looped 24-hour video footage from thousands of film scenes which display the time of day, show clock faces and watches, or of people saying the time. Some galleries were open 24 hours to show the whole piece, allowing visitors to watch a scene displaying the clock time, for example, of 3:15 a.m. at the actual time of 3:15 a.m. This piece has been described as mesmerising and addictive[293], the connection to clock time similarly disappearing and the piece instead reflecting the rhythm of societal life, with wake-up scenes at around 7 a.m., busy commuting and travelling between 4 and 5 p.m., and dream sequences between 3 and 4 a.m.

Although it seems like the opposite to my work, I draw parallels here with the circadian rhythm performance. At the centre of both pieces is the depiction of the temporal rhythm of life over the duration of a day. Marclay's piece shows life in the world of 'mechanical time' in Lightman's words, for example eating lunch at twelve o'clock and making love in the evening between eight and ten[294].
My work externalises internal time and displays the rhythmicity of Lightman's 'body time'. In both cases, a shift in behaviour, movement, language and thoughts becomes visible from morning, noon, evening to the night. One of the protagonists in André Gide's novel *The Counterfeiters* expresses this as follows: 'If I were not there to make them acquainted, my morning's self would not recognize my evening's. Nothing could be more different from me than myself.'[295]

As a result of this performative session, we discussed the possibility of a later collaboration with a group of performers (diverse chronotypes to represent a cross-section of society) to turn this experience into a public circadian rhythm performance of 24 to 25 hours. In Chapter Nine, I detail the artistic and scientific visualisation of the human circadian rhythm as performative event entitled 'Around a Day–performative exploration of time' in more detail. The collaborative work with Loukou enabled me to switch sides, from performer to observer, and as a consequence sparked the idea for a large-scale public performance.

293 Reviews of Christian Marclay's installation: Meghan O'Rourke, 'Is "The Clock" Worth the Time?', Culture Desk, 16 July 2014; Peter Bradshaw, 'Christian Marclay's "The Clock": A Masterpiece of our Times', Guardian, 7 April 2011.

294 Lightman, 1993, p. 19.

295 André Gide, *The Counterfeiters* (Harmondsworth, United Kingdom: Penguin Books, Harmondsworth, England, 1971), pp. 70-71.

ARCHITECTURAL WORKSHOP

In November 2014, I ran an architectural workshop together with Professor Henning Rambow, one of my collaborators in the Circadian Space project. Rambow teaches architecture at Leipzig University of Applied Sciences (HTWK) in Germany. (Figure 8.34) He invited me to set his students a design brief within the module of 'Stegreifaufgabe'–a short-term project within the curriculum. Beforehand Rambow, the chronobiologist Thomas Kantermann and I collaborated to detail the student briefing. The project outline included the elaborated body phases in relation to the spatial conditions as well as general requirements of the space.

These were defined as follows:

Space: The space serves as a living space for the participants and later on as an exhibition structure. The space is divided into seven rooms representing the circadian rhythm. Together they form a closed loop, but not necessarily in the shape of a circle. The single rooms visualise the different body phases, more than anything else. A highly artificial living space is intended, not comparable to the 'typical' working and living environment. In addition, there are also 'timeless' zones outside the circadian rhythm (nutrition area/ bathroom facilities/private belongings) that are not part of the documentation of the experiment.

Nutrition: Food is always accessible, except in the sleep phase and the nap phase.

Bathroom facilities: The facilities are always accessible, so called timeless, but as invisible as possible.

Private belongings: A locker or storage space for private belongings, always accessible. The timeless zones are not intended as meeting spaces for the subjects of different rooms; the less visible or integrated these zones are, the better (particularly with regard to the exhibition later on). Ideally the rooms can be reconstructed for exhibition purposes atother locations.

Walking directions: The walking direction in the space is always in one direction (probably reflected by special doors). Every room gets used only once a day for a certain amount of time. Personal belongings can be taken from one room to the next, left in the room or stored in their personal lockers. However, the participants are asked to leave the space clean for others to use it later on (comparable to 'hot desking' spaces).

Participants: The number of participants is up to five (in consideration of the possible project space in an Old Abattoir—described below). They will live (together) in the space over the period of one week. The participants will be selected by the following criteria: different chronotypes, age between 20 to 60, non-smokers (no external space), male and female, non-snorers (would require special accustics), in very good health condition. The participants pass through the various rooms, each at their own preferred pace, according to their own rest and activity rhythm. They are briefed before the experiment starts to follow solely their individual bodily rhythm, independent of the rhythms of other participants.[296]

Design of the rooms: The size of the rooms can be proportional to the duration of the phase in the circadian rhythm (e.g. sleeping room is the biggest space) or not. As the exact duration varies from person to person, the exact room size is flexible and adjustable to the use of the space. Each of the rooms serves a different function (e.g. sleep, wake-up) with different lighting, depending on the bodily phase (detailed descriptions below).

Acoustics: Best possible separation of noise between quiet zones (sleep and nap phase) and active zones (especially physical performance phase).

Heating: Heating of the rooms might be necessary because of the dates the experiments are carried out (still negotiable).

Light: The space does not include an external area, but windows or other glass elements are allowed (see Figure 8.20).

Documentation: The experiment will be tracked by motion tracking sensors. The participants will wear custom-made uni-coloured clothing. The floor of the space should be neutral to have the focus of the filming on the subjects. The walls of the space can be designed without restrictions. In case of a multi-storey building, the filming and and observation will be from a frontal view and the back wall should be neutral instead.[297]

I presented the project brief to a group of around 50 students on Friday 14th of November 2014. After a briefing about the Circadian Space, the students were given until the following Monday evening to present their concepts and sketches. They were free to work in groups or independently. On Monday a total of 29 concepts were presented. The ideas ranged from straightforward translations of my briefing to abstract spaceship models. (See Appendix F)

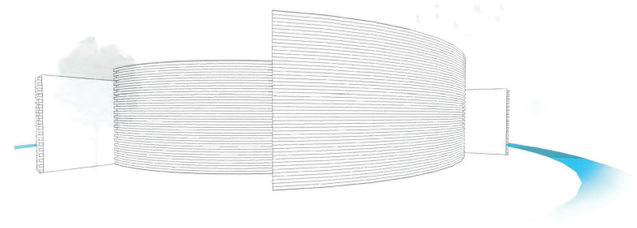
Figure 8.34: *Architectural Workshop* (2014) Professor Henning Rambow and Helga Schmid, HTWK Leipzig

296 This was defined as the main brief with Till Roenenberg. The goal of the project is to show that the dynamic of a group functions, although every participant is guided by their body clock.

297 At the point in time of the workshop, initially filming as a form of documentation was considered. As outlined in the project proposal of this chapter, video recording was removed because of ethical reasons.

ARCHITECTURAL WORKSHOP: OUTCOME AND ANALYSIS

Building upon my previous work, it was great to see the interest the project sparked. Almost double the amount of students as usual participated in this teaching module. In the discussion following my presentation on Friday morning, it turned out that the idea to construct a building following the body clock was an entirely new approach for them. Following the presentation on Monday, I discussed the outcome with professor Rambow and subsequently analysed the concepts in greater detail. From the students' work, certain categories emerged:



1. TRANSLATION OF CLOCK TIME INTO CIRCULAR SPACE

These concepts were closest to the original briefing, translating the hour scheme into a circular space. Here the circle was spilt up into sections of 24 hours. The number of hours of each body phase were then translated into different sized circle segments representing the spaces. This makes, for instance, the sleep phase to the longest (on average eight hours) and therefore the largest space within the scheme (a 120 degree angle). The room segmentation has been a long discussion with chronobiologist Roenneberg. He has argued for the sleep phase as the biggest space in order to display the importance of sleep. It is around one third of each day and therefore one third of our life.[298] This leads back to Crary's discussion about the importance of sleep in today's society and how people are increasingly cutting sleep short.[299] From an architectural perspective however, the spatial need for sleep is much less than, for instance, the physical performance phase. This debate raises importance as an exhibition space rather than a living space. Two student groups solved this issue in an interesting way by keeping the circle segments in relationship to each other, but extending or shrinking the radius of each room accordingly. (Figures 8.35-8.36)

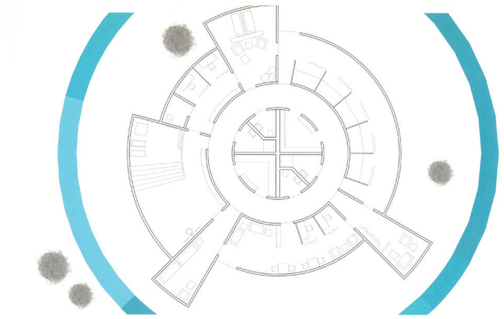


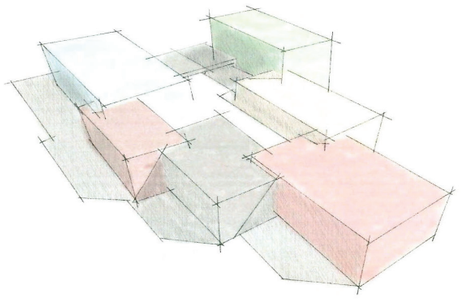
Figure 8.35-8.36: *Translation of Clock Time Into Circular Space* (2014), Architectural Workshop, Leipzig

298 Jürgen Zulley, 'Without Sleeping, There is No Waking: An Introduction to Sleep in Modern Society', in Nadine Käthe Monem, *Sleeping and and Dreaming,* ed. by Nadine Käthe Monem (London: Black Dog, 2008), p. 27.

299 Crary, 2013, pp. 11-14.

2. CIRCLE OF CUBES

The most common solution was represented by concepts translating the circadian rhythm into a circle of cubes, which either still formed a circle out of separate square or rectangular rooms or shaped into a block, sometimes on two or more levels. Two concepts brought in an interesting translation of the performance curve of the body into height differences. In these schemes, the sleep phase was the lowest in height, since this is when the body rests. It was followed by a higher wake-up phase leading to the peak in performances as one of the highest phases, the cognitive performance. The nap phase followed with a lower height again, back to the peak in the physical performance and intuitive phase, ending the cycle with a lower sleepiness phase and finally returning to the lowest point of sleep. In one of the models, the height difference of the rooms was not only noticeable for the experiment subjects, but also visible from outside for exhibition viewers or visitors. From my perspective, this was a beautiful visualisation of the rhythmic nature of the human physiology with its peak and low times. (Figure 8.37-8.38)



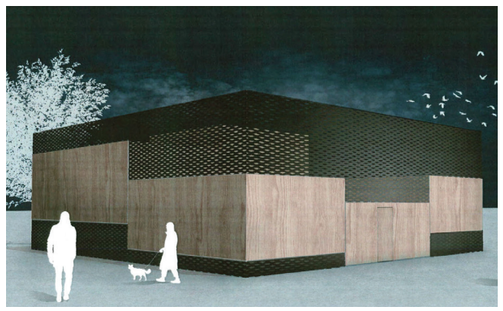
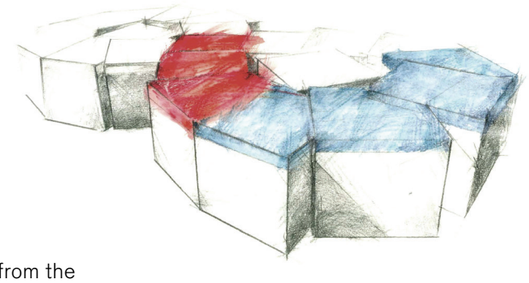


Figure 8.37-8.38: *Circle of Cubes* (2014), Architectural Workshop, Leipzig



3. TRANSLATION INTO A LOOP

The shapes of the space highly variated, from the circle, square and rectangular shapes to modular systems. The key element however, of almost all the concepts was related to the idea of a loop reflecting the recurring daily body rhythm. One group of students even choose the infinity symbol as the shape of the space, combining two similar phases in relation to lighting and body position into one shared space. For the experimental set-up, this would not be an ideal situation as it creates a point of contact of two different body phases. Nevertheless the powerful visual translation of the body clock into an infinite, recurring rhythm, in contrast to today's perception of the linear timeline, makes a valuable contribution/statement. (Figure 8.39-8.40)

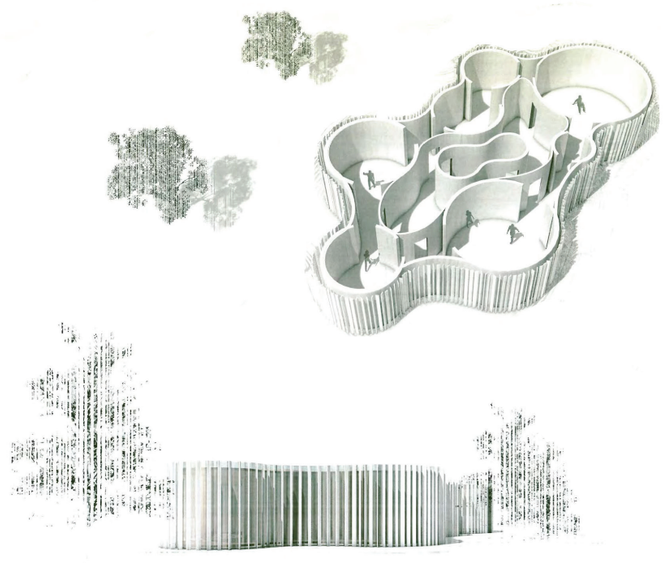


Figure 8.39-8.40: *Translation into a Loop* (2014), Architectural Workshop, Leipzig

4. REALISATION IN THE OLD ABATTOIR, CHRONOCITY[300]

In the presentation of the brief, I mentioned the possible realisation of the Circadian Space within the Old Abattoir in ChronoCity, a part of German health resort Bad Kissingen. With a diameter of at least 13 meters, this circular space would be too small to fulfil all requirements concerning the experimental setting for five participants. A few groups nonetheless planned models situated in the space. Some embedded their concept in the large open space, without creating an architectural shell, while others suggested to cut the circle in half and create a two-story building. Noteworthy was one concept which placed the Circadian Space directly in the hall area. A layered, skeleton-like framework covered and structured the space, but did not divide it into clearly divided rooms. The loop was kept open and one phase smoothly transformed into the next, reflecting the transitional character of the circadian rhythm. (Figures 8.41-8.42)

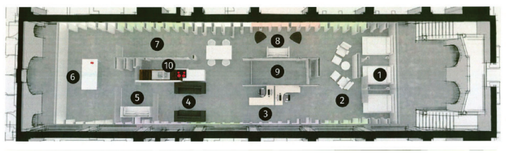
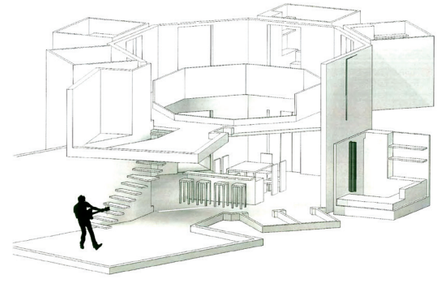


Figure 8.41-8.42: *Realisation in the Old Abattoir, Chronocity, Bad Kissingen* (2014), Architectural Workshop, Leipzig

300 Bad Kissingen in Germany has a long history as a spa town, offering a numerous range of therapies. It is a famous health resort with over 17 clinics. Today, Bad Kissingen became the first ChronoCity in the world. In a variety of research projects and initiatives, chronobiological research is applied into the framework of everyday life. Chrono.city.report.pdf, http://badkissingen.iunctio.de/

5. PRIVATE-PUBLIC SPACE



One aspect emphasised in two concepts was the relationship between public and private space. In these models each participant was given a private space, comparable to a small apartment. One group suggested these apartments in the form of five elevators. This small space would travel up and down the various levels of the Circadian Space with the participant, always providing a retreat area. In the second concept, the student grouped the phases into private spaces (sleep and intuitive phase), public spaces (nap, cognitive and physical performance phase), and in-between zones (wake-up and sleepiness phase). What gets lost in these ideas is the one-time usage per day of the space. For me, this is an important aspect, as only then ideal conditions (light, temperature, furniture) for each body phase can be provided. Yet, it brought to light the necessity to offer retreat areas in every room to guarantee that the change of the phase is not exposed to the question of privacy or public exposure. (Figure 8.43-8.44)

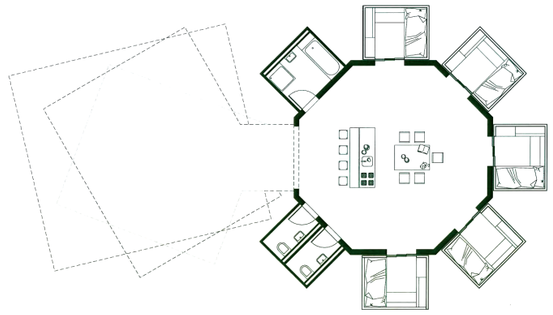
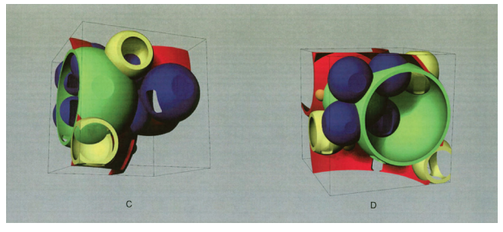


Figure 8.43-8.44: *Private-public Space* (2014), Architectural Workshop, Leipzig

6. ABSTRACT, ARTISTIC TRANSLATIONS

The last approach I want to discuss is highly abstract, artistic visualisations. One student located the Circadian Space in outer space. Within a cube he placed different sizes balls of five categories of sleep, wake-up, fall asleep, move, eat and clean. These ball-shaped rooms were intersected with each other, so the subjects could move between the phases. In the context of chronobiological research, the idea tackles the problem of retaining the biological rhythm of astronauts during space missions, and is thus not so far-fetched. However, a one-time usage of rooms is unlikely to be sustainable for a spaceship. (Figure 8.45-8.46)



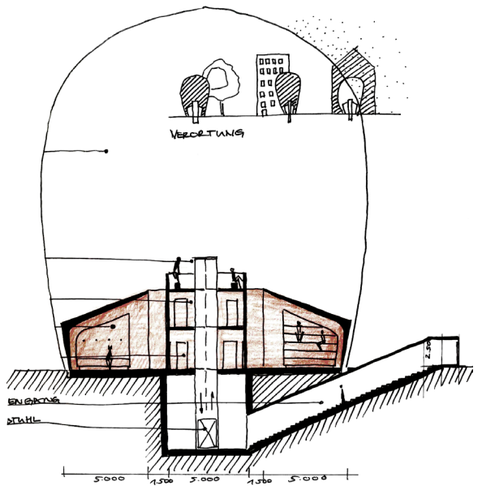


Figure 8.45-8.46: *Abstract, Artistic Translations* (2014), Architectural Workshop, Leipzig

INFLUENCE OF THE LOCATION ON THE EXPERIMENT

Moving from a speculative to an applied approach, I considered numerous locations for the experiment. I looked at existing spaces as well as considering the development of a new space. It is important to mention, regarding the discussion about the space, the experimental set-up. In conversations with chronobiologists Anna Wirz-Justice and Russell Foster as well as lighting designer Ulrike Brandi, it emerged that the Circadian Space should take into account today's urban living conditions. In daily life, light as a zeitgeber has lost its significance, as most urban dwellers mainly live indoors and are hardly ever exposed to external light (as outlined in Section 8.1). The space should thus take this fact into account and simulate an 'indoor' situation.

NEW SPACES

In the original thought experiment of the Circadian Space, I envisioned a novel spatial structure built by one of the time communities. The interior designer and I, in our experiment described in Section 8.1, proceeded on the assumption that this space would be build from scratch. The same is true for the previously discussed architectural workshop–most of the students developed a new building based on my briefing, with only a few exceptions, for example placing the experiment directly in the Old Abattoir.

I also explored the possibility, however, of growing a natural structure on my parent's farmland in Bavaria, Germany[301]. Three plants fulfill the properties of being fast-growing, growing to a minimum height and bushiness in order to create a dense living structure. The hops plant (*Humulus lupus*) is a vigorous, fast growing plant. It is a climbing plant and, commercially produced, it grows on strings supported by an eight-metre-high superstructure of wires. The growing period is from March to July. A similar period accounts for growing sunflowers (April to July). Growing a whole field of sunflowers[302] would provide most stable structure, but with the longest growing period of around two to three years. I mapped out these possibilities, but did not further follow up on them. However, I considered these natural structures for a number of reasons: the temporary nature of the experiment (around one week in summer) does allow for simple, 'non standard' living conditions. To grow a structure is a sustainable possibility to realise the project, with the resources available to me.

At the point in time of investigation, I argued that the experiment is neither situated in the urban nor natural environment. For this reason, both of the environments have to be considered equally.

301 The farm is located in the world's largest hop-planting area, the Hallertau in Germany. My family has been growing hops for more than three generations.

302 Suitable type of sunflowers grow to a height of three metres.

EXISTING SPACES

The initial Circadian Space model was mapped on a 24-hour clock face in a circular space. When looking at existing spaces, I investigated in circular, architectural structures, from railroad roundhouses to circus tents. I also considered revolving restaurants in, for example, TV towers. These spaces fulfil a number of vital criteria: The floorplan of a revolving restaurant mirrors the Circadian space model. The aspect of the revolving floor presents an additional feature: The spaces of the active body phases could revolve with the sun over the course of the day. The height of the tower (for instance Floriantower, Dortmund: 219,6 metres or 720 ft) creates a physical distance between the experiment participants and societal life on the ground—an ideal condition for the exploration of an alternative time system apart from societal norms. I got in touch with a number of private operators of these revolving restaurants and found a possible location for the project, the telecommunication tower, Floriantower in Dortmund. I visited the tower, met the operator Eric Rosenkranz, discussed the project details, and we agreed upon further collaboration. The city of Dortmund approved the plans for the project and it is only a matter of financial implementation (30.000€) to realise the project (Figure 8.47-8.48). The TV tower as location for the experiment is still in consideration for the project, as detailed in Chapter Nine. Other ideal locations could be the BT tower or the The Tanks at the Tate Modern, both in London. Not round, but located in the heart of the Chrono-City project is the Old Abattoir in Bad Kissingen, Germany. Together with Lehner, I have visited the latter location, gave a presentation at the city council meeting and discussed in greater detail the project realisation within the space. (Figure 8.49-8.50) The city has offered me the space for free to realise the project. Similar to the telecommunication tower, it is solely a question of funding to start directly with the project realisation.

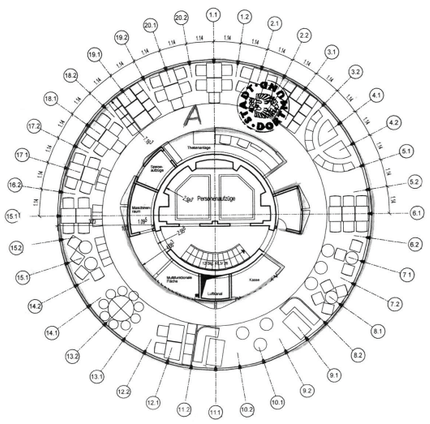
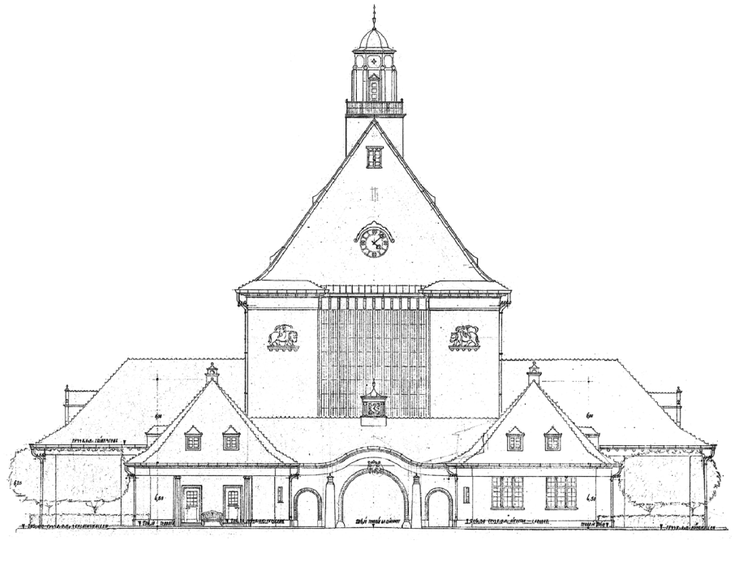


Figure 8.47-8.8.48: *Architectural Plan of the Florianturm* (2012), City of Dortmund



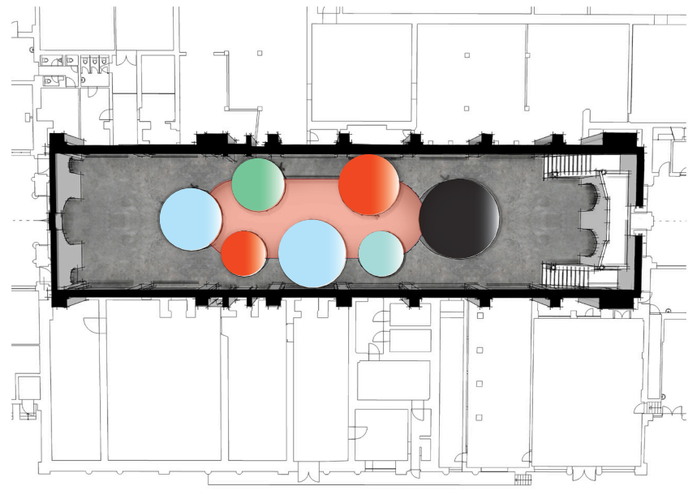


Figure 8.49-8.50: *Architectural Plan of the Old Abattoir, ChronoCity* (2014) Image by Holl, Büro für Städtebau und Architektur

8.3 ANALYSIS AND FINDINGS

One of the methods of critical and speculative design is to foster public debate in the form of thought experiments, most commonly through objects and visualisations.[303] As part of my research, I developed the project Circadian Space as a thought experiment, displayed via an initial model of the proposed space and later on in detailed graphics. I pushed the idea into another territory by using it as a staring point for collaborations, conversations, workshops, and performances. I investigated how 'design for debate'[304] can be explored through an applied approach. My range of activities was extensive in order to push the conceptual idea to a new level. I presented the project idea to a variety of people, from my supervisors to city council members in a small town in Germany, to researchers of the Fraunhofer Institute, at research conferences (e.g. Time, Materiality and the Digital, University of Greenwich), public conferences (e.g Zündfunk Netzkongress) and to company representatives of the lighting company Velux as possible sponsors for the project.

The translation of the concept was targeted towards different audiences. For that reason, I laid out my work in various forms, from simplified visual diagrams to in-depth research presentations. I elaborated a number of presentations comprehensible and accessible to a very broad audience, a task reflecting my pre-existing skills and experience as graphic designer. The presentations ranged from three-minute Pecha Kucha presentations to inter-disciplinary, academic talks (e.g. European Biological Rhythms Society). Subsequent to my presentations were conversations and discussions about the project, its realisation and wider impact. I embraced dialogue and collaboration as a medium for further project development. It all informed the proposal, in order to make it a solid and thoroughly though through piece of work worth pursuing. Moreover, all the aspects that had to be considered, from food supply and accessible bathroom facilities to health and safety issues, thereby strengthening the project concept and convincing all my collaborators and supporters of its feasibility.

To draw a conclusion about the applied approach, the first obvious outcome is the project proposal itself. It was born out of design research, rooted in speculative and critical design, but has evolved from a thought experiment to an interdisciplinary large-scale project proposal.

The second outcome is related to the conversations the project sparked with a broad audience, including many of whom have never heard of critical and speculative design. Dunne and Raby even acknowledge the concern of speculative design practice becoming 'a sophisticated form of design entertainment'[305] or 'escapism, utopianism or fantasy'[306]. By taking the approach outside of the design field, comparable to Buckley's conversational and participatory approach, I initiated a conversation and debate.

Thirdly, the conversations sparked an exchange between the two disciplines of chronosociolgy and chronobiology. Through the project development, I became involved in both fields (readings, talks, conversations and collaborations), to a much greater extent than I had in the project's previous form as a thought experiment. Although the sociologist Nowotny mentions chronobiology in her 'ways to uchronia'[307] and the chronobiologist Foster and the biologist Kreitzman acknowledge Nowotny's uchronian proposal[308], no actions have been undertaken as yet to foster this relationship. My design research project is based upon their theoretical suggestions, and offers a novel way to intertwine the disciplines. In concrete terms, it suggests the realisation of a truly collaborative project under the umbrella of uchronianism. How this relates to my original research questions is to where I now turn.

303 Buckley, 2014, p. 125.
304 Ibid., pp. 45-46.
305 Quotation from Dunne and Raby in Buckley, 2014, p. 128.
306 Dunne et al., 2001, p. 65.
307 Nowotny, 1996, p. 136.
308 Foster et al., 2005, p. 234.

CHAPTER 9

CONCLUSIONS:
THE POTENTIAL OF UCHRONIA

9.1 MAIN FINDINGS

In my research, I explored the main research question: *What characteristics of contemporary temporality does uchronia address?* And I investigated the subsequent questions: What are the possible *applications* of uchronian thinking in design research? What are the *implications* of uchronian thinking and the uchronian methodology in design research and more broadly? Hereto I followed a practice-led design methodology, specifically the 'uchronian methodology' I developed.

The exploration of uchronia has resulted in new insights and possibilities that are of relevance on multiple levels. Especially the interdisciplinary nature of the research opened up an under-explored field of research. Below I reiterate the main findings and my contributions.

NEW WORKING DEFINITION OF UCHRONIANISM FROM A DESIGN PERSPECTIVE

In the course of my research, I investigated the basic idea of uchronia, as it is was previously situated primarily within sociological theory. I explored the terminology in all its current meanings. So far, uchronia has been researched solely in its definition as alternative history. This goes back to its original roots in the alternative history novel *Uchronie,* published in 1876, wherefore the word was first coined. However, exploring the literature and practice projects related to uchronia, all the other various facets (listed here) of uchronianism have not been researched or defined within a wholly academic context. In Chapter Two, I outlined three faces of uchronianism: uchronia as alternative history, uchronia as temporal utopia, and uchronia as non-existent time. These fill a gap in current knowledge of the subject: uchronia has been heretofore under-explored, particularly as a temporal utopia, and has potential for further in-depth research.

UCHRONIAN METHODOLOGY

In this thesis, I have focuses on the definition Nowotny put forward in her essay *Time: The Modern and Postmodern Experience* from 1996, wherein she defines uchronia as a temporal utopia, or 'non-existent ways of understanding and using time'.[309] As Bryson highlights in *Gender and the Politics of Time*, similar thought experiments have been conceptualised earlier by Ruth Levitas in *The Concept of Utopia* and in Nancy Fraser's essay *After the Family Wage: A Postindustrial Thought Experiment*[310], but without reference to uchronia. In an e-mail exchange[311] between myself and Nowotny, she stated that she coined the term anew on the basis of her own investigation into utopia.

Now, more than twenty years later, her understanding of uchronia is still a new and uncharted territory, mentioned only by a handful of researchers in sociology, theology and chronobiology. My research has been a first attempt to approach the topic from a design research perspective. Through a structured methodological collection of workshops, performances, experiments, speculative scenarios, project proposals, interviews and conversations, I investigated the potential of uchronian thinking together with designers, design researchers, light designers, architects, interior designers, performers, and design students, all as methods in what I call the uchronian methodology, grounded in theory and history but oriented to design practice, with the broader goal of changing individual and societal understandings of time, how we us it and structure our lives.

Some of my methods were especially developed for the thesis research (e.g. zeitgeber method), with others more commonly found in current design research practice. The initial practice-led design approach began with observations of 'timeless places', wherein two opposing time conflicts occur right next to each other within a project which focussed on the emotional elements of stress and boredom in the airport. I immersed myself in discussions about today's high-speed society and extracted my interests into a series of short stories and theoretical summaries, exemplified by the *Moment Cards* project.

This was followed by a project proposal for a series of one-month activities. The grounding of uchronian thinking for the methodology was prepared by the first experiment called 'Unlearn Project'. In order to accomplish a new relationship with and behaviour within time, the essential step was to 'unlearn' clock time and move away from its linear temporal structure towards a new rhythm, based on the artist Olafur Eliasson's concept of 'Unlearning Space'[312]. Reflecting on current creative practice, most ideas evolving around 'alternative time' are still deeply ingrained with 'clock time'. Other examples range from slow movement manifestos to innumerable

309 Bryson, 2007, p. 102.
310 Ibid., p. 102.
311 Excerpt from Nowotny's e-mail to me (translated from German)
312 Eliasson, 2013.

redesigned clocks. Most of these pieces play with the abstract image of the clock, but the overall temporal structure of the 24/7 system remains unquestioned. I have demonstrated ways to overcome these limited approaches. As part of the uchronian methodology, I introduced the concept of zeitgeber (time-giver) as a method. It shifts perspective to the influential elements in the orchestration of time. For this research, the image of the zeitgeber and the swing set metaphor is a useful tool to explain and explore an 'unlearning technique' as part of the uchronian methodology. It was implemented in two workshops which included immersive experiments in which subjects developed and lived by their own agreed time-givers, resulting in practical design outputs as well as lasting long-term effects on the subjects. In this context, Geißler has highlighted the originality of the research from a sociological perspective:

> [The research] is a very creative and inspiring advancement of Helga Nowotny's consideration on uchronia. The idea of 'breaking out of rigid, standardised time' … is brought forward by convincing arguments. Especially the approach through [un]learning projects and experiments is very original. The focus [of the thesis] is highly influenced by the chronobiological perspective – which is missing in Hartmut Rosa's work – for psychological and pedagogical interventions in relation to time, this is more suitable than only the sociological perspective.[313]

313 Review of the thesis by Professor Dr. Karlheinz Geißler, e-mail correspondance, 18 September 2016.

DEVELOPMENT OF AN INTERDISCIPLINARY UCHRONIAN PROJECT

In Chapter Eight, I outlined the Circadian Space. The project was born out of my interdisciplinary, practice-led design approach and consists of the translation of chronobiological knowledge about the human circadian rhythm into an experimental space. This serves two purposes. Firstly, the project is categorised as a novel architecture bringing together science with design. Secondly, in the workshops leading up to the concept development, a holistic approach for designing environments was taken, by relating the daily bodily rhythms to the design of working and living spaces. Thereby I took aspects like body posture, muscle strength or peak of concentration into account as parameters for design. My workshops highlighted the conflict between our current 'sitting culture' of ten to fifteen hours per day, in contrast to bodily rhythms, where physical cycles of activity are an embedded part of the day. In the future these initial results can contribute to a holistic approach of designing environments, e.g. future work and personal spaces. In the interdisciplinary context, the Circadian Space project conversely serves as a testing ground for scientific research. Kantermann has highlighted the novelty of my approach from a chronobiological perspective:

> Chronobiology studies individual biological rhythms, generated by individual biological clocks which are synchronised to a natural environment that we—more or less—all share. [The thesis] goes beyond that, by studying the individual interaction between biological rhythms and design, a unique endeavour that I hope many will share. The Circadian Space project exemplies two things specifically: firstly, an intelligent study design to better understand how individuals with different biological rhythms live together when isolated from the natural environment, and secondly, a natural desire for individuality deeply rooted in our biology. The Circadian Space aligns nicely with historical experiments on biological rhythms, and opens intellectual space for a novel line of research on chrono-design.[314]

I understand my uchronian project proposal as the first example of chronodesign, a new area of design with the potential to lead to closer exchange of ideas and research activities incorporating social and biological knowledge about time into current design practice.

314 Review of the thesis by Dr. Thomas Kantermann, e-mail correspondance, August 26, 2016.

DESIGN RESEARCH AS A BRIDGE BETWEEN CHRONOSOCIOLOGY AND CHRONOBIOLOGY

More broadly, this research demonstrates the value of design to foster collaboration between the academic disciplines of chronobiology and chrono-sociology. Through discussing and collaborating closely with experts of both academic disciplines in the theoretical development of uchronia, as well as on the development of the Circadian Space project, and participating in research activities (e.g. talks, conferences) in these fields, I gained a certain understanding of their current research practice. Although they acknowledge each other's discipline in diverse publications (e.g. Nowotny [1996], Russell and Kreitzman [2005]), a lack of in-depth collaboration was expressed in conversations with both groups. Through the interdisciplinary concept development of the Circadian Space, my research demonstrates the potential for design, and specifically chronodesign, to go beyond mere speculation and act as a bridge through the conceptualisation and design of real-world practical projects.

9.2 LIMITATIONS AND FUTURE PLANS

Upon completion of the PhD, my intention is to continue my work, especially addressing a number of limitations I experienced during the research. In this final section, I discuss the limitations and outline the potential for continuing the research begun in this thesis. Undertaking the PhD provided a forum and focus for collaboration with scientists which led to a fruitful knowledge exchange. I plan to build upon the proposal and realise the Circadian Space project, conduct further uchronia workshops, and elaborate a performance as a public event in the Roundhouse, London. Other activities planned are contributions within the design research community through research papers, book chapters, exhibitions and talks. Moreover, I intend to continue to reach out to the chronobiological and sociological research community through the distribution of the thesis research in the form of co-authored books, papers and conference presentations.

One of the limitations of the research project was related to funding, During my research I have begun applying for funding to realise the Circadian Space project, as its scale and ambition have been beyond the scope of PhD research. Funding opportunities have so far included the Bio Art & Design Award[315] in The Hague, and a Small Arts Award from the Wellcome Trust[316] in London. This process has provided, in part, an external evaluation to the research that I have undertaken thus far. Particularly in terms of project formulation, they have contributed to the further project development, including objectives, methods, project management, delivery, outcomes, ethics, health and safety risks, audience engagement, evaluation, dissemination, timescale, and expenditure. The initial applications have pushed the project concept to the next level, leading to the establishment of an even greater network of contributors. However, the realisation of the Circadian Space project is still pending and all the aspects mentioned above need to be adjusted to the actual implementation. The project realisation will address further research questions as outlined by Kantermann and myself (see Section 8.1). The previous applications and my research activities for the project development have provided a platform to present the project outside of academia and receive external input. From its origin as a fictional design concept, the project thus has prospered into a real-world project. Contributions still due are related to the aspect of sparking a debate around alternative time systems. So far the audience was limited to my design community and research network. By increasing the external exposure and visibility of uchronianism and the uchronian methodology through the project realisation, I aim to address a wider audience to discuss and foster uchronian ideas in relation to today's time crisis. In the new funding proposal three stages are suggested which are related to further limitations of my research:

Stage One: Uchronia Workshops. In my thesis the workshops were restricted to art and design students of the RCA. While in the scope of the thesis, it was a successful application and implementation of the *zeitgeber* method and uchronian thinking in the art and design community, it restricted the work to a very specific audience. In order to further explore the potential of the workshops in a new context, I plan to conduct more uchronia workshops for different audiences in collaboration with Oxford University and as part of the ChronoCity project.

Stage Two: Around a Day – Performative Exploration of Internal Time. Previously, the conducted Body Phase Workshops were limited to the opening hours of the RCA, 10 a.m. to 10 p.m / 8 a.m. to 12 a.m. (see Section 8.2). This reduced the exploration and outcome to certain phases within the circadian rhythm. By restaging the workshop in the context of an artistic performance at an external space, I aim to overcome this limitation. The performance is intended as a public event, taking place in the Roundhouse in London. Based on my previous work with an interior designer and performer, I plan to work with seven performers (different chronotypes) and ask them to perform their internal rhythm over the course of 24 to 25 hours.

Stage Three: Circadian Space – Artistic-scientific Experiment. As discussed before, the greatest limitation of my research was related to the project realisation of the Circadian Space. As part of the new funding proposal one of three locations is suggested: BT Tower in London, the TV tower in Dortmund, and the Old Abattoir in the ChronoCity, described in the previous chapter (Appendix E).

CHRONOCITY

Involvement in the ChronoCity: Independent of the funding application, I will be embedded in the ChronoCity Project in Bad Kissingen, Germany. As part of the ongoing chronobiological research projects of the city, I will collaborate with Kantermann on a possible uchronian workshop, events, and an exhibition in relation to the project.

Application in Therapy: In the long term, the results of the Circadian Space project will ideally contribute to developments in clinical treatments of 'burnout syndrome' patients. Depending on the results of the experiment, the space can serve as a first model for the development of a therapeutical space, especially as part of the ChronoCity research project.

315 *Bio Art & Design Awards* (2016), <http://www.badaward.nl/about/> [accessed 11 August 2016].

316 The Wellcome Trust in London belongs to the Engaging Science grant programme, with a focus on public engagement in relation to biomedical research. *Wellcome Trust* <http://www.wellcome.ac.uk/funding/public-engagement/funding-schemes/arts-awards/> [accessed 13 August 2016].

PUBLICATION OF THE WORK

For output and dissemination, I aim for a publication about uchronia, including the Circadian Space as an example of an uchronian project. The results of my research are currently published on the website uchronia.world, which is already live and will be further developed post-PhD. Forthcoming also is a book chapter, 'Embodiment of Time' in *Digital Bodies: Creativity and Technology in the Arts and Humanities,* published by Palgrave Macmillan. After a talk I gave at the public conference 'Zündfunk Netzkongress' in Munich, the public-service radio and television broadcaster Bayrischer Rundfunk produced a one hour-long radio feature on Uchronia as part of their programme series 'Zündfunk Generator'[317], which will be aired in 2017. I will further disseminate my research through research papers, conferences and research journals such as *Communication Design* and *Design Issues*. I also plan to submit research papers to various platforms such as The Society for Research on Biological Rhythms to receive peer reviews and to publish the work in that field. In addition, I continue the conversation with experts in chronosociology (Geißler, Adams, Rosa) to evaluate the project from their perspective.

Application of the Uchronian Methodology: The uchronian methodology has been developed as part of the thesis. Herein, I suggest it as a platform to think about alternative time systems. My goal is to establish the methodology as a thinking tool independent of the academic discipline. So far, it has found its application only in design research. In order to open it up to other disciplines, I see the possibility to further explore the uchronian methodology specifically, and theorise it along the lines of Ruth Levitas book *Utopia as Method: The Imaginary Reconstitution of Society.*

Further Investigation into Uchronianism and Popular Publication on Uchronia: The thesis investigates the definition of uchronia as temporal utopia, one of the three categories I identified (Section 2.4). To constrain the scope of the thesis, I had to limit my research only to one of the three facets. However, as I showed in my analysis of the various facets of uchronianism, besides uchronia as alternative history, the topic is still new and uncharted territory and lacks a further diversified definition. After the completion of the PhD, I will investigate further the new working definition of uchronianism, particularly its facet as 'non-existent time'. Currently I am planning a publication on uchronia, which will be accessibile to a wider audience. Ideally this will form part of the book series 'Very Short Introductions' published by the Oxford University Press (cf. Sargent, Lyman Tower. *Utopianism: A Very Short Introduction)*[318].

317 Bayerischer Rundfunk, *Zündfunk Generator: Ideen aus Pop, Kultur und Gesellschaft* (2016), <http://www.br.de/radio/bayern2/sendungen/zuendfunk/kolumnen-sendungen/generator/generator100.html> [Accessed 15 September 2016].

318 Sargent, 2013.

9.3 SUMMARY

Over the past years, I had the pleasure to observe the world and better understand the concept of time in our world through the lens of uchronia. In particular, I realised how the steady hurriedness made me often forget which direction or goal I was actually rushing towards.

In the thesis I have argued that in contemporary society a reflection on time norms and values is the essential key to address the feeling of the scarcity of time. My investigation into the rhythm of social time from a design perspective, interwoven with two academic fields chronobiological and chronosociological research, is my way to approach the topic. Building up on Nowotny's sociological concept of uchronia, Levitas' approach of utopia as method, and Dunne and Raby's critical and speculative design practice, I developed the uchronian methodology. As part of the methodology, I include methods such as thought experiments (Section 5.2, Chapter 7), unlearning method (Section 5.1), zeitgeber method (Section 5.3), as well as practical workshops, experiments and project concept developed, all in order to put to question and reflect upon the contemporary relationship with time.

Fundamentally in my research and design practice, I created awareness for not only myself and my design community, but with my research collaborators as to the potential of a new research strand of chronodesign. The uchronia methodology is used to shift the current perspective of time to a space for visions and dreams about our temporal existence.

It is not intended to offer the one answer or to solve the dyschronian crisis, but to spark a debate around the possibilities and think anew our temporal structure. This does not need to be solely a thought experiment.

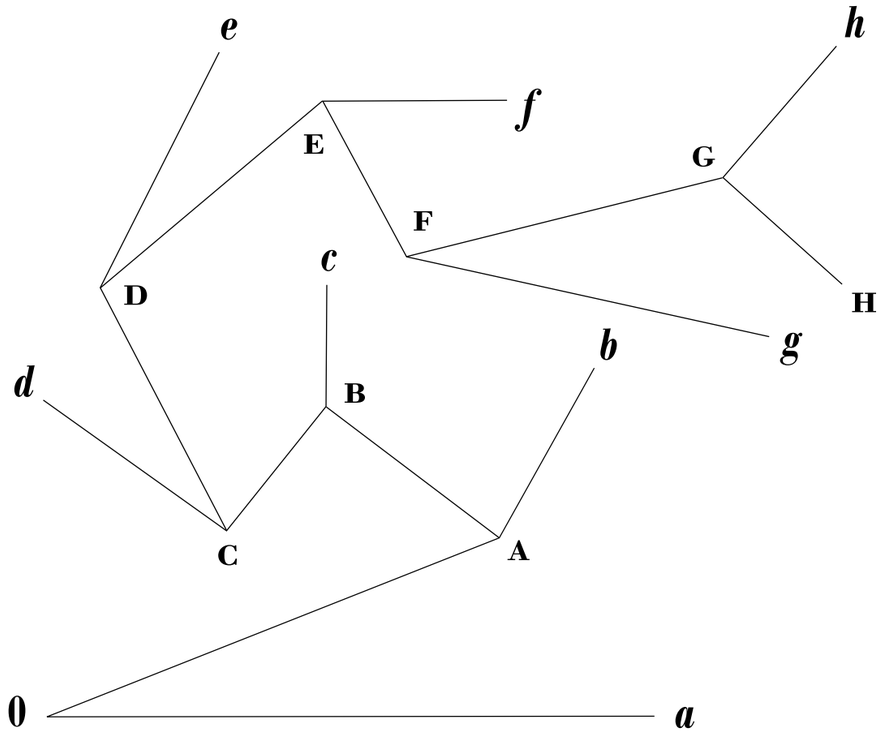
Now, more than ever before, it is up to an individual as to how to structure their time. A full schedule does not necessarily result in a fulfilled time. No device and no one else can solve or make these decisions for us. In the here and now, every day bears anew the potential to explore and experience uchronia.

APPENDIX

A

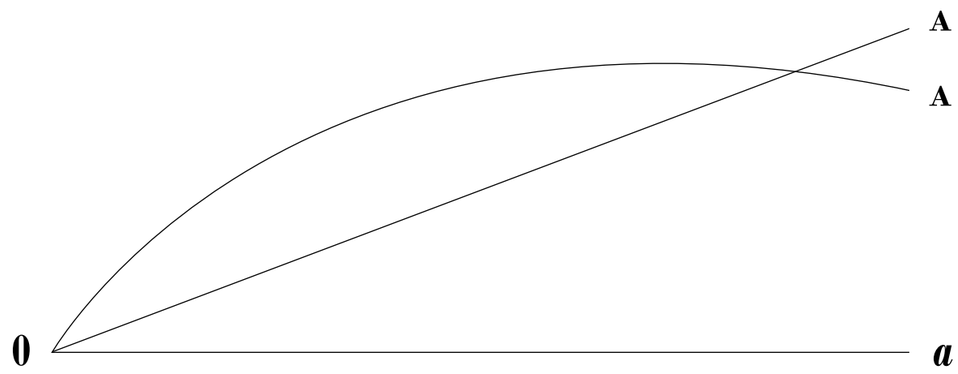
UCHRONIAN MODELS

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, in reference to historical events (*b,c,* …).

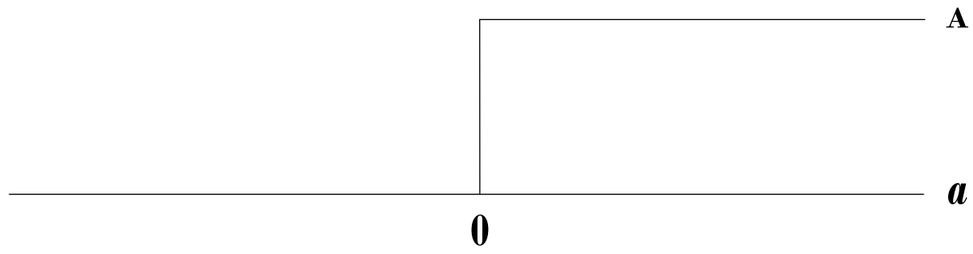


Uchronie (L'utopie dans l'histore), Charles Renouvier, 1876

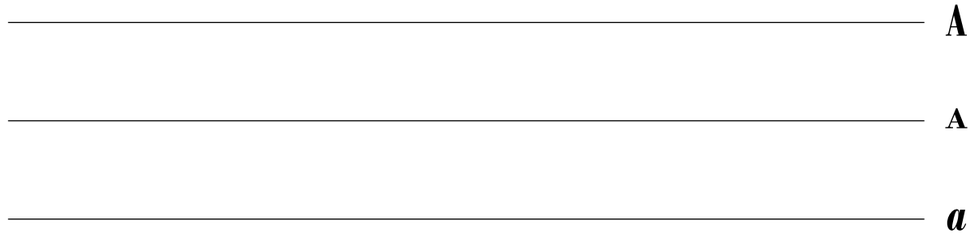
History (*a*) is told in form of a homogenous, linear storyline. The uchronia plot (A) allows many variations.



A historical event changes at a given point in time (0), leading to consequences other than the course of history. Reality (*a*) and uchronia (A) bifurcate into different plots.



Uchronia (A) is located between reality (*a*) and the imaginary (A).

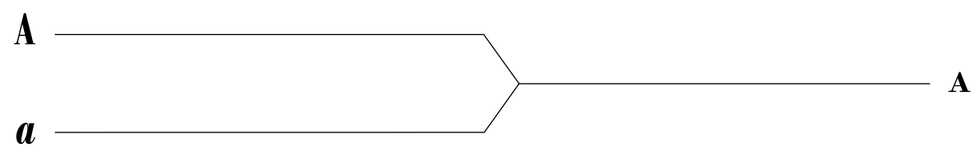


Uchronia (A) and reality (*a*) exist parallel to each other at the same time.

A

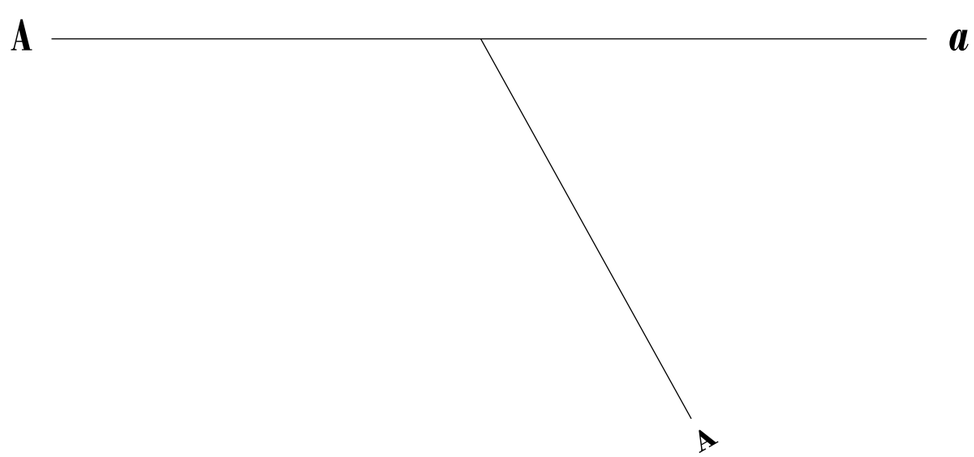
a

Uchronia (A) bridges the gap between reality (*a*) and the imaginary (A).

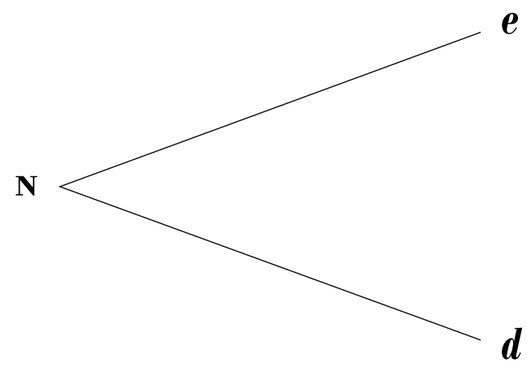


Uchronia (A) contradicts reality (*a*) and disrupts the peaceful coexistence between reality and the imaginary world.

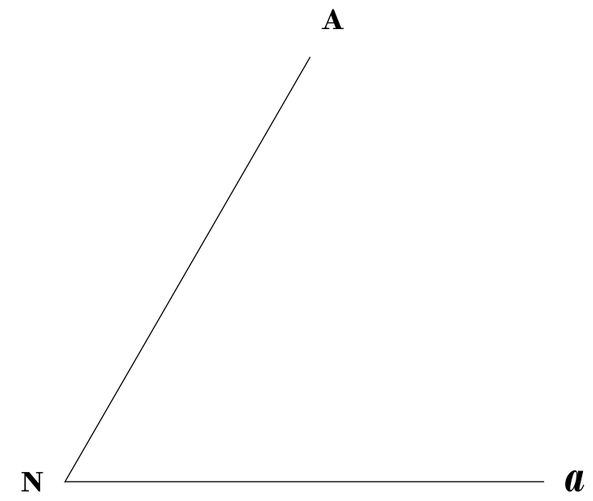
Uchronia (A) swings between two poles, fantasy-madness (A) and truth-reality (*a*).



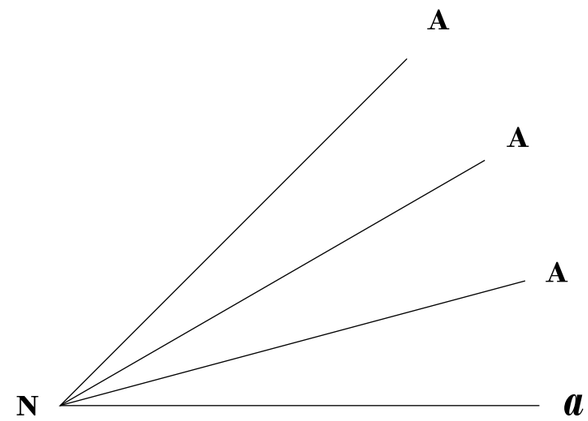
Uchronia is the future. Now (N) two directions are possible, either the time hell of dyschronia (*d*) or the time paradise of euchronia (*e*).



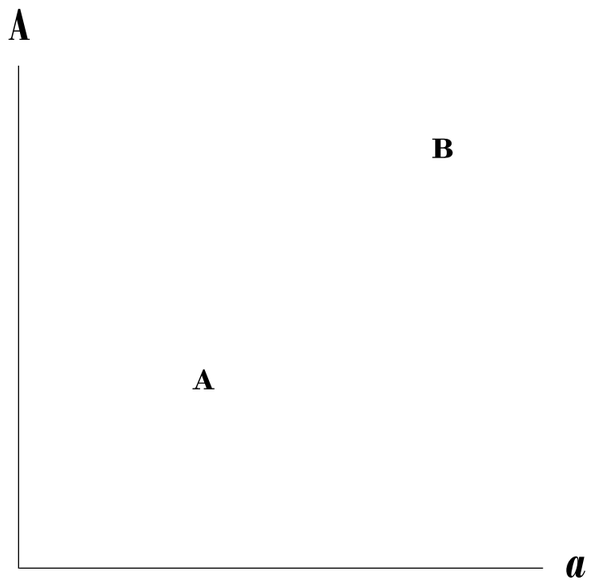
Uchronia (A) is a fundamentally different concept. It offers a new temporality apart from reality's perception of time (*a*) with its linear (e.g. calendars, clocks) and cyclic structures (e.g. days, seasons).



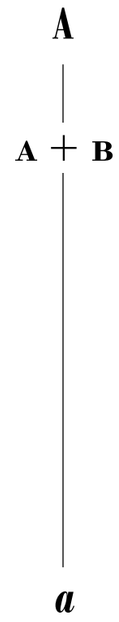
Uchronia (A) is a time paradise, offering a new experience of time in the near future. Instead of reality (*a*) three ways to uchronia are possible.



Uchronia (A) is close to reality (*a*) in the extended present or near future. Utopia (B) is close to fiction (A) in the distant future.



A symbiosis of utopia (B) and uchronia (A) is located far removed from time and reality (*a*), close to the imaginary (A).



Uchronia is ‘nirgendwann’. A newly coined German word, combining ‘anytime’ and ‘never’, expresses that uchronia might or might not happen in the infinity.

A

a

Dyschronia (*d*) is now (N).

$$\mathrm{N} = d$$

B

MOMENT CARDS

Each of the following sheets tells you a short story on the front. These stories symbolise certain experiences in time, which could happen to you, to me or to anyone. They are followed up by a theoretical analysis at the back, with topics ranging from ‘hyperacceleration’, ‘proper time’, ‘polar inertia’ to the ‘rhythms of life’. Incomplete in its number so far, the text demonstrates the theoretical framework of my research and builds the groundwork for my further research practice.

Moments are ambiguous in their length – they can be as short as a millisecond, ten seconds or as long as three weeks – it is solely our feeling.

Illness has the ability and power to interrupt everything, no matter how important. In the words of Paracelsus: 'Diseases disrupt the normal functions of life by setting up court in the human body.'[1] In contrast to the ongoing acceleration process which dominates life in Western societies, illness is an exception, which is resistant to speed. At this moment the body's individual time determines the rhythm of life, not the societal symbol of time: the clock. In comparison to the daily time structure this leads to an uncommon experience of time. One in which the value of time and therefore Benjamin Franklin's expression that time is money loses its meaning and validity. The sociologist Hartmut Rosa identifies illness as one form of deceleration and inertia and categorises it as 'natural and anthropological speed limit'.[2] Other natural limits are found in physical processes like 'speed of perception and processing in our brains.'[3] He furthermore defines four categories of deceleration: Places of deceleration (e.g. forgotten island), 'slowdown as an unintended consequence of acceleration and dynamization'[4] (e.g. traffic jams), 'intentional forms of (social) acceleration'[5] (e.g. slow movements) and 'hyperaccelerated standstill or polar inertia.'[6] The fourth category is especially interesting as the standstill is a results of our new accomplished life style. 'In late modernity, there is a growing tendency for family life cycles to last less than an individual lifespan: increasing rates of divorce and remarriage are the most obvious evidence for this.[6] The same development is seen in work life, where people change their job every couple of years. Flexibility is what counts to keep up the speed of postmodern or hypermodern life. The cultural theorist Paul Virilio, known among others for his concept of 'dromology' (the science of speed), therefore diagnosed the 'hyperaccelerated standstill'.

As Lothar Baier explains: 'acceleration and change only happen on the 'user interface' of modern societies while deep structures remain unchanged.'[7] For citizens of the Western world the process of acceleration might not even be that obvious. As part of the system, people are continuously concerned to function within it, instead of reacting to it. One of these few moments, however, where we step aside, the perception of time changes. Two view points are possible: the desire for speed or the pleasure of slowness. In 1909 the futurist Filippo Tommaso Marinetti declared: the magnificence of the world has been enriched by a new beauty, the beauty of speed.'[8] In his manifesto he continues with a hymn to the natural pureness of speed and characterises the slow as passive and backwards oriented. And he is right, when he describes speed as the 'desire for the new and unexplored.'[9] Particularly in regard to urban dwellers, who typically live the fast life, it is interesting to find out whether or not they are even willing and able to slow down without missing the excitement of action, change and competition. Probably life still is to slow.

references

[1] Umberto Eco, Kirsten Lippincott, E.H.Gombrich, The Story of Time (London: Merrell Holberton in association with the National Maritime Museum, 1998), p. 222.
[2] Hartmut Rosa, William E. Scheuerman, High-Speed Society: Social Acceleration, Power, and Modernity (Pennsylvania, pa: Pennsylvania State University, 2010), p. 93.
[3] Ibid., 2010, p. 94.
[4] Ibid., 2010, p. 94.
[5] Ibid., 2010, p. 96.
[6] Peter Laslett, 'Social Structural Time: An Attempt at Classifying Types of Social Change by Their Characteristic Paces', in Michael Young and Tom Schuller, The Rhythms of Society
(London: Routledge, 1988), p. 33.
[7] Quote of Lothar Baier in in ibid., 2010, p. 96.
[8] Filippo Tommaso Marinetti, The New Religion-Morality of Speed, in 2010, p. 57.

Now is not the time to work. The doctor prescribed 'sleep and rest' most of the hours of the day for at least a week.

What?

My inner voice yells at me: 'This is not possible, ignore this advice!' My body and my brain begin to argue and my thoughts circulate. I stare at both of them and feel both apathetic and numb.

Time to sleep.

My time runs in a completely new dimension. Days melt into each other and I don't even bother to ask how the world calls the one today. No matter – the short days are characterised by me waking up in ever the same repetitive scenery: a cup of lukewarm tea on the bed stand, surrounded by tissues, pills and a ticking clock. A cold hot water bottle on the edge of the mattress and myself in between feeling puzzled with greasy hair. I push the cold hot water bottle out of bed, rub the sleep out of my eyes and cough. I think about the things I have to do and forget about them again as if they are part of someone else's life, not mine. No pressure, no stress, no urgent calls to make.

Days shrink into one brief moment.

The feeling of my body changes as the brain is no longer ruling the system. Even though I don't smell or taste anything and every part of my body hurts, I do listen to my body's needs more than I usually do.

It is quiet here.

Illness doesn't have a place in my life as it does not fit into my schedule. Next time I want a notice beforehand about the start and end date.

One single object could not better symbolise the causes of 'social jet lag'[1] then the alarm clock does. It interrupts the physical need for sleep and rudely dominates our body clock. Regardless of personal bodily rhythm, which determines for instance the length and the hours of sleep, clock time functions as a synchronisation tool within our society.
Social jet lag, similar to jet lag, accrues through a disharmony between the inner clock and the outside world. Problematic therefore is its occurrence on a day-to-day basis and not just occasionally on a long distance flight. This phenomenon affects nightshift workers in particular, but also increasingly a wide section of the population in Western societies. Since the functioning of our postmodern society relies heavily on almost infinite dependency chains, each citizen has to accomplish their job at a certain time and pace, otherwise processes get out of hand.
This system does not often allow one to have a good night's rest. Without regard to different chronotypes, larks (the early risers) and owls (the late risers), the alarm clock rings. In contrast to our individual way of life, we accept with strict obedience the rules of time. The sociologist Helga Novotny explains our behaviour in the following way: 'Laborious learning of punctuality, to which children were habituated at school from an early age – as a preparation for working life – a process which has implemented with brutal methods and required an extremely long time to lead to that internalization which has become a matter of course today. Punctuality as a temporal 'virtue' no longer exists today; it is expected as an element of self-discipline from all members of society who want to take part in working life.'[2] What gets lost during the internalization of clock time is the understanding and appreciation of the own, inner clock with consequences ranging from depression, obesity to cancer and a lower life expectancy. It seems as if human beings divide their time into two categories: 'Public time of the calendar and a private time of their feelings and their body.'[3] Weekends then serve the purpose of synchronising the times again, whereas the process of overcoming social jet lag takes longer than two days. The answer may lie in a full understanding of the individual body time in combination with temporal sovereignty in work as well as in private life. To offer solutions regarding the problem of social jet lag two fields of research must necessarily be brought together: Chronobiology, as the study of bodily rhythms and chronosociology, as the study of time norms and time structures within a society. As expressed by a psychologist: 'Not a single one of the cells that compose you knows who you are, or cares,' the chronobiologist adds 'a single cell does know when you should be sleeping and cares.'[4] A new field of expertise called chronotechnology offers possibilities to join these two disciplines to create fresh visions and ideas regarding the synchronisation processes of our multi-temporal experiences.

references

[1] Till Roenneberg, Internal Time: Chronotypes, Social Jet Lag, and Why You're So Tired (Cambridge: ma: Harvard University Press, 2012), p. 1.
[2] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996, p. 63.
[3] Ibid., p. 22.
[4] Popova, Maria, 'The science of internal time, social jet lag, and why you're so tired', Brain Pickings, 2012, <http://www.brainpickings.org/2012/05/11/internal-time-till-roenneber/> [accessed 12 November 2013]

I cast up my eyes feeling sleepy. How come it is already morning again. The last days of the week have been exhausting, and the pressure and stress have stiffened my body again, especially the shoulder blades. What another two hours of sleep would mean to me right at this moment! Can I not sacrifice a part of my weekend to have more time now, maybe two hours of Sunday's time? Sundays are overrated anyways.

No.No.No.

'Hi', I wave to the world and get up. Still drowsy with sleep, wondering where my kitchen and the 'holy' machine, my coffee maker is. Instead of walking there I start to imagine the smell of coffee.

Minutes pass.

The smell is better than the taste, better than getting ready and better than discipline, control and punctuality all together. I sink back into my bed with the intent to deduct the time from my future.

'The Sun, our closest star, is used as the primary timekeeper in almost every culture on Earth. Its apparent presence or absence defines the most basic division of the day into hours of light and darkness.'[1] Human beings used the sun as the starting point for their measurement of time. Over thousand of years, they developed all kinds of devices, beginning with non-mechanical time givers like the sun and water clocks or hour glasses, until in the 11th century when the first water-driven mechanical clock was invented.[2] The wide dissemination of mechanical clocks began in the 14th century, introduced by the church. From that point on clock time found its way into the rhythm of everyday life and furthermore changed the perception of time in people's minds. In the industrial age 'when English industrial workers smashed the clock mounted above the factory entrance (and not the machines at which they worked), their anger was directed at the hated symbol of timekeeping'.[3] The attack illustrates the extent to which society was giving in to the 'denaturalization of time'[4] and furthermore to the acceleration of life. Innovative technologies like the railway, the automobile or the telegraph led to a standardisation of world time in 1884[5] and us to the present structure of today's timekeeping. Of course, the means to measure time increased in their accuracy (the atomic clock: 10–9 seconds per day), and further technological developments, especially the computer and the Internet, speed up processes radically. The problems, however, raised with clock time today are similar to the ones raised by the industrial workers in the 19th century. To move forward with ideas and novel concepts, it is crucial to understand, that 'time is a social construct, developed by all of us together.'[6] The time system we all follow is solely represented by the symbol of the clock. The same refers to the often blamed new technologies, 'but technologies alone can never manufacture time, any more than clocks, which indicate time. This requires interaction between people, from which mechanisms of coordination arise (…).'[7] Therefore the feeling of impotence in dealing with time is a man-made problem and can finds its solution in a new rhythmicity in the way we 'eat, sleep, breath, use energy, digest, think, concentrate, communicate, and interact'.[8] Through listening to one's own body clock and its various rhythms, people can experience their *real* time, instead of constantly looking up the time.[9] To accomplish a new behaviour with and in time, it is an essential next step to unlearn clock time again and move away from its linear time structure towards a cyclical rhythmicity. Similar to the concept of 'Unlearning Space' of the artist Olafur Eliasson, is the idea to start afresh with what we call *time*.[10]

references

[1] Umberto Eco, Kirsten Lippincott, E.H.Gombrich, The Story of Time (London: Merrell Holberton in association with the National Maritime Museum, 1998), p. 30.
[2] Ibid., p. 132.
[3] Quote from Lewis Mumford in Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 47.
[4] Reinhart Kosselleck in ibid., 1996, p. 116.
[5] Hartmut Rosa, William E. Scheuerman, High-Speed Society: Social Acceleration, Power, and Modernity (Pennsylvania, pa: Pennsylvania State University, 2010), p. 88.
[6] Quote is a translation from German, Norbert Elias, Über die Zeit: Arbeiten zur Wissenssoziologie II (Baden-Baden: Suhrkamp Verlag, 1988), p. 23.
[7] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 39.
[8] Barbara Adam, Time in Social Theory (Oxford: Polity Press, 1990), p. 73.
[9] Ibid., 1990, p. 75.
[10] Artist Talk by Olafur Eliasson at the Tate Modern, Topology: Spaces of Transition, London, 12.08.2012.

Right around my bedroom, I've placed seven antique clocks.

Nice.

When I bought them on flea markets around town, I picked the ones with the most intriguing ticking sound. During the day, I normally forget about them and just at night, when everything is quiet, I pay attention to their clockwork.

It is this moment right before I fall asleep, when the disharmonious concert of 'ticks' and 'tocks' reminds me, that time is not as strict and rigorous as it seems during the day.

Tock.Tick.

Although I reset the clocks from time to time, their hands keep moving in several speeds and beats, almost like humans.

The intensity of the previous moment relies on a combination of anxiety, stress and the conflict between personal and societal expectations and the available time period. In his habilitation thesis 'Beschleunigung' ('Acceleration') Hartmut Rosa talks about 'the power of the deadline'[1] and explains the shifting time structures within Western society. 'Recent studies indicate that in fact people in Western societies do feel under heavy time pressure and they do complain about the scarcity of time. These feelings seem to have increased over recent decades, making plausible the argument that the 'digital revolution' and the process of globalization amount to yet another wave of social acceleration.'[2] One insidious tool to accelerate processes within a society are deadlines. In comparison to working hours which are regulated in contracts, time norms do not underlay any ethics or laws. An everyday example might be as simple as an order from Amazon. The product will be delivered within two or three days at the latest. The speed is owed to a chain of dependences of services, which are fulfilled by other fellow human beings. Hence, the faster a job gets done, the more pressure is create within society, and as a result, the expectation for a certain delivery date or even faster processes is created. Without being aware of it, a new time norm is laid down. How much each subject is personally affected by this process depends on our position within society. The social classes are now divided into those who can afford to have time, those who are unbelievably busy and on the other end the slowest in the race, the unemployed. One jobless young man 'wants to make time stand still because "there must not be such a bad time in his life".'[3] Or as Marie Jahoda explored in her study about the unemployed, 'a whole morning's activity is summed up in the statement 'meanwhile it's getting on for lunchtime'.'[4] As if these people live in another world, the value of time has been lost as time is standing still. Each single moment melts into one 'temporal 'moratorium".[5] The example shows, that temporal inequalities coexist so close next to each other, that the 'slow' meets the 'fast' right on a park bench or in the supermarket queue. On a world-wide scale, time differences arise through the wide distribution of new technologies. 'The convergence mediated by simultaneity via obligations to join in built into technologies and the techno-system gives inequality an additional temporal dimension. This appears not least in the situation in which many developing countries find themselves today.'[6] Even though time is standardised worldwide, it does not mean that it is necessarily synchronous everywhere. Different cultures live different times: At the age of ten to twelve the specific cultural temporality becomes deeply encoded in the child, almost like a sixth sense. From that point on the sense of time becomes part of the personality, as if no other time structure could ever be possible.[7] On this account, acting against the rules of the embedded system feels like a grammatical error–unacceptable for a native speaker–yet tolerated for all the others?

references

[1] Hartmut Rosa, William E. Scheuerman, High-Speed Society: Social Acceleration, Power, and Modernity (Pennsylvania, pa: Pennsylvania State University, 2010), p 221.
[2] Ibid., 2010, p. 86.
[3] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 33.
[4] Marie Jahoda in ibid., 1996, p. 35.
[5] Ibid., 1996, p. 35.
[6] Ibid., 1996, p. 33.
[7] Norbert Elias, Über die Zeit: Arbeiten zur Wissenssoziologie ii (Baden-Baden: Suhrkamp Verlag) 1988, p. 33.

The word already sounds terrifying. Who came up with the expression deadline? Here it is, close enough that I cannot ignore it any longer. I have to start writing, making and practicing all at once. Of course I could have started earlier.

My fault!

In these moments I think of all these other people who are so organised and prepared and in my eyes never experience any time pressure at all. Or those who are laid back and don't stress out about it. Or those who are doing things much quicker and faster than I could ever do them, and maybe those people who seem to have more time in general.

I hate myself.

How many days and hours are left? If I just had more time, I would perfectly fulfill all expectations, theirs and mine.
To-do lists fill up my desktop and emails are written to reschedule everything else.
Certainly I will work all day and night and forget about the existence of weekends, friends and family.

A great plan.

Everything else will happen later, as my life will be completely different after killing this deadline – I guess.

The disciplined routine in everyday life might sometime evoke the desire for an imaginative escapism. Especially as the work life in Western society is bound to strict rules and regulations, people begin to seek for possibilities to reinvent their life and furthermore search for solutions and approaches to structure their life times differently. Referred to as 'uchronia' (a hypothetical time period), these concern ideas for future time structures.[1] Helga Novotny lists in her book 'Time. The Modern and Postmodern Experience' three suggestions for novel time systems. The first uchronia expresses the desire for more time in the idea of a 'Cockaigne full of time'[2], (Cockaigne meaning an imaginary place of plenty) The hunger for time will be satisfied through all the time in the world combined with all the money in the world. Consequently, life would be the paradise of leisure, pleasure and consumption as seen in stereotypical commercials. The second uchronia is more complex in its approach and is oriented towards temporal flexibilisation and self-determination. The strict division of work and leisure time is supposed to disappear and give the individual the right to structure their time for themselves. The third vision of uchronia wants to break out of the stiff standardised time structures and searches for the 'spontaneity of the 'vicissitudes of life'[3]. Through a rediscovery of natural rhythms 'the battle against nature is to be brought to an end and homeostasis replaced by homeorhythmics.'[4] Thus it is necessary to reintroduce the cyclical idea of time into the predominant linear lifestyle.
All of these three uchronia follow for all intents and purposes the goal to remove the 'I have to …' from our daily lives and replace it by 'I feel like doing …'. Paul Lafargue quotes in his work 'The Right To Be Lazy', Gotthold Lessing: 'Let us be lazy in everything, except in loving and drinking, except in being lazy.'[5] The problem all the ideas for uchronia face have less to do with the time structure itself. The time discomfort originates in people's minds. Only when the mindset opens up for a new perception of time, the time has come to realise uchronia. It is interesting how we collectively free our minds from the temporal system of values. Especially a look at Eastern cultures and their approach to time offers fresh ideas for the Western world. 'Toki', the indigenous Japanese word for time, conveys the 'sense that 'time can be 'folded' or 'manipulated' according to ecological or social needs.'[6] The contemporary high level of synchronisation, everything functions and runs on in our system, has to make way for human rhythmicity. As in the human body, the circadian rhythm (daily sleep-wake rhythm) is not about time itself, it is about the right timing. The same is true for our perception of time. Uchronia can set the stage for a perfect timed society.

references

[1] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 136.
[2] Ibid., 1996, p. 136.
[3] Ibid., 1996, p. p. 137.
[4] Ibid., 1996, p.p. 137.
[5] Quote by Gotthold Ephraim Lessing in Paul Lafargue, The Right To Be Lazy, trans. by Charles Kerr (Chicago, il: Charles Kerr and Co, 1883).
[6] Umberto Eco, Kirsten Lippincott, E.H.Gombrich, The Story of Time (London: Merrell Holberton in association with the National Maritime Museum, 1998), p. 80.

The situation is so unspectacular that there is nothing specific to tell or to talk about. It is just an ordinary day and I'm on my way.

That is the before.

Afterwards, I find myself lying on the pavement. People I don't know look at me in genuine concern, ask me questions and someone gets water. A stranger holds my hand – I don't know what has happened and for how long I'm lying here.

Days probably.

I even doubt if this scenario is real or if there is a camera somewhere. The moment I fainted is like a black hole in my memory. Strangely, I do start to like this feeling of people around me. We should forget our previous lives and start collectively anew.

Owning a moment solely for oneself – one which is not filled with a guilty conscience and thoughts like 'I have to …' is probably scarce these days. The shortage of time makes these moment rare in the everyday as they just happen when the time truly belongs to oneself in one's own proper time'. In her book entitled 'Eigenzeit' the German sociologist Helga Novotny explains in great detail the meaning of 'proper time' or 'Eigenzeit', which verbatim means 'belonging to the self'.[1] She explores the relevance of *self-time* within our society and analyses why the need for proper time increases throughout modernity. Interestingly, the awareness of proper time was a result of industrialisation and the division of time into working time and free time. Especially the need to spend time for oneself, is a result of the 'hyper-individualised' world we live in and the longing for temporal sovereignty. Niklas Luhmann talks therefore about our 'hunger for time'[2] and elucidates that 'the impression of the scarcity of time arises only from the overtaxing of experience by expectations. Experience and actions need time and can therefore be accommodated in a given span of time only in a limited fashion. The horizon of time and the structure of expectation must therefore be brought into line'.[3] This explains the origin and our yearning for proper time today. In turn, time niches are offered in the form of meditation and relaxation or other techniques to 'stop the moment'.[4] The problem, however, is that this does not change anything within the contemporary time system. Pauses and naps are now seen as an optimising tool for more productivity afterwards. 'Proper time, viewed as a self-time from the perspective of the individual, has to come to fresh terms with the time of others, with outside time, above all in the institutionalized complex of working hours and its changed relations to time free of work.'[5] Ideally the longing for proper time would not exist at all as it was centuries ago. The need for proper time arises out of a time conflict and the more tangible the conflict situation is, the more longing exists for proper time. But this approach is opposed to the development of contemporary time structures. Instead of a whole perception of time, time becomes increasingly fragmented into ever smaller bits and pieces to fulfil all the given tasks. One change, however, in the division of work and leisure time becomes visible. The distinction between private and public time begins to disappear.[6] Personal emails are written during the work day, while work emails are answered on the weekend. On the one hand, work might occupy too much leisure time, on the other hand this can be seen as a very positive development. Ideally our experience of time would be perceived as a whole and not as fragmented pieces of hours and minutes as it is today.

references

[1] Introduction by J.T. Fraser in Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 2.
[2] Niklas Luhmann, Die Knappheit der Zeit, in ibid., 1996, p. 133.
[3] Quote from Lewis Mumford in ibid., 1996, p. 47.
[4] Ibid., 1996, p. 132.
[5] Ibid., 1996, p. 41.
[6] Ibid., 1996, p. 8.

I really need to have time for myself:

Proper time.

Time, which I can dedicate to the voice in my head. Due to all this noise and busyness around me, I easily overhear it throughout the day. This inner voice sometimes makes me smile, and sometimes even laugh out loud. From time to time, I talk with it, even if I'm in public, but since people making phone calls wearing headsets, no one thinks I am crazy. People ask me what kind of invisible devise I use.

Photographs capture and freeze a certain moment in time. They preserve the scenery best possible within the technological restrictions and the photographer's skills. Besides, they immediately transform the present instant into a past experience. Later on the pictures serve as a memory aid to remember what was and to quieten the fear of forgetting. The question is why do people need to take so many pictures today? Do we not simply remember the moments that were truly important for us? Walter Benjamin already analysed our behaviour regarding memorising a certain time period. Instead of photographs he used the example of a souvenir, which he described as a 'prosthesis' to remember. As a consequence of an accelerated life-style in Western societies, people experience more in less time.[1] Expressed in an American advertising slogan –'Squeeze out the 150%'[2] – the credo of modernity is to live faster, more intensely, and up to the maximum. As a result single experiences, like a weekend trip to Paris, one to Berlin and back to London might not relate to each other or our life at all, whereas a true experiences of the past will become woven into the present and influence the future. The bought souvenirs or photographs are there to remember, because the trip might not have left an abiding memory in our brain. Whereas only a true experience broadens the wealth of experience, creates a true memory and therefore influences the future. The best example might be objects, smells, impressions, etc. of our childhood, which we will never forget even without any memory aid. In chronosociology the answer for the problem of progressive loss of experiences is seen in 'resonance'. The subject has to create a connection to the space, the object and/or others. Only if this is the case, the moment obtains a value which can never be kept within one or thousands of photographs. Therefore it is of interest to know how an experience which resonates can be created. One method is as simple as naming something, since the name gives it an identity and brings it to life.[3] The same happens when we repair an object. We devote time to it, and we add something of our own to it.[4] Ideas are now needed to create real moments instead of snap-shots. This has to do with time again. In his book 'The Tyranny of the Moment', Thomas Hylland Eriksen explains that 'the scarcest resource for people is neither iron nor a sack of grain, but the attention of others.'[5] Without an investment of time into a relationship, into a place or object, the intensity of the moment we are longing for can rarely be accomplished. Moreover we need to reflect on our experiences, in order that they resonate in our future life. The intensity of a moment, if good or bad, can not be bought, it mainly needs the investment of time.

references

[1] Walter Benjamin in Hartmut Rosa, Beschleunigung. Die Veränderung der Zeitstrukturen in der Moderne (Frankfurt am Main: Suhrkamp Verlag, 2005), p. 234.
[2] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 139.
[3] Umberto Eco, Kirsten Lippincott, E.H.Gombrich, The Story of Time (London: Merrell Holberton in association with the National Maritime Museum, 1998), p. 137.
[4] Talk by Hartmut Rosa, 'Bis zum rasenden Stillstand', DRadio Wissen, broadcast, 01.05.2012.
[5] Thomas Hylland Eriksen in Eva Hoffman, Time: Big Ideas, Small Books (London: Picador, 2009), p. 155.

Sometimes I wish I had a tiny photo camera integrated into the frame of my glasses. Each time during the one hundredth of a millisecond in which I blink, the camera would take a picture to capture the time when my eyes are closed. Therefore, I could see and remember the part of my daily life, I missed out on. Afterwards I create a stop motion film from these thousands of pictures. Only I hope I can find the time to watch it.

Certain spaces solely serve the purpose of passing through them. Especially in the urban environment the amount of transition points or buffer zones increases with the steady growth in the transportation sector. Places, like airports or train stations, are not meant to be or become a home. Rather functionality dominates their architecture and therefore 'locations become 'non-lieux', without history, identity, or relation.'[1] For frequent travellers this means that a fair bit of their life time is spent in almost timeless places, where summer and winter, day and night melt into one single atmosphere and time. As a quid pro quo modern nomads proceed to solely scan their environment, instead of perceiving the space as a whole. Therefore the place becomes reduced to essential orientation and services points (e.g. taxi rank, cash machine, coffee shop).[2] 'The pleasures of time are especially interwined with the embodied (or sensed) nature of people's relationship with objects and environments.'[3] Typically the time spend in buffer zones is perceived as an unnecessary delay and characterised as ineffective and redundant, described in one word: waiting. Modern and postmodern life is full of these situations. Statistically Americans spend half an hour a day waiting in a queue,[4] which means they *lose* thirty minutes of their time every day. In fact, waiting unfolds the underlying interpersonal hierarchies within a society. The question is, who has to wait and who keeps somebody waiting (no specific word exists to name this person). Speaking in a broader sense: 'Time is made by human beings and has to do with power which they exercise over one another with the aid of strategies of time. Time unites and separates – combatants as well as lovers.'[5] Therefore, the analysis of moments when and where people wait offers a contemporary portrayal of Westernised life. Our society tends to become more and more a 'waiting culture' – a development, which affects the quality of life drastically. Synchronisation strategies can no longer keep up with our ever increasing individualised lifestyle, standby times become inavoidable. Modern technology, in particular, smart phones, serve the need to bridge the time gap, but do not solve the problem itself. While standing in line, a person represents an anonymous human being, unattached to the person in front or back of them. The only similarity is that they are waiting for the same service. If we want to stop the process of solely 'becoming a number in the system', the relationship to waiting periods has to change. The concept is to win time while we wait instead of losing.

references

[1] Hartmut Rosa, William E. Scheuerman, High-Speed Society: Social Acceleration, Power, and Modernity (Pennsylvania, pa: Pennsylvania State University, 2010),p. 82.
[2] Talk by Hartmut Rosa, 'Bis zum rasenden Stillstand', DRadio Wissen, broadcast, 01.05.2012.
[3] John Urry, Speeding up and Slowing Down, in ibid., 2010, p. 180.
[4] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 141.
[5] Ibid., 1996, p. 143.

On my way to the gate I check the destination board and now it strikes me with surprise – I'm two hours too early. What an uncommon feeling to have so much free time on my hands. Sadly enough, here at this place spare time is not easily enjoyed.

What to do now?

I'm not hungry, I don't feel like coffee or buying anything. I stroll around in this atmosphere of nervousness combined with boredom.

What a vast stretch of time.

There are so many things I have to do, nevertheless this environment makes me restless and my brain useless. I start to stare at the destination board again, hoping that the time just passes and I will be allowed to go to the gate. Minute by minute: It feels like ages.

Waiting.

I sit down and observe other travellers: Some people seem to be excited, maybe they are here to go on a holiday trip. Others are much more like me: Just waiting to be somewhere else as if this moment of their life does not exist.

One more hour.

How might it be to work at such an anonymous place? I wonder if employees here recognise faces at some point or if a place of transition ever becomes a home to someone?

I buy a coffee.

My smartphone tells my about the nice weather outside, and here – here is the ideal temperature, today and tomorrow and I assume next year too.

The first time experience has the quality to be easily etched on the memory. What is so specific about this moment has been described and summarised by the historian Reinhard Kosselleck, who focuses in his research on how people gain experiences: 'The first kind of experience is always as unique as it is unrepeatable. It is the experience which is the result of surprise, since "somebody has an experience who has to be surprised". Hence it also has to be repeatedly undergone afresh by every single person. What is repeated is simply this fact.'[1] In regard to our perception of time, the first time experience seems to be much longer than all the other, following times. This fact is owed to a time pattern, which has been analysed by the psychologist William James: 'In general, a time filled with varied and interesting experiences, seems short in passing, but long as we look back. On the other hand, a tract of time empty of experiences seems long in passing, but in retrospect short.' This phenomenon can especially be seen in extreme situations like accidents, crimes or natural catastrophes, where the emotional involvement and the amount of informational input is high.[2] By contrast, several experiences of time do not fit into the scheme (short-long): time experienced short seems in retrospect long (e.g. holiday trip) and the scheme (long-short): time experienced long seems in memory short (e.g. ante room). The two time paradoxes are perceived as long-long (e.g personal crises, sport) and short-short (e.g. computer games, watching TV). Looking in greater detail at the phenomenon of the short-short experience, the quote of an English teacher describes his experience of time while watching TV: 'I find television almost irresistible. When the set is on, I cannot ignore it. I cannot turn it off. I feel sapped, will-less enervated … So I sit there for hours and hours … I remember when we first got the set I'd watch it for hours and hours, whenever I could, and I remember that feeling of tiredness and anxiety that always followed those orgies, a sense of time terribly wasted. It was like eating cotton candy; television promised so much richness, I couldn't wait for it, and then it just evaporated into air. I remember feeling terrible drained after watching for a long time.'[3] This kind of empty experience happens for two reasons: The density of storylines attracts the persons attention, yet it does not relate to their real life. Therefore the experience of time becomes decontextualised and forgettable.[4] Still people in the Western world watch an average of 40% of their leisure time or more than two hours TV a day[5], which seems controversial to the perceived scarcity of time. Probably not every moment lived has to be intense.

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[1] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 42.
[2] William James in Hartmut Rosa, Beschleunigung. Die Veränderung der Zeitstrukturen in der Moderne (Frankfurt am Main: Suhrkamp Verlag, 2005), p. 229.
[3] Robert Kubey and Mihaly Csikszentmihalyi in ibid., 2005, p. 230.
[4] Ibid., 2005, p. 231.
[5] Ibid., 2005, p. 22.

Today is the day before it actually becomes real. Tomorrow already I will become one of these bored, unobservant commuters.

What a moment.

It is the first time that I leave my new home for the new office, knowing that this will be my daily routine. I wonder how long it will take and if I like what I see on my way. Prepared as if I am going to the cinema, I have a bucket full of popcorn with me. Today I am the observer of my future life, ready for every kind of surprise. While passing by on places, I watch the people around me and try to imagine how I will possibly connect with anything or anyone along this way. Practical thoughts cross my mind about laundry, groceries, etc. Hopefully in a year, this commute will be full of memories.

In current sociological theory, the prevailing opinion about the future of the postmodern society is expressed as the theory of the 'shrinking of the present'[1] (Gegenwartsschrumpfung), which was introduced by Herman Lübbe. In comparison to the visions of the future during the Industrial Age, the future today is coming closer and closer to the present. The idea of constant progress leading to a steady improvement of one's living conditions and therefore to a better future, is now replaced by the fear of worsening of the prospects. The future 'is increasingly overshadowed by the problems which are opening up in the present. The future no longer offers that projection space into which all desires, hopes and fears could be projected without many inhibitions because it seemed sufficiently remote to be able to absorb everything which had no place or was unwelcome in the present.'[2] The categories past, present and future stop to exist, as the future becomes the 'extended present.[3] For us, this means we lose the space for imaginations, hopes and new ideas, as they have to happen now, right in the present. The problem is that the perception of the future is too real. Looking at previous generations, their ideas of the future were much more open and optimistic compared to today's young generation. Our mindset is owed to the experiences we have made and are making as a generation. Like a liquid society and social time runs through our body, independently of each individual life.[4] The same applies for political and social events. Altogether they influence the individual biography as well as each generation. Consequently, the thoughts and expectations of the future deeply depend on each generations wealth of experience. To change the current mindset, the concept of what future means has to be explained again. Instead of treating it as a continuation of today, the future needs to have much more to offer. Therefore it is time to reinvent the future again and give space to an imaginary world.

references

[1] Herman Lübbe, Schrumpft die Zeit?, in Kurt Weis, Was ist Zeit? Zeit und Verantwortung in Wissenschaft, Technik und Religion, ed. by Kurt Weis (Munich: Akademischer Verlag, 1995), p. 53.
[2] Helga Nowotny, Time: The Modern and Postmodern Experience (Cambridge: Polity Press, 1996), p. 50
[3] Ibid., 1996, p. 50

This one phrase 'the future is no longer what it used to be' scrawled onto the wall of a rundown building, always catches my eye, when I run past it. Once I asked my grandparents if this is true and they just looked at me with surprise.

C

UCHRONIA WORKSHOPS

UCHRONIA QUESTIONNAIRE ONE

'Time as such is not scarce.
The impression of the scarcity
of time arises only from the
overtaxing of experience by expectations.'

1.
What was your 'time giver' and why did your group select it?

2.
After leaving clocks and the digital world behind, did you feel the need to know the time or follow a certain kind of structure during the 48 hours?

3.
Would you describe your perception of time during the experiment as a 'liquid' or 'fragmented' experience of time? Why?

4.
How would you describe the relationship between space and time in the location you were in?

5.
What do you think is the ideal location to explore or to rethink your relationship to 'clock time'?

6.
In case you could do this experiment again, what would you change or do in the same way in terms of using these 48 or 72 hours?

7.
Would you like to do this experiment for a longer duration and if yes, for how long?

8.
Did this 48 hour experiment change your thinking on the present structure of time? And if yes, how?

FEEDBACK OF THE QUESTIONNAIRE AFTER THE EXPERIMENT

STUDENT 1

1.
Our time-giver was the act of knitting meanwhile reading out loud from "In search for lost time" by Proust. The main reason for choosing this time-giver was to measure our time in terms of input and output. Time was something that only occurred when we were producing or reading, a more suitable time-giver for creative work.

2.
I was surprisingly fine with not knowing the time. It was quite a relief actually. When the group would speculate about the time, I felt a bit apprehensive, as if it took away from the experience. Our experiment had quite a tight structure, which might be why we were more immersed and it was easier to forget about the clock or digital world.

3.
I think the experiment was both. The 'flow' came from getting really into the text/knit, or hearing/seeing it. At the same time, we would sometimes take a few minutes to discuss something in the text or to change over 'shifts'. However, it did not feel as if these breaks where separate from the activity. Contrary, the silence or discussion complimented the reading and somehow emphasized it. The silence even became like an alarm clock at night, when we knew it was time to change shifts.

4.
Being within the library space/roof top made me feel detached from the outside world. It was a comforting space in which everyone present has the same agreed time. Being in the space of agreed time, justified our practice. Being outside of that space in the kitchen with people of clock-time, I felt more self-conscious and protective over our practice.

5.
Perhaps it is easier to be detached from the city and people with clock-time, to slow down and really feel the new time you are in. Having said that, I would be interesting (once adopted new time) to mix with people of clock-time and inside the city.

6.
I think the interesting thing was that it was a constant process of negotiation. Although we may have planned or set up stricter rules from the start, it was better to negotiate these as we went. Naturally our practice developed in accordance with the members, such as the breaks/interruptions of reading, numbers of pages to read, etc.

7.
I think all the experiments of time really depended on longer length of time, to really immerse and adjust the body to this new life style. Since our experiment left us with less sleep, I am not sure how long we would have lasted before giving up. Perhaps we would have to adopt a different rhythm with more naps throughout the day. 4-7 days would have been good.

8.
This experiment has had a pofound impact on how I feel about time. Being constantly in the making or reading, really put me into a flow of productivity. Productivity being something more analogue and physical. It really makes me want to make things and keep going despite the hours of the clock. Thank you.

STUDENT 2

1.
Our project worked in an input/output format. Our 'time giver' was group reading of Proust's In Search of Lost Time. The text would be read out loud as a group activity, taking turns to read a chapter. Each chapter would be recorded as a 'time unit'. This was complemented by a visual output which recorded our time units. For each time unit a length of knitting would be produced by a member of the group; each person was given a separate colour of yarn to record with.

2.
I think we chose this as a way of exploring the notion of time as an essentially human construct and therefore as something we can construct in anyway we want. Our project played with ideas of activities which have really endured time: oral story telling and the childhood craft of dolly knitting. In the input it was interesting to see time construction as something which unites a group. In the output it was interesting to see time visualised in a tangible sense.

I think we found the structure we most needed to adhere to was that of meal times. I think this was partly because it is the sign of time passing that the body is perhaps most attuned to. I think we also recognized that our project was very dependent on the dynamics of the group and therefore sleep patterns could be easily changed as sleep was a sacrifice we all made to help each other whereas we found mealtimes to be our most obsessive area of measuring 'real time' as this is something we see very much as a social activity.

3.
I think my perception of time could be described in both ways. It was very fragmented in that we were really building on the idea of time as a construction and the fragments of time were visually recorded to show us our progression in colour coded sections. However I think it did also feel like a very liquid experience by releasing our normality of time. The days were more liquid as we were constantly engaged in the construction of time taking naps often, rather than being controlled by day and night. Having our roof space also made nighttime in a way seem more alive than the day with the city-scape seeming more spectacular at night.

4.
I would say this affected me in two ways. Firstly, our set-up in a communally oriented living space really enhanced our experience of creating time as a group experience which was really important to our project. Secondly, as I said previously, the ability to be outside in the city but in a detached way, I think we saw the night time as a more alluring space.

5.
I think that we were as a group very aware of the night and day relationship and it would perhaps have been interesting for us to push our ideas by being isolated from these as inputs. Given the opportunity to try this experiment again I think I would try this idea, maybe thinking about how time affects the body with the production of synthetic light at random times.

6.
I think we could have used more time prior to the experiment to think about what we were really hoping to achieve by using the methods that we did as it was quite a rushed decision. As I said, I might think about excluding natural light. I think our project said a lot about the way that time is perhaps constructed as a necessity as people need order in able to connect with each other socially and I would like to look more into this to inform ideas of how we could enhance our experience. A film by Apichatpong Weerasethakul has just come out that works with these ideas. Cemetery of Splendour (2015) tells the story of a village that sleeps for 20 hours a day and the way that they have to construct a lighting

system to communicate the hours each person is awake so that they can function as a group socially, highlighting this as a key aspect of human needs which surpasses that of eating etc. In our group I would build on this sense of group construction that we worked with and our heavy reliance on meal times, I think for this reason. Towards the end of the experiment we decided to just stop reading during mealtimes as we thought it was a time we needed a reprieve from it.

7.

I think that I would like to do it for longer but with altered methods, for example I think that the way we slept wasn't really sustainable for a longer period. But if we resolved some of ideas I think it would benefit from a longer experience, maybe 1 – 2 weeks.

8.

Yes I think it has changed my thinking. Perhaps not limited just to time but more broadly on ideas that many human constructions that we live by without thought could be challenged to produce a creative output. I think it also challenged my thinking about reasons for constructing time; producing a society that is in sync is perhaps good for our wellbeing socially. The experiment would have been very different if it was a singular experience.

STUDENT 3

1.

Initially, we wanted to explore the concept of rhythm and light in relation to time. In addition to this, we both had an interest in photography being a medium that documents time - and liked the idea of exploring it through manipulating the photographic process.

We made time-keeping costumes and brought materials to carry out cyanotypes and photograms. Despite our plans, we both realised that our environment was crucial to our sense of time. The location we stayed in relied on a fire to heat up the living space, so this became our time keeper. We found the cycle and rhythm of the fire more interesting than the manufactured time keepers we intended on using.

What was interesting about using the fire as a time keeper is how much we mentally responded to the cycle of the fire. When the fire was running out - we felt lethargic. When we lit the fire - it gave us huge amounts of energy. We also found it interested how much energy the fire gave in terms of heat. Downstairs was incredibly cold - there was a huge difference between upstairs and downstairs. Heat became an indication of down time. The cold gave the impression of having to get things done.

2.

There was very little sense of 'needing' to know the time, but rather it was an interesting activity to speculate. There was also very little worry of having to get things done - so we were happy to carry out our activities at our own pace.

3.

I would say it was fragmented. Time was occupied by a series of ritualistic tasks. The carrying out of these tasks were, in a sense, liquid. Whilst carrying out a task, time seemed to flow. I focused on the completion of the task rather than the duration of the task. Once the task was completed, I did not think of the time that the task occupied, but rather how many tasks I had completed previous, and would continue to complete.

4.

As we were using fire as our time keeper, there was a relationship between the temperature of the space and how much time had passed. In the living area (where we slept and ate) the temperature would fluctuate (due to the fire) and this would give us an indication of what time it was and how much time had passed.

Downstairs, in the working area, the temperature was very cold. This made us proactive and allowed us to carry out work. In a sense this allowed us more time - we felt like we could do more. Leen brought up an interesting point about temperature controlled working spaces in Japan, the colder the temperature, the more efficient the people were. Time seemed to slow the hotter it was. When it was cold it felt like there was more time. Saying this, mental states relied on the functionality of the fire. When the fire was energetic, we were energetic. When the fire began to wind down, as did we.

5.

I would suggest trying a location where there was no or very little exposure to sunlight and natural environmental factors. This immediately refers your brain back to the 24 hour system.

6.

Although we tried to keep planning to a minimum - I would actually plan less. I would respond more to the environment I was in, rather than trying to predict how we would feel. I would set myself less tasks and give more time for reflection. The experiment that we planned, it would have been useful to have a couple more days.

7.

A longer duration.

8.

I definitely felt as if my lifestyle puts me completely out of tune with the natural rhythms of my body. It gave me an insight in how I structure the way I do things - I think the way I carry out my work is largely motivated by time. This seems unnatural - because it doesn't allow periods of reflection. These periods gave me extremely valuable opportunities to grasp and formulate my ideas. I left feeling incredibly inspired.

It also made me think about the relationship between time and materiality. Before the experiment, I felt as if there was a direct correlation between physical activity, material and time. Time spent not physically doing work seemed wasted, non existent, lazy. Expending energy and creating material value seemed like a proof of time being used to its full capabilities. Now I feel as if time spent working mentally is extremely valuable, despite having nothing physical to show for it. It also feeds into ideas I had previously as physically manifesting time through objects or making. Material objects seem as if they are a commodity - because they require time. I understand now that there is more to time rather than just physical objects. Time can be measured in emotions, ideas and plans for the future.

STUDENT 4

1.

We had two time-givers, both used to define our actions: we were passing on our power of decision. One defined our needs (yes/no), while the other would give us a duration (between 5 minutes and 5 hours) to perform our chosen activity, printing. We chose to structure our time this way to lose our power of decision on our actions, and to rely on something else to truly concentrate on single actions (and appreciate it more). We didn't have a million thing to do or plan, we just had to follow the activities one after another.

2.

"Still can't tell what the time is. It could be anytime in the afternoon. Light is like an end of day, or just anytime of a cloudy day ." (extract from my journal). I didn't feel the need to know the time at all. I felt liberated not to know it. Loosing the track of time was almost like losing my sense of responsibilities: because I was removed from the 'normal'time structure, I was living by my own simple needs, and the chosen activity. The only habits which seemed to transcend the time structure was the shower before bed, and the breakfast after waking up. That's two elements of my everyday routine that I didn't forget despite the lack of 'normal' time structure.

3.

It's difficult to tell. Our time structured was obviously fragmented between breaks (writing our journal, having chats or drinking tea), work (printing), meals and sleeps, but at the same time it felt 'liquid' because we would not necessarily do them all in the same order day after day (even though we realised we actually always woke up or had dinner at the same time throughout the 72 hours), or wouldn't spend the same amount of time on it day after day.

4.

Our house was a timeless place. The interior design was a mix of different styles, different epochs, different countries even, while all with an antique look. All natural light sources were blocked out, and we kept listening to jazz music. It really felt like a time capsule. Although we had no visual connection with outside, we could still see a halo of light coming in, which would only tell us whether it was daytime or nighttime. I had a rough idea about the structure of the 'outside day', but I really didn't relate to it. " For example now, I know it is late evening outside, but I am not applying this 'known' information to our day inside the time capsule. I live in a timeless space. It is a bit like when I'm in London and I am aware of the time in Melbourne: I know it, but I don't live by it. It's like we live in a time zone of our own here, inside Salon Bohemia, and that the rest of Broadstairs is on a different zone (as well as on a different rhythm). We are not jet lagged, we are just in a different time zone, while in the same place. " (extract from my journal).

5.

The ideal location is an unfamiliar place, where you have to physically be displaced (ie: not in the same city where you are living). It is easier to forget about our everyday time structure when you are away from familiar distractions (cars, people talking,etc) so somewhere outside a town or a city would be ideal. In our place, we could tell by hearing people down the street whether they were heading to a party or going out for a coffee:

they don't talk with the same intensity! Because our time structure is mainly dictated by our work (you wake up, get ready, go to work, break for lunch, go back to work, go home, have dinner, watch a movie, sleep, and get up again), moving away from such busy environment would help forgetting about it, and concentrate on your own perceptions, without influence.

6.

During the experiment, we observed the limits of our designed time-giver: it was too strict, yetwould really push us. In term of work, the duration were great (well except when the time giver bugged) but we should have had more option for the work itself, maybe more materials, or more possible outcomes. But as a tool, I think our duration giver was very useful, because we just accepted the fact we had to respect it, and work until it buzzed. It made the idea of breaks a lot more exciting. I never take real breaks in my everyday work, so having work times structured by a tool that doesn't (totally) depend on me (we still decided on the minimum and maximum durations) was very interesting. Jordan and I both discussed the idea of using it more regularly for our own work, to force ourselves to get things done: we were quite impressed by how much we got done during the experiment, while taking quality breaks, making us realised that 72 hours is a long time. Regarding the Yes / No, I think the only element to change is to put to decisions back to 50/50, instead of 30 (no) / 70 (yes). That was a bit difficult to handle physically. Also, the lack ofdaylight had a really negative impact on us (lack of energy, motivation...) so that is something I would change if doing the experiment again: allowing ourselves to have walks outside and to see the light. But, like mentioned in the previous question, a place out of a town / out of normal dailyactivity, would be crucial if daylight is accepted.

7.

Because of the fact we were lacking daylight, I think 72 hours was a great duration. But if the experiment is reshaped like suggested above, I could easily do it for a longer period. I think it would serve the concept as well: looking back at our text messages, it seemed that we just created a new routine. So maybe a longer period would help shaking this up.

8.

The experiment absolutely changed my time structure. As mentioned above, it made me realise how much I can get done in a short period of time, and it made me a lot more motivated about finding a new method of working. I would use the duration giver once we'll have it designed properly. It also made me realised how much time we lose procrastinating, and how much distraction we get from emails, notifications or people around us. I am trying to pay less attention to these while working. It's still difficult to put in place, but I became aware of how important it is to take quality breaks, that by taking away a few good minutes here and there, you actually feel refreshed.

STUDENT 5

1.

Our time giver was an arduino-machine. We built it so that we could totally give up all our control to something we had no control over.

2.

I really did want to know the time at points. Sometimes I was just curious but kept asking 'I wonder what time it is'

3.

Mine was rather fragmented, I kept nding things that gave me a clue of the time, or a time i would hold onto untill it was disproved.

4.

Their was a massive link between space and time in our house. The look and feel of the place really made us feel seperate to the outside world.

5.

Somewhere completely dierent to my normal day, just like the place I was in during the experiment.

6.

I wish everything was sorted to begin with rather than changing the rules as we went. I also wish I had commited fully to the experiment.

7.

Longer

8.

It did. I thought that it would continue for longer but I am starting to slip into my old ways.
What was your 'time-giver' and why did your group select it?

STUDENT 6

1.

Originally we kept out time-giver a free flow of creative practices with no limit but our own attention and imagination. We chose this as we found that in our day-to-day lives we are constantly given time constraints which effects our outcome. However once in the space we realised the fire became our time-giver. It required constant attention and would leave us cold if neglected.

2.

I did not feel as though I needed to know the time as I had no responsibility; no one to meet, no deadlines looming so I felt very liberated during this time. The most anxious I felt was on the last day because of packing and leaving.

3.

Liquid. Because we could see daylight I felt more or less satisfied with my idea of time. There was one day where I was sceptical about the sun – I was convinced it was late afternoon but Tom thought it was late morning. Soon enough the sun set and we realised. I think I found I stayed up later than normal, I think if I knew the time I would have gone to bed earlier.

4.

The space was really inspiring and full of character. The time went quick for this reason. You can spend time contemplating characteristics of the building and its owner.

5.

I think somewhere without daylight and maybe with fewer distractions. The fire worked really well to rethink how we consider how we spend our time.

6.

I would like to consider intent for work produced during this time however the activities we did were very liberating from our daily practice which is laced with intentions. Comparing these two could be interesting. I would like to try again without music or with longer soundtracks where time would not be noticeable and silence would be filled more with thought rather than listening.

7.

I would like to do it for longer to give me more time to miss the clock and technology in general.

8.

I still feel as though I'm constantly running out of time and balancing many things at once. This is due to the fact that for me time did not feel longer without a clock during the project.

STUDENT 7

1.

Initially, we wanted to explore the concept of rhythm and light in relation to time. In addition to this, we both had an interest in photography being a medium that documents time - and liked the idea of exploring it through manipulating the photographic process.

We made time-keeping costumes and brought materials to carry out cyanotypes and photograms. Despite our plans, we both realised that our environment was crucial to our sense of time. The location we stayed in relied on a fire to heat up the living space, so this became our time keeper. We found the cycle and rhythm of the fire more interesting than the manufactured time keepers we intended on using.

What was interesting about using the fire as a time keeper is how much we mentally responded to the cycle of the fire. When the fire was running out - we felt lethargic. When we lit the fire - it gave us huge amounts of energy. We also found it interested how much energy the fire gave in terms of heat. Downstairs was incredibly cold - there was a huge difference between upstairs and downstairs. Heat became an indication of down time. The cold gave the impression of having to get things done.

2.

There was very little sense of 'needing' to know the time, but rather it was an interesting activity to speculate. There was also very little worry of having to get things done - so we were happy to carry out our activities at our own pace.

3.

I would say it was fragmented. Time was occupied by a series of ritualistic tasks. The carrying out of these tasks were, in a sense, liquid. Whilst carrying out a task, time seemed to flow. I focused on the completion of the task rather than the duration of the task. Once the task was completed, I did not think of the time that the task occupied, but rather how many tasks I had completed previous, and would continue to complete.

4.

As we were using fire as our time keeper, there was a relationship between the temperature of the space and how much time had passed. In the living area (where we slept and ate) the temperature would fluctuate (due to the fire) and this would give us an indication of what

time it was and how much time had passed. Downstairs, in the working area, the temperature was very cold. This made us proactive and allod us to carry out work. In a sense this allowed us more time - we felt like we could do more. Leen brought up an interesting point about temperature controlled working spaces in Japan, the colder the temperature, the more efficient the people were. Time seemed to slow the hotter it was. When it was cold it felt like there was more time. Saying this, mental states relied on the functionality of the fire. When the fire was energetic, we were energetic. When the fire began to wind down, as did we.

5.

I would suggest trying a location where there was no or very little exposure to sunlight and natural environmental factors. This immediately refers your brain back to the 24 hour system.

6.

Although we tried to keep planning to a minimum - I would actually plan less. I would respond more to the environment I was in, rather than trying to predict how we would feel. I would set myself less tasks and give more time for reflection. The experiment that we planned, it would have been useful to have a couple more days.

7.

A longer duration.

8.

I definitely felt as if my lifestyle puts me completely out of tune with the natural rhythms of my body. It gave me an insight in how I structure the way I do things - I think the way I carry out my work is largely motivated by time. This seems unnatural - because it doesn't allow periods of reflection. These periods gave me extremely valuable opportunities to grasp and formulate my ideas. I left feeling incredibly inspired.

It also made me think about the relationship between time and materiality. Before the experiment, I felt as if there was a direct correlation between physical activity, material and time. Time spent not physically doing work seemed wasted, non existent, lazy. Expending energy and creating material value seemed like a proof of time being used to its full capabilities. Now I feel as if time spent working mentally is extremely valuable, despite having nothing physical to show for it. It also feeds into ideas I had previously as physically manifesting time through objects or making. Material objects seem as if they are a commodity - because they require time. I understand now that there is more to time rather than just physical objects. Time can be measured in emotions, ideas and plans for the future.

FEEDBACK OF THE QUESTIONNAIRE TWO (ONE AND TWO YEARS)

1.
Did this 48/72 hour experiment change or have an impact on your relationship with time?

2.
Did it you change your daily behaviour, maybe in certain moments?

3.
Would you like to do this experiment again?
If yes, what you would be the 'zeitgeber'?
If yes, how long you would do the experiment, with how many people, and which location?

STUDENT 1

1.

So much time has passed since the workshop now, like you say, almost two years, and in that sense time is almost like a smell or a sound: it disappears, loses its contours against the background and everything else.

2.

In the Uchronia workshop we switched off time for a few days – the replacement of time with the conceit of the new zeit-geber was the switch – and when we came back to it (almost like a space or a condition) it was like we could smell it again, or see its outline. Sometimes, when I think about the workshop, I can remember the outline and remember that time is a thing.

3.

But also remember how tired we were, what an enormous effort of strength it took to shake the structures of time even a little, and how we faltered, say, during dinner, or the sunset on the roof. It was a super intense social and physical experience that I would definitely do again.

We needed more time, I think, to recover from the jet lag and get used to the hum of our own time. For it to be more sustainable, our zeit-geber would probably need to be something less severe, like 'normal time', more capable of receding into the background. At the same time, it was so interesting to construct a time that always makes itself present, and more than that (when reading the Recherche) adds more spaces and times and people to your own. For time to be remade in a different material (the diary the knit), was one of the strongest conceptual points of our project, but also what made it hard to sustain over time, or outside the context of art.

STUDENT 2

1.

Yes, I've learned that there are several scales of time, and I've been quite ignorant with understanding the structure of time. Now, I have a quite different perception, it is more like time is not a single standard but a miraculous thing that can be sliced in infinite scale.

2.

I guess so, especially when I am doing cooking, I remind myself of the project and the things I've learned from it. It is quite difficult to explain what I've learned in text though, it is more of an experience, about acknowledging my own rhythm and time scale. After coming back to work from being a student, I started to go along with the common schedule of office life, ignoring my own rhythm

3.

Yes, I would like to do the experiment for a longer time, maybe a week or so. I'd like to do it in two locations, one location that I am very used to, and another where I am a very stranger. I would like to do the experiment by myself alone at the place where I am used to, and with more than 5 people where I am a stranger. What I would like to test is to learn my rhythm of my body.

STUDENT 3

1.

I would say directly after the experience I found i had a definite motivational boost, but i think that could be due to having the space to sit and think about the work i wanted to do. and also definitely in the short term i thought much more about time as a construct and how much it influenced my working planning. Howevber i would say in the same time it took the do the experiment (3 days) afterwards i had quickly fallen back into the usual routine of what i know time as.

3.

I would definitely do the experiment again, however i would like to be much more strict, and inflict a lot more rules on myself. In terms of space, i think a white wall gallery kind of setting could be interesting, and then the rules that followed could feel quite serious and clinical.

STUDENT4

1.

I don't think it has changed my relationship with time 2 years later. It is quite mundane but for example I would say obtaining, starting and working in my current job for the past 8 months has made me think about my relationship with time more, assigning different value to time etc. For several months after the experiment I thought about time a lot more but I would say this was a result, not of the physical experiment, but of the conversations surrounding the experiment and my experience with the participants.

2.

I am somebody who habitually and constantly checks the time. During the experiment I found not being able to do this extremely frustrating. Afterwards I felt extremely grateful to be able to do this activity. I would say the main thing it changed is that I am often recognising and thinking of alternative time telling devices. During the experiment I made some very simple animations using pencil, paper and a light-box. As I was drawing these I was aware that 12 drawings equals one second of output (12 frames per second) and found that although I didn't really know how long it was taking me at least knowing how long what I was making would be gave me a sense of 'groundedness'. (I know that isn't really a word but 'security' felt like the wrong word.) In a way this was a device for determining a length of time in the future. (the length of the animation) Also Francesco and myself mad a film of a rotating heart-lamp. At the time this was a device to hand that represented something like a clock in that it rotated at regular intervals. I find that if their is anything since the experiment that has changed in my behavior it is that I recognise and identify more of these kind of "regular-interval objects". For instance a flickering light, or a rotating bus-stop billboard advert.

3.

Yes, I would like to experiment with drawing animations again. There is something in animation called 'creep'. This is where, for example, when tracing an image then tracing that trace again and again, over time the drawn object (let's say for example a grandfather clock) shifts position and changes shape and size without you realising.

I would instead of setting a limit on the time to do the task I would set a limit on the amount of seconds of animation the participant has to output.

I think creating 1 minute of animation (720 drawings) would be a good task. Also I would make it so that after each image has been traced over it is 'posted' in a box so that it cannot be viewed again for reference.

It would work alone but I think if 4 people did it, all starting with the same drawing and working in isolation it would be interesting to see how the different people's image were effected in different ways by the 'creep' over time.

STUDENT 5

1.

Truthfully, it hasn't changed my relationship with time, I still live my life, very much dictated by time - I realised time is a structure that keeps me grounded and contained in a seemingly chaotic world. it did, however, make me think a lot more about time-based mediums within an art practice, as well as works that investigate time. and perhaps i am more aware that our understanding of time is constructed - so there is potentiality for alternative systems.

2.

During the experiment we focused a lot on food and meal times, this was very confusing for me because I'm always hungry so I rely heavily on the time to dictate when i eat. i'd like to say that this experiment taught me i should just eat when i'm hungry, but i still very much observe cooking rituals and timings, it also taught me that when you're following recipes , time is a key ingredient.

3.

Yes,I think, 2 days with strangers felt like a long time, but in reality 2 days is nothing. i think it would be more interesting to do the experiment for longer as it would give you longer to re-set your ways of thinking around time. I'm not sure what my zeitgeber would be, but i think in some ways the experiment is flawed because you exist 'outside of time' within time - 2 days is a specific amount and you know when it starts and when it finishes, i think it might be interesting to start the experiment and finish it without warning or plan (not sure how you would materialise this). Perhaps the new zeitgeber could be more responsive to the human body - like the woman's menstrual cycle or something? also, depending on the company time goes fast/slow so it might be good to try same experiment with different people and in a number if locations.

STUDENT 6

1.

The experiment offered together an experience of escapism and returning, personally, I felt the transition stage of both of these were significant parts of the experience.

Our self-initiated system of measuring time involved reading Marcel Proust 'in search of lost time' and representing the act of reading with a stream of knitted coloured coded cotton to visually represent the segments of reading between each member of the group. This system in total ran continuously for 48 hours and having numerous gages and systems in place that gave a sense of time but without directly displaying it, overall, the 'designed' conditions and measures made the experience feel very autonomous and personally soothing knowing that an unbroken chain of tasks would end in 48Hours. I didn't feel anxious about not knowing the exact time as constant measures in reading and knitting were being created, providing an on-going varying illusion of time that was relative to reading speed between members of the group.

The security of the building and setting a restriction gave the experience more integrity and I had peace of mind that no outside factors or changes would affect the timing systems. This aided me with a more focus mind on the task and removal with the connection to time.
The collaborative effort and seeing measures of time being made by the 3 other members of the group through knitting cotton, boosted the morale and created on going discourse regarding the time past and time ahead and this itself provided an entertaining environment both socially and work rate. The momentous parts of the experiments lay in both commencing the task and ending the task.

Initially the desire to look at the time was strong and the necessity comfort of knowing what stage of the day it was challenging. But the reading continued and the knit developed, providing a new source of time and this eventually overruns the desire to look at the time.

Ending the experience was just as difficult, having such a controlled environment of tasks and people within it, made it then hard to transition into social spaces and operate and communicate effectively. I was extremely unsure and uneasy on completing the experiment.

2.

I believe more than ever I'm more conscious that measures of time are practically everywhere, I attempt not to be too attached or to set rigours time schedules that are unnecessary or overall could be detrimental. I have fun with matching an event or situation with alternative measures of time.

I've also become far more 'Zen' to others time keeping, I've always had a respectable standard of timekeeping compared close friends and familiar members and now and especially after the experiment I've become more sympatric to others relationship to time.

3.

es, it was a fantastic experiment and thoroughly enjoyed participating. Alcohol would be interesting; allocating on going amounts that would be relative to the participant's drunkenness and simultaneously providing an observation at the time. Longer for around 3-4 days would be interesting, to get exceedingly lost in it all! I think removable of the sun and daylight is where the most interesting results will occur.

STUDENT 7

1.

It did surprise me and excite me, it entertained me, and most importantly made me playfully aware of how little of my life is spent idling in free-form and experimenting away from the constrains of time. In my opinion, it needed to be longer and have stricter rule or more commitment from our side. Perhaps a more rigorous scientific control of what we should do and what not to do. Perhaps a reporting of these activities, or a group diary of some kind.

2.

I was filled with an immense curiosity for the place I stayed in. I felt like an explorer in an extraordinary situation, so I decided to behave, at times, extra-ordinarily. For instance, I wore a one-piece tiger costume for the first day, finding it more apt to the place than any of the clothes I was wearing. I do not think my behaviour changed overall, but I took decisions which felt novel, such as defining a space for myself, sleeping in one specific bed, using one specific toilet. At the same time, these changes happened incoherently since I did not respect the rules I gave to myself, and after some time (maybe a few hours) went back to my regular behaviour. A cause for such lack of seriousness in the experiment from our side possibly was reflect by the fact that the overall group did not have a strong will to set and respect rules collectively but rather loosely self-rule itself.

3.

Sure. The new zeitgeber could be a deck of cards, and a ruleset. For example, drawing a card could mean a change of activity, and the card indicates the length of that activity. I'd limit the experiment to three people and three days perhaps in exceptional conditions so to really strip away the ability to tell passing of time, like polar nights, or midnight suns. In other words a long match of poker in the arctic.

STUDENT 7

1.

Almost two years later, the small time experiment has had no effect on my relationship with time. I spent 2 days in the 'pink house' which was full of objects, very strong colours and every space had a distinctive mood. Time in this artificial space became associated with place, context. The house imprisoned me and dictated my time.

2.

Because of its strong associations with place, my impression of time, away from the place was not affected.

3.

I would love to experiment again. The present time has made man extremely materialistic. We are constantly doing something and dont have the time to get bored. Meditation or the concept of doing nothing but just inhabiting the mind is gaining popularity. Time not used helps is using the remaining time efficiently. Meditation plus some activity like painting or cooking could be an interesting exercise.Ideally any workshop should be of atleast 4 days with minimum 5 people.

STUDENT 8

1.

Not really, to be honest.

2.

A walk in the woods did not take as long as we expected it would. Now I sometimes just take a walk and time to chill when I feel stuck instead of forcing my brain to work at the desk. It shortened my time of procrastination at certain moments - I was reminded of how long the preparation of a meal could take vs. the time to consume it.

3.

I would like to do this experiment again - now that I am in midst of job hunts and would soon follow a 9-5 work schedule, i wonder whether my sense of time would have changed from being a student with relatively flexible self- arranged schedule. Two Possibilities:

1) Home/ At ease: Time-giver : The frequency of the urge to talk. On a stay-at-home day/ Sunday, how often would you have the urge to get out of our room and talk with each other? Duration: 24 hours, with flatmates that I live with or friends that are familiar with how I "use time". 4 people maximum
Location: each person with their own room and laptop (to kill time/ do productive work if needed) in a comfortable house / at ease

2) Foreign Place/ Vacation,
Duration: 4 days, with 1-2 close friends
Time-giver : The frequency of our desire to check emails/ social media / news for things that are related to "home" - would it relate to our normal work schedule?
Write a note to a friend as that takes place.
Location: Not confined to an indoor space - Camping in the wild? - A foreign destination that none of us have been to; with decent number of interesting sights to explore for 4 days

STUDENT 9

1.

It was a very special experience. One-year later after this workshop I am looking to continue to experiment (artistically, personally) with my own experience of spaces & time. Since the workshop I have been thinking how my own practices fits in to this; designing, redesigning spaces for a reflective, creative and slower pace.

OUR TIME

Sleeping passes time
Dreaming passes time
Thinking passes time
Scheming passes time
There is no time

Drinking passes time
Joking passes time
Kissing passes time
Pissing passes time
There is no time

The time is right, the time is wrong
The time, it comes and then is gone
There is no time

Our time is right, our time is wrong
Our time is short or maybe long

Sniping passes time
Fighting passes time
Shouting passes time
Leaving passes time

The time is right, the time is wrong
The time, it comes and then is gone
There is no time

Our time is right, our time is wrong
Our time is short or maybe long
There is no time

The time is right, the time is wrong
The time, it comes and then is gone
There is no time

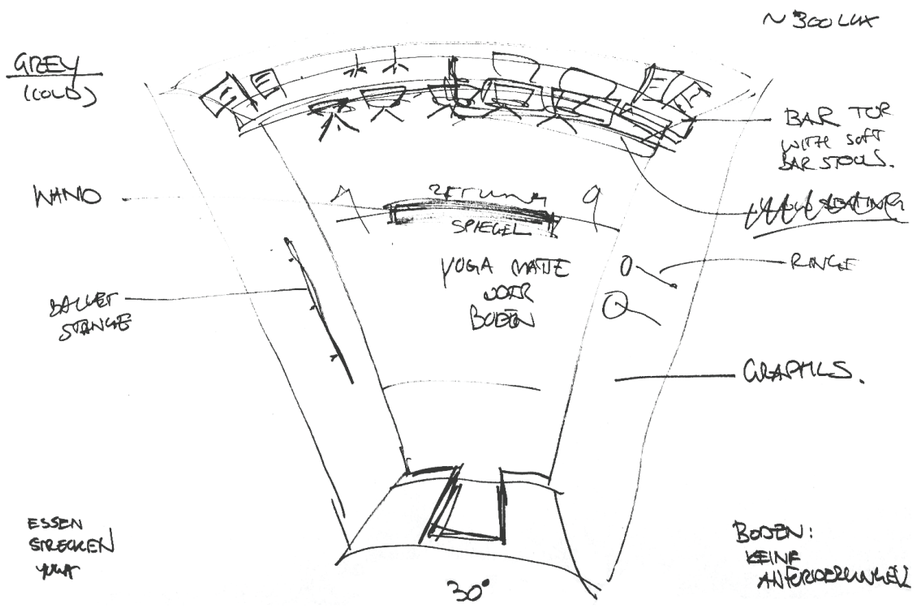
Our time is right, our time is wrong
Our time is short or maybe long
There is no time

Intro to the Uchronia Symposium
Wire, Pink Flag, 2010

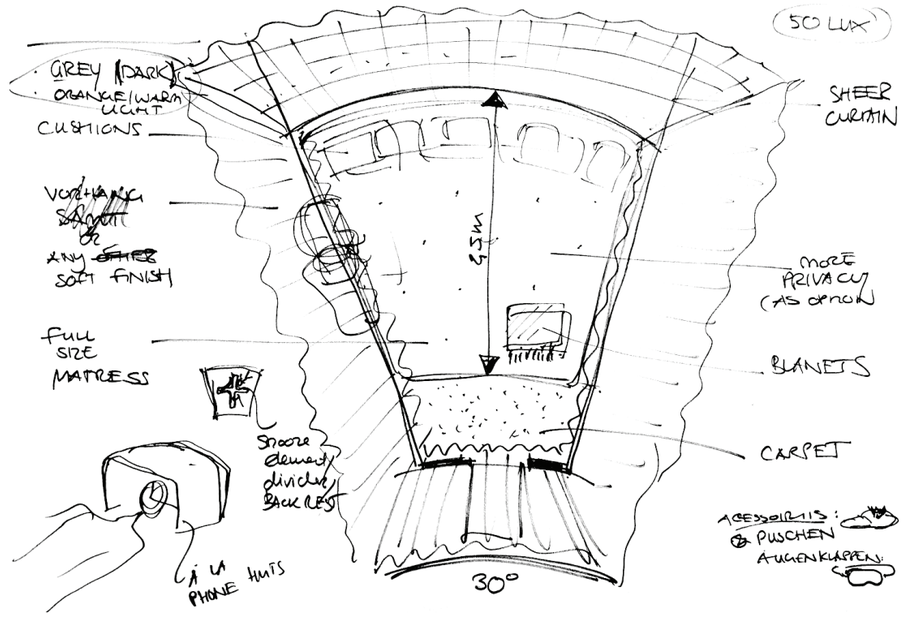
D

BODY PHASE WORKSHOP

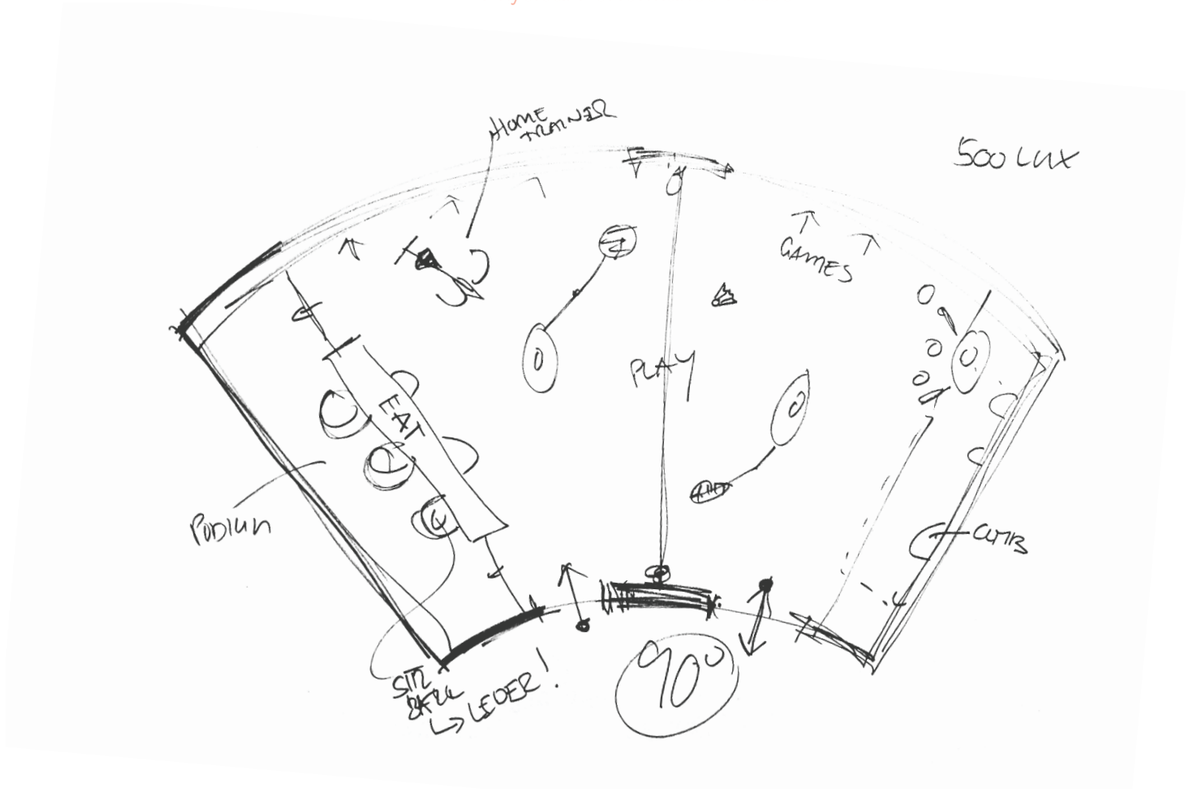
Wake-up Phase

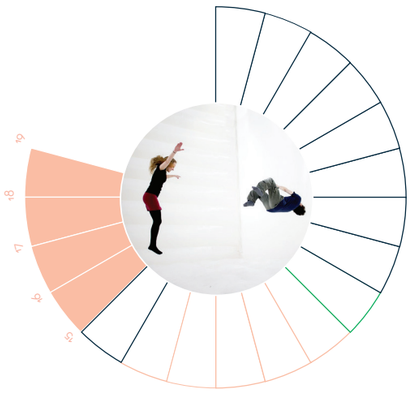


Nap Phase

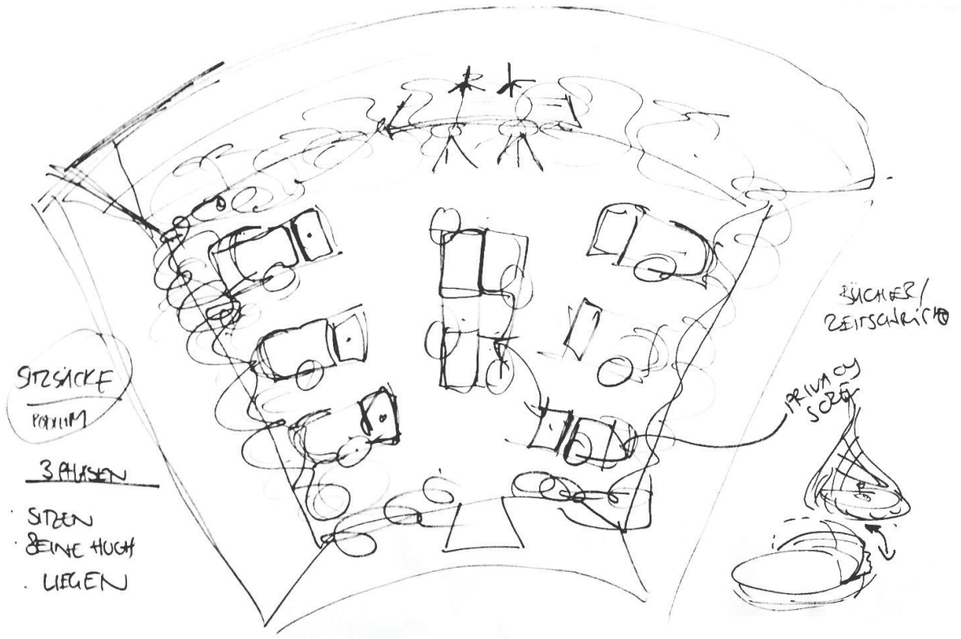


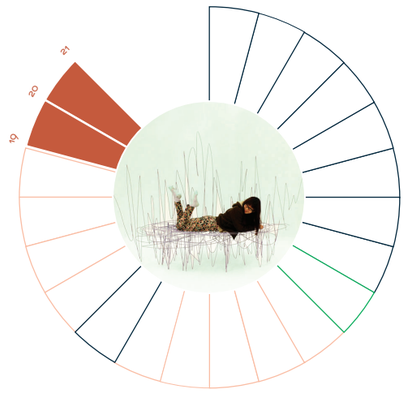
Physical Performance Phase



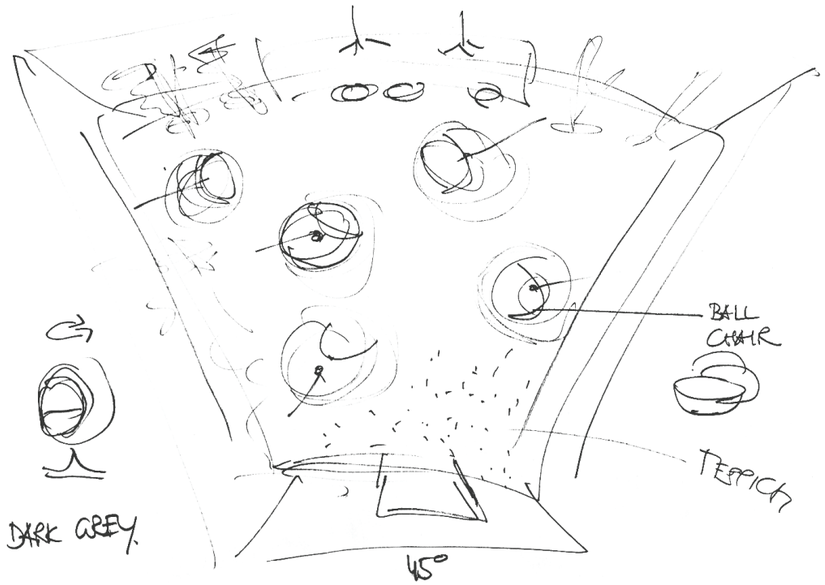


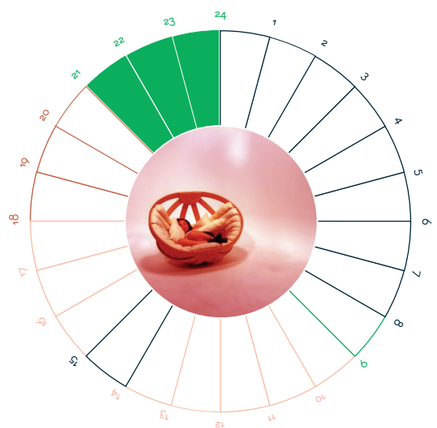
Intuitive Phase



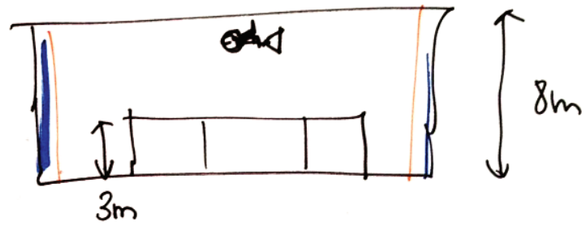


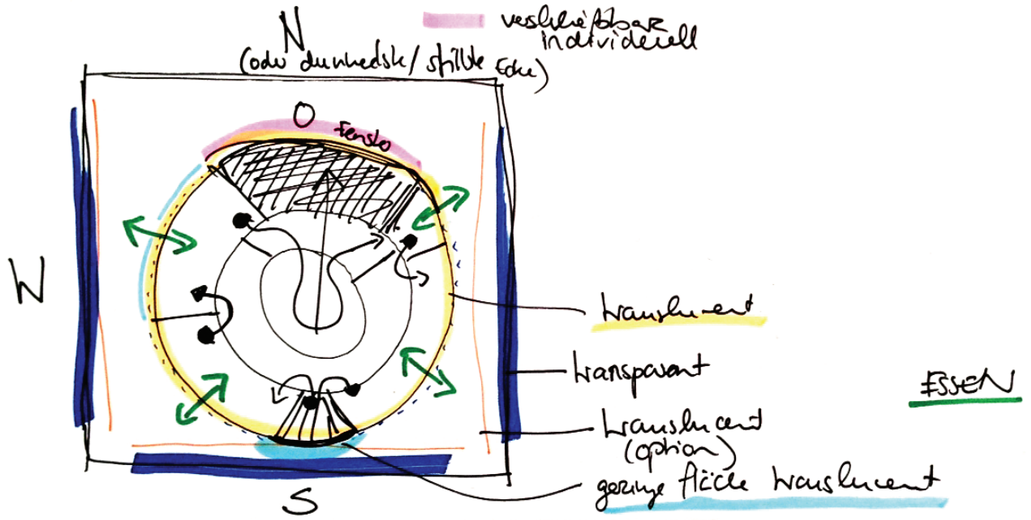
Sleepiness Phase





Sketch of the Light Design in the Space

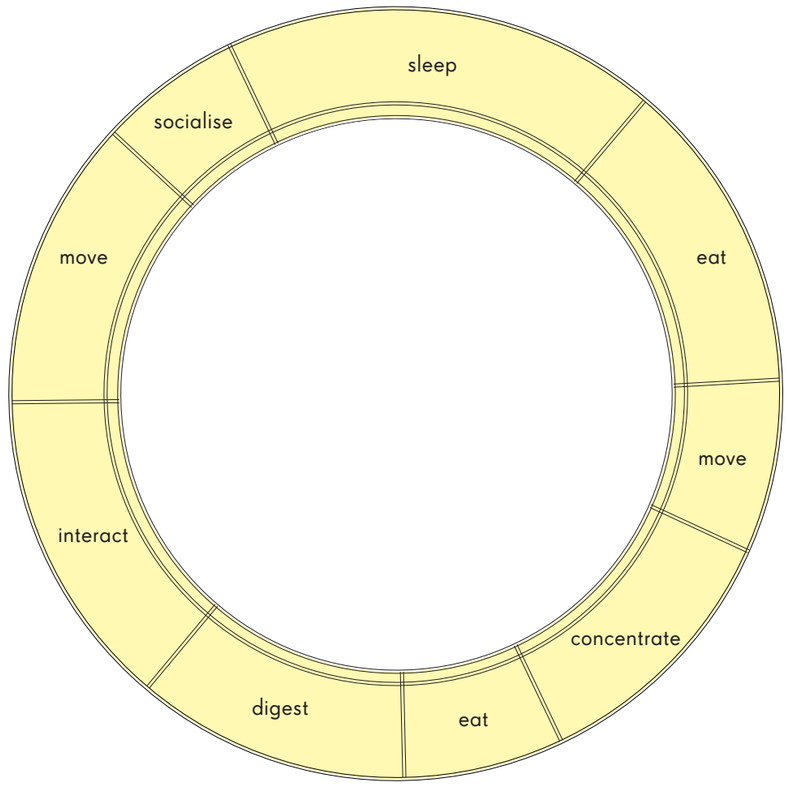




E

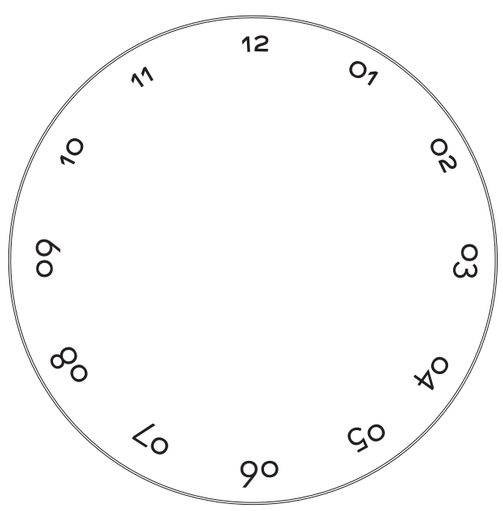
CIRCADIAN SPACE CONCEPT

Circadian Space.
A biotemporal
and sociotemporal
living space



Circadian Rhythm.
A biological rhythm that persists under constant conditions with a period length of around a day. From Latin circa and diem, 'about a day'.

Clock Time.
'Time is a social construct, developed by all of us together.' Norbert Elias



Uchronia. A hypothetical time that only exists in the imagination. Coined from utopia, Greek for ‘u-topos’ meaning ‘no place’; correspondingly the term u-chronos meaning ‘no time’.

Project Idea.

Six to eight people share a temporary space over the period of two to three weeks.

The cyclic space reflects the human circadian rhythm as well as the social time of the clock.

No clocks, calendars or other reminders of societal time are allowed.

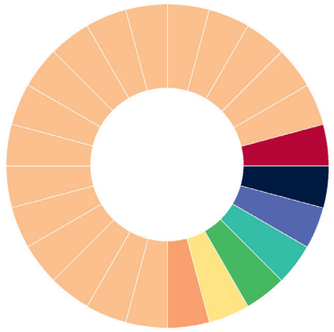
The inhabitants can walk through the space in their own speed, following their personal rest-activity rhythm.

Project Outcome.

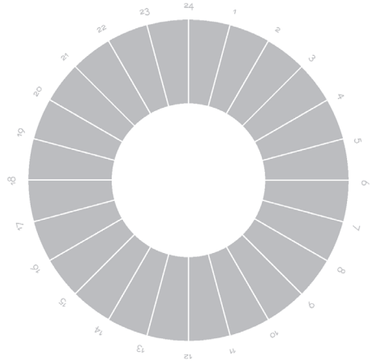
The research is intended to offer homeo-rhythmic and dynamic synchronisation processes that challenge today’s seemingly superhuman and unalterable temporal system.

The aim of the project is to stimulate discussion and debate on the temporal patterning of social life by suggesting an alternative based on the complex timing system within the human body.

Project Goal. ‘A new rhythmicity in the way we ‘eat, sleep, breath, use energy, digest, think, concentrate, communicate, and interact’. Barbara Adams



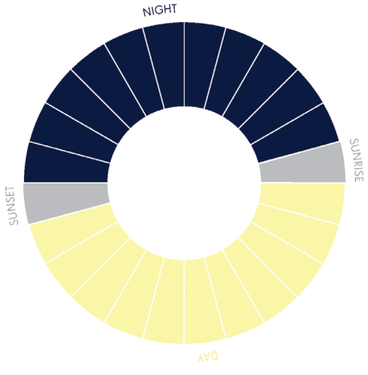
CircadianSpace. A biotemporal experiment



Social time: The uniformaty of the 24-hour day.

"When I was alive, I believed — as you do — that time was at least as real and solid as myself, and probably more so. I said 'one o'clock' as though I could see it, and 'Monday' as though I could find it on the map; and I let myself be hurried along from minute to minute, day to day, year to year, as though I were actually moving from one place to another. Like everyone else, I lived in a house bricked up with seconds and minutes, weekends and New Year's Days, and I never went outside until I died, because there was no other door. Now I know that I could have walked through the walls."

Peter Beagle, The Last Unicorn



Natural time: Example of a day-and-night rhythm in London on Mar 18, 2014.
Sunrise: 6:08 a.m., Sunset: 6:10 p.m., Daylength: 12h 1min 47s.
Source: http://www.timeanddate.com

Concept

Within the last 200 years, the Western world has gone through a process of transformation from an agricultural to an urbanised 24/7 society. The shift in dominance from natural time to the mechanical clock has significantly influenced social rhythms.

Modern technology has led to an increasing temporal fragmentation, heralding an era of 'flexible time' with ever more complex processes of synchronisation. The natural rhythm of the body clock, however, conflicts with such contemporary structures.

Human circadian rhythm: performance of a morning person.
Source: 'Rhythms of Life', Russell Foster & Leon Kreitzman, 2004.

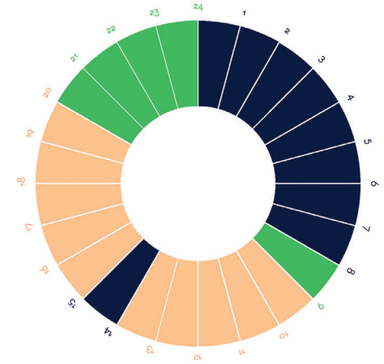
This project attempts to bring together the three subject areas of design, chronobiology (study of biological rhythms) and chrono-sociology. It suggest an alternative time system based on the circadian rhythm.

The circadian rhythm (from Latin circa and diem, 'about a day') is a biological rhythm that persists under constant conditions with a period length of around a day.

In the diagram, the rhythms of performance are displayed.

■ = maximum performance

□ = minimum performance



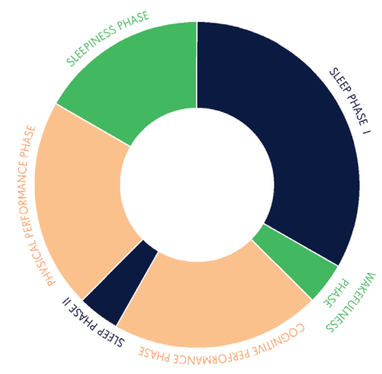
A classification of the human circadian rhythm into six phases.

The performance of the human body and consequently the circadian rhythm can be divided into approximately six distinct phases of sleep, transition and activity.

■ = sleep phases
0-8h: deepest sleep
14-15h: lunchtime nap

■ = transition phases
9h: wakefulness
21-24h: sleepiness

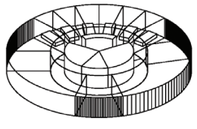
■ = active phases
10-13h: peak in cognitive skills
16-20h: peak in physical performance



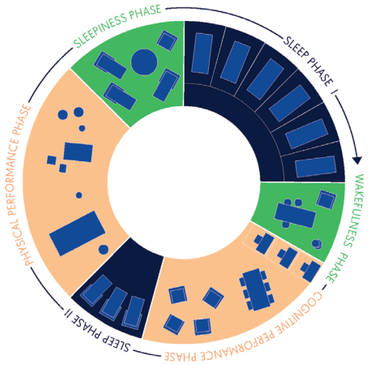
First spacial model: The human circadian rhythm is directly translated into an architectural space (e.g. 8h of sleep = 1/3 of the space).

Space

The thinking behind the project is that the scheme of the circadian rhythm is translated into an experimental installation. Similar to the social construct of time represented by the symbol of the clock, the circular architectural space represents the body clock.



In a week long experiment, six participants are asked to live in this newly designed environment, pursuing their own independent rhythms, irrespective of the present-day temporal organisation through clocks and calendars.



Circadian space: The room layout shifts in relation to the requirements of space (e.g. 8h of sleep = 1/4 of the space).

Experiment

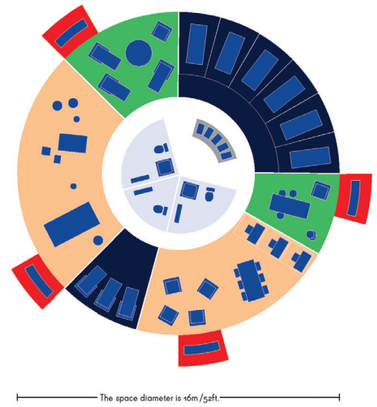
Six participants live together in the space over the period of one week.

The space is divided into six rooms/ phases that form a closed loop.

The waking direction is clock-wise.

Each of the rooms serves a different function (e.g. sleep, wake-up, concentrate, nap, move and rest).

The six participants pass through the various phases, each at their preferred speed, according to their own rest and activity rhythm.

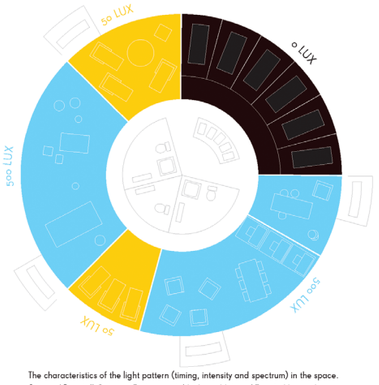


In a 'timeless zone' (inner and outer circle), four nutrition zones, three sanitary zones and one storage space for all personal belongings are located. The white space represents the hallway.

= nutrition zone
In these areas food and drinks are availible 24/7.

= sanitary zone
Bathroom facilities are accessible 24/7.

= personal zone
Every participant owns a locker to store clothes, books and other personal objects, accessible 24/7.



The characteristics of the light pattern (timing, intensity and spectrum) in the space.
Source: 'Crosstalk Between Environmental Light and Internal Time in Humans', Antonio Martinez-Nicolas, et al., 2011).

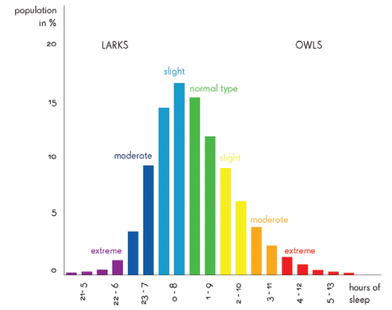
Light

For the body natural light is the most influential time-giver to synchronise the internal to the external day. However, Westerners spend less than one hour outside on workdays and less than three hours on weekends. As a result, the impact of natural light (10,000 to 130,000 Lux) on the body is decreasing, and the low light intensity indoors (<1000 Lux) is not compensating for the shortage. The consequence is a desynchronisation of the internal time from the natural rhythm. The space therefore reflects this. It has no outdoor accessand only external light through windows, carefully regulated. This combines with internally regulated light adjusted to the rest-activity phases, never exceeding standard indoor light.

= full spectrum light

= non blue light

= no light



The distribution of chronotypes in the population.
Source: Prof. Dr. Till Roenneberg, Institute of Medical Psychology, LMU Munich, 2003.

Participants

Through the low exposure to external light in the space, specific chronotypes (internal timing type) take on greater significance, from the extreme early types rising at 4 a.m. to the very late risers at 1 p.m. This graph shows the distribution of various chronotypes.

For the space experiment six different chronotypes are chosen and instructed to follow their inner rhythm.

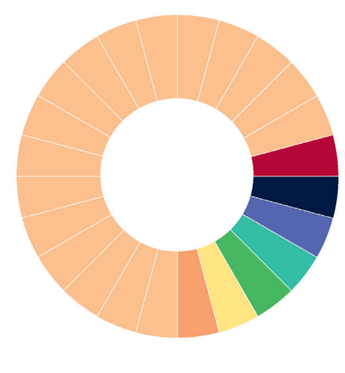
Each type is asked to wear a specific colour over the course of the week. The normal type, for instance, wears only green clothes while the extreme late type is dressed all in red.

Documentation

The project is documented 24/7 through video (bird's-eye view, without sound). The single-coloured dress code of the chronotypes allows the viewer to plot the diverse rhythms of the participants. In the form of a large-scale circular projection, the documentation of the experiment is shown in exhibitions. In addition, the movement patterns of the six inhabitants are collected and a live blog, written by the participants, provides an insight into their experience.

= area of filming

The documentation of the experiment focuses on the rhythms of the individuals and not in the least on interpersonal relationships (in contrast to Big Brother).



Thank you for your time.

Helga Schmid
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London, NW10 5QG
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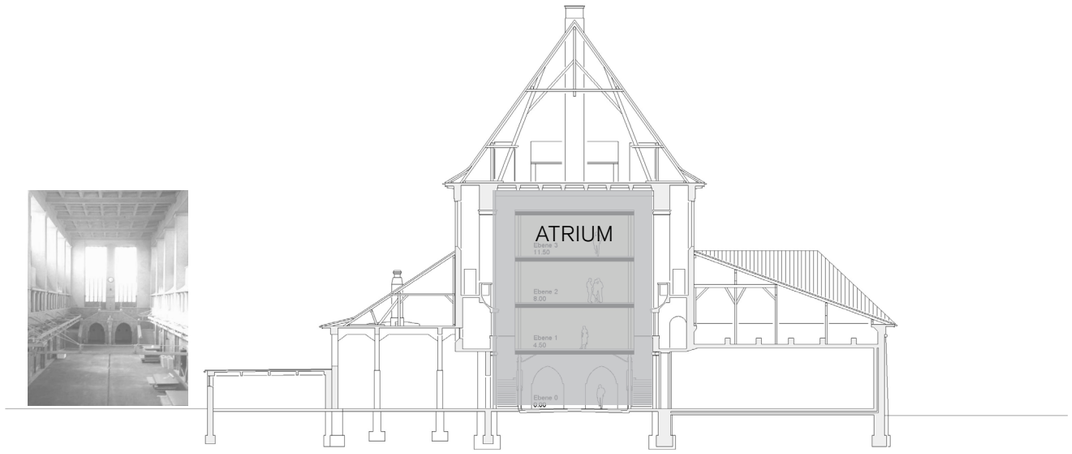
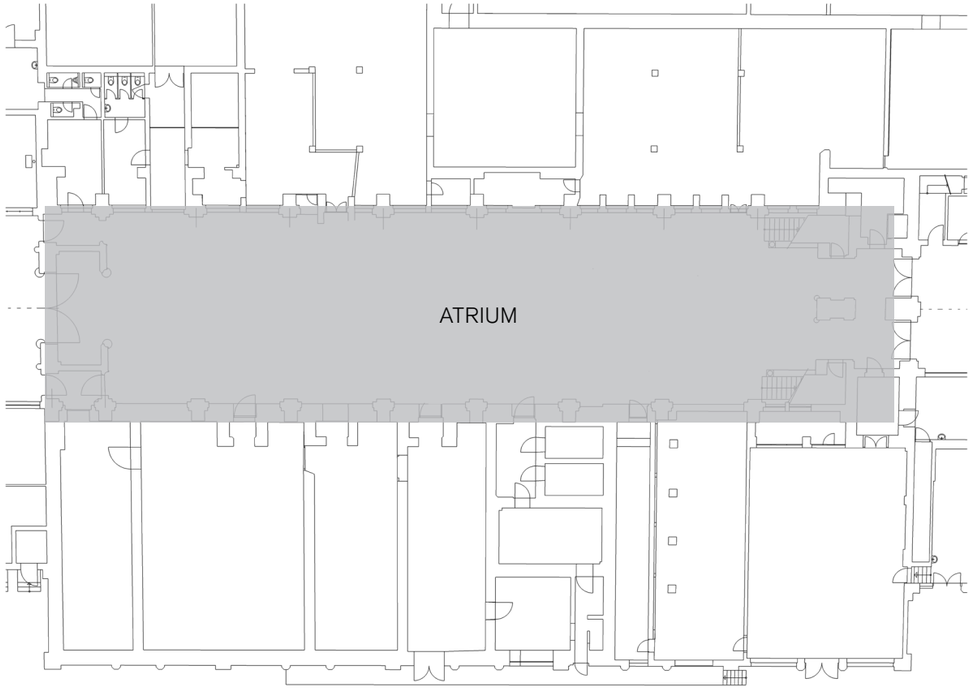
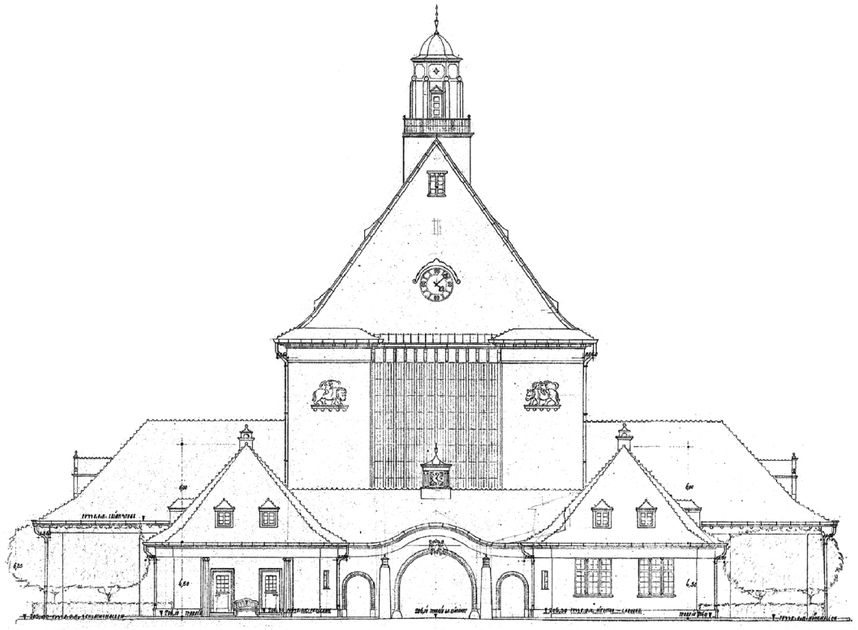
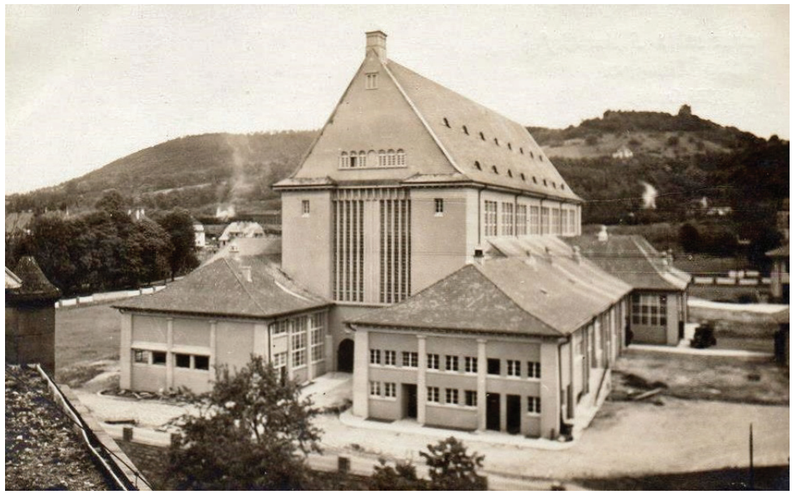
helga.schmid@network.rca.ac.uk



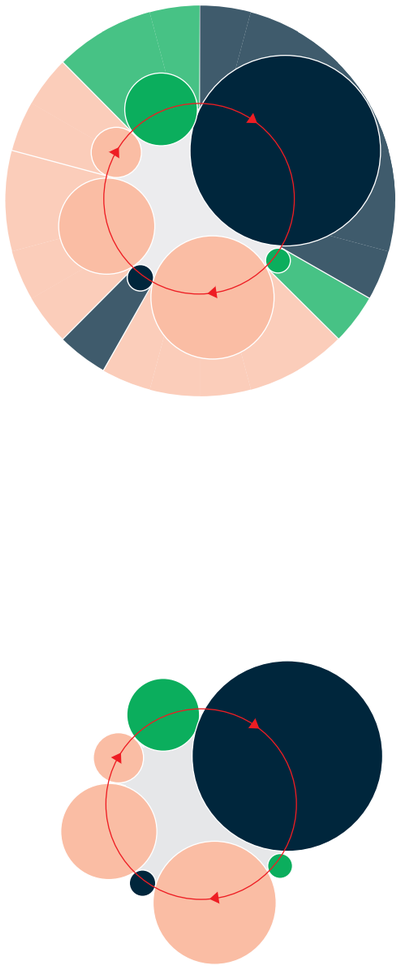


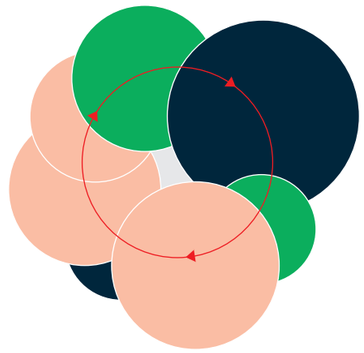
Plans for the Project Realisation in the Old Abattoir,
ChronoCity, Bad Kissingen

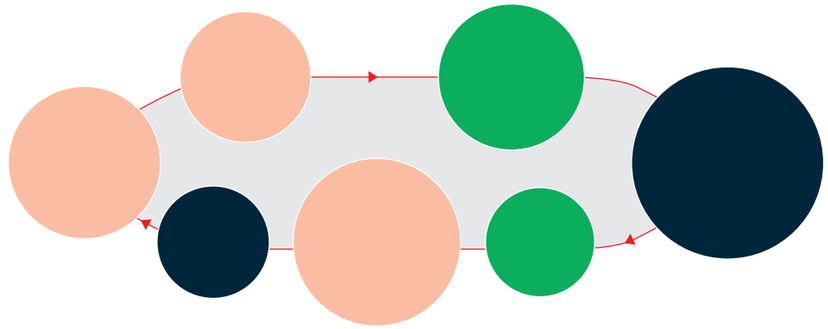


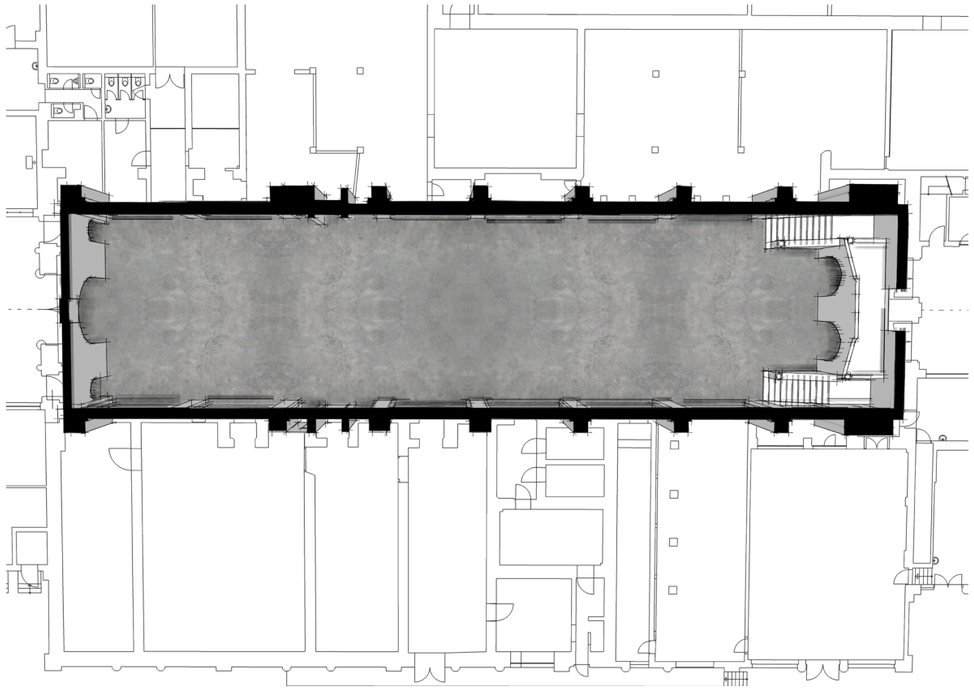


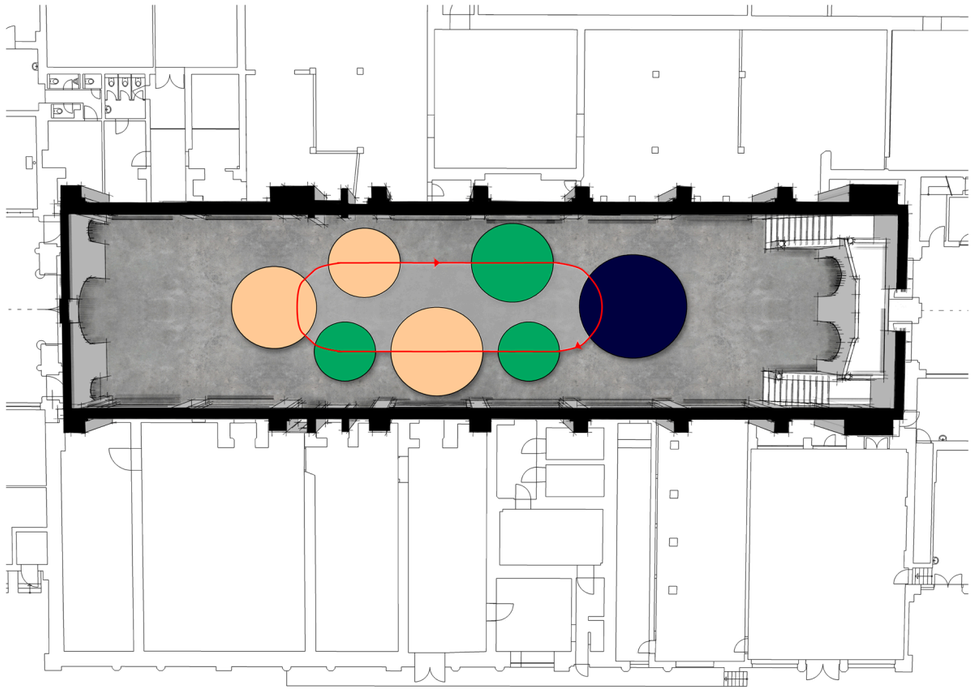
Translation of the Circadian Space Concept: from a Circle to a Loop

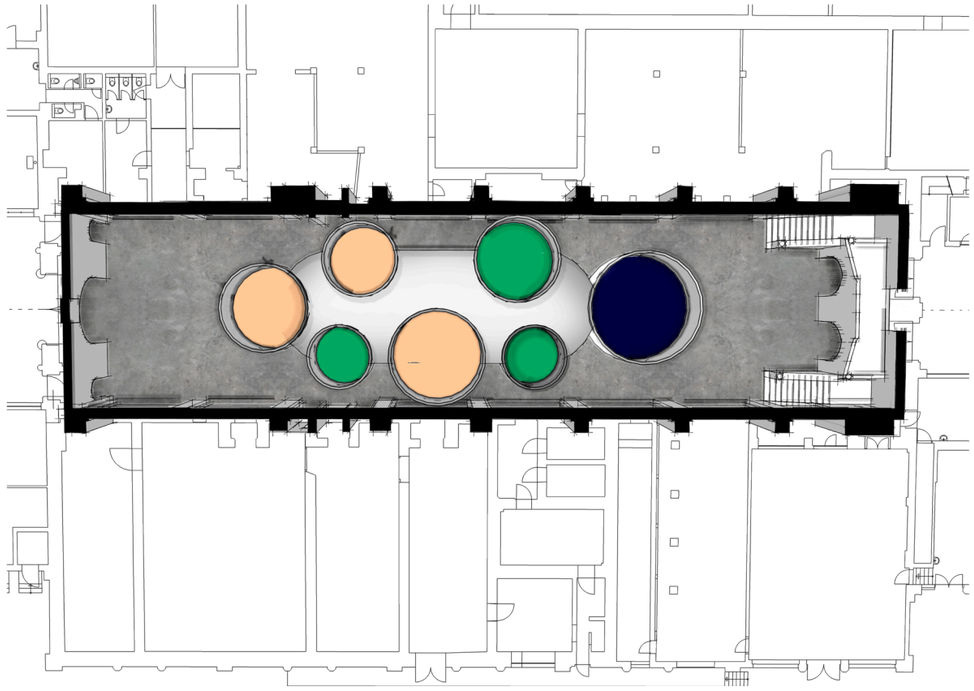


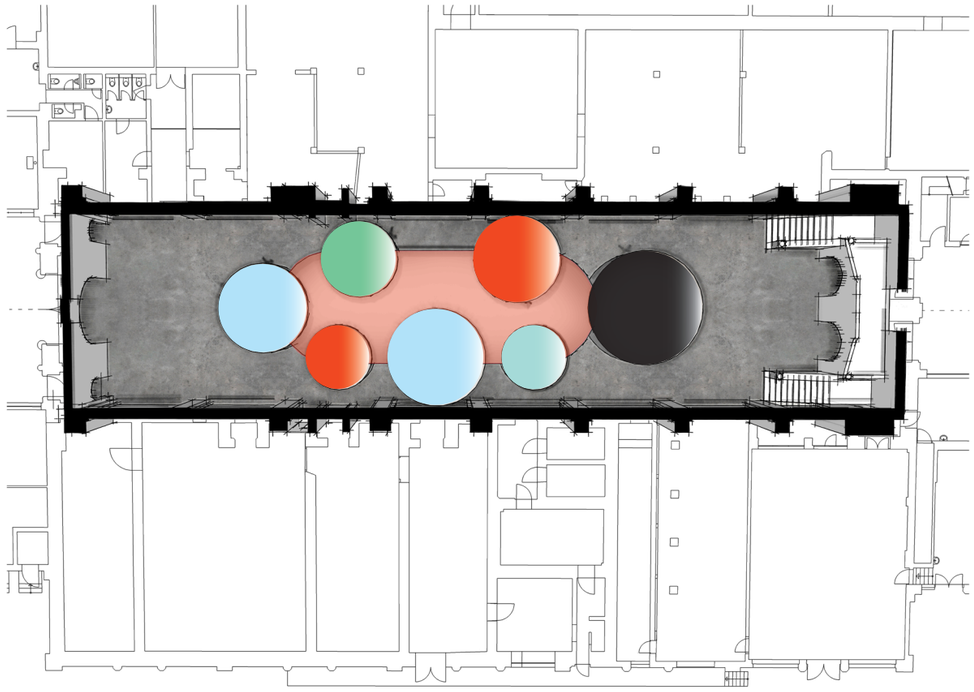


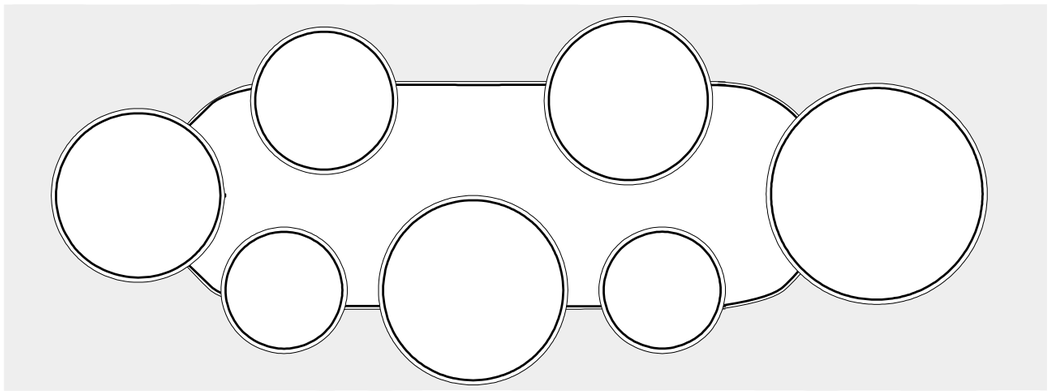


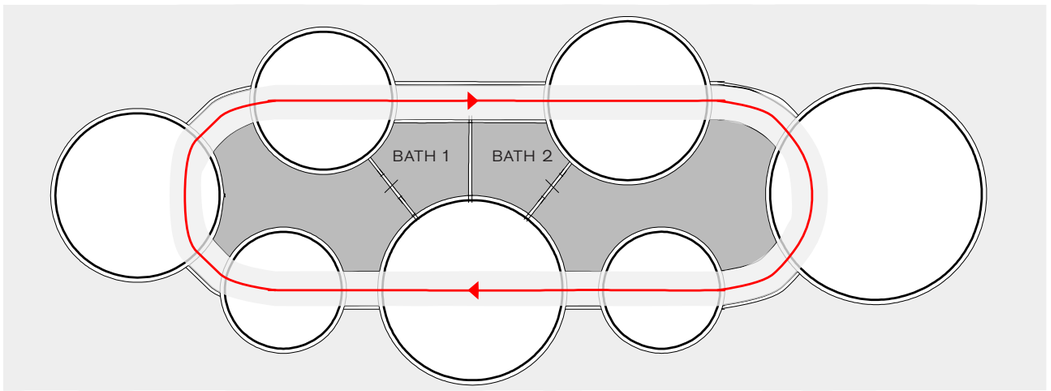


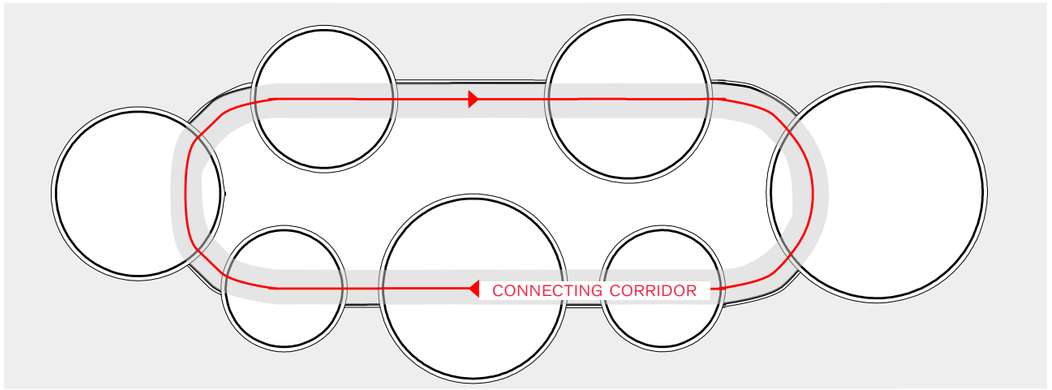


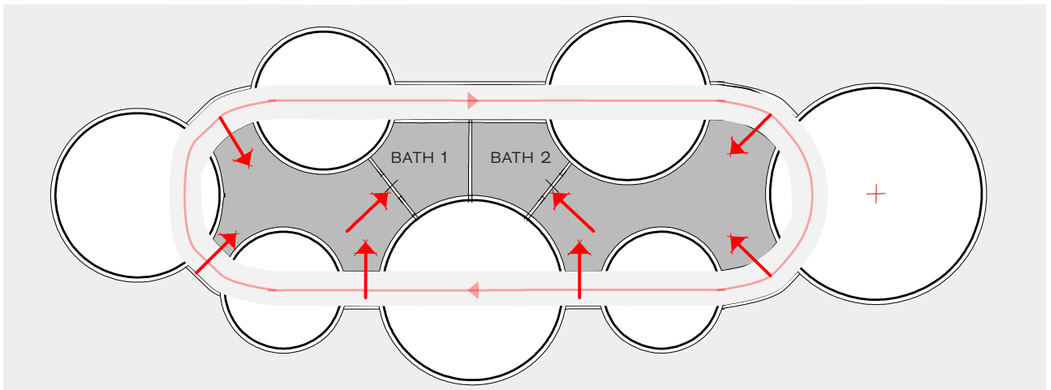







BATH 1
BATH 2


CONNECTING CORRIDOR


BATH 1
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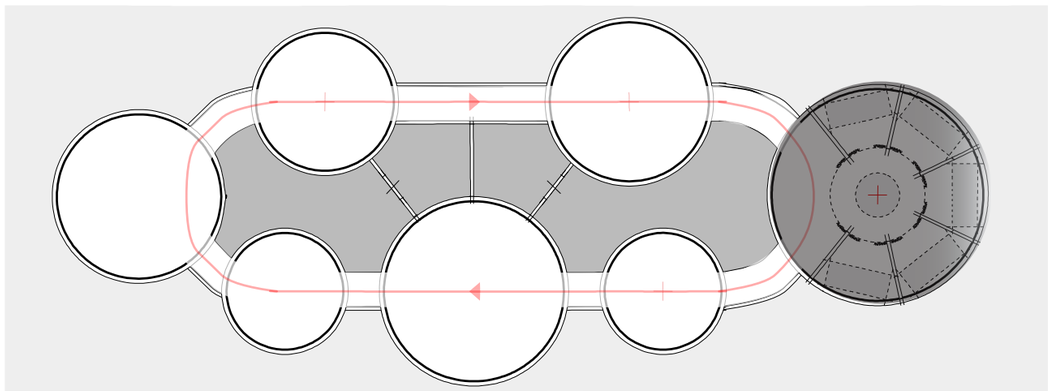
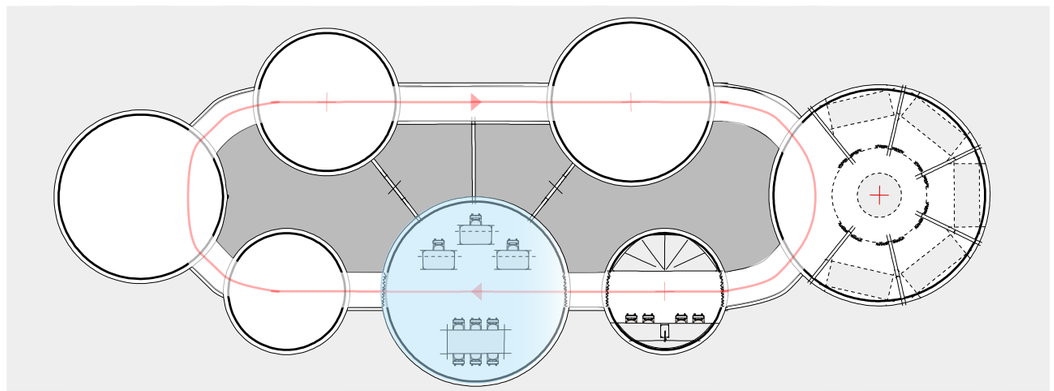
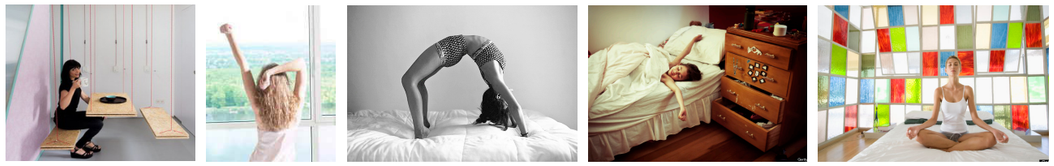
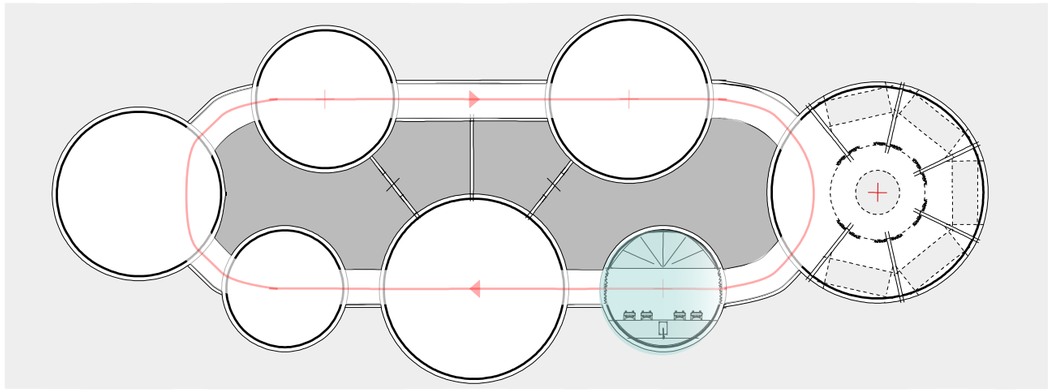


Room 1: Sleep Phase

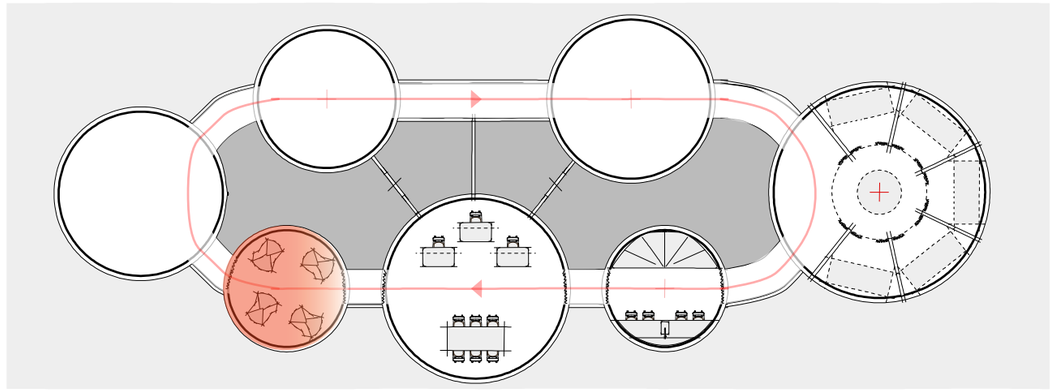


Room 4: Cognitive Performance Phase

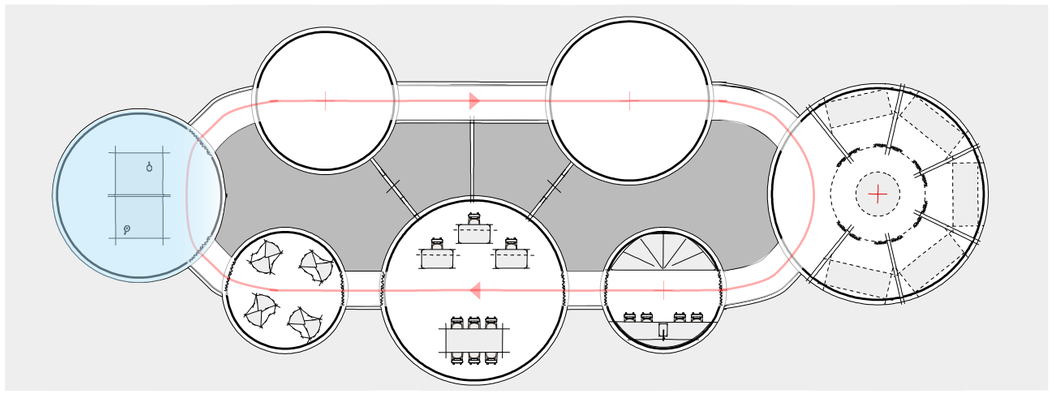




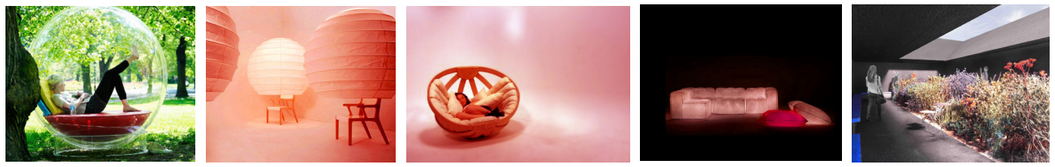
Room 2: Wake-up Phase

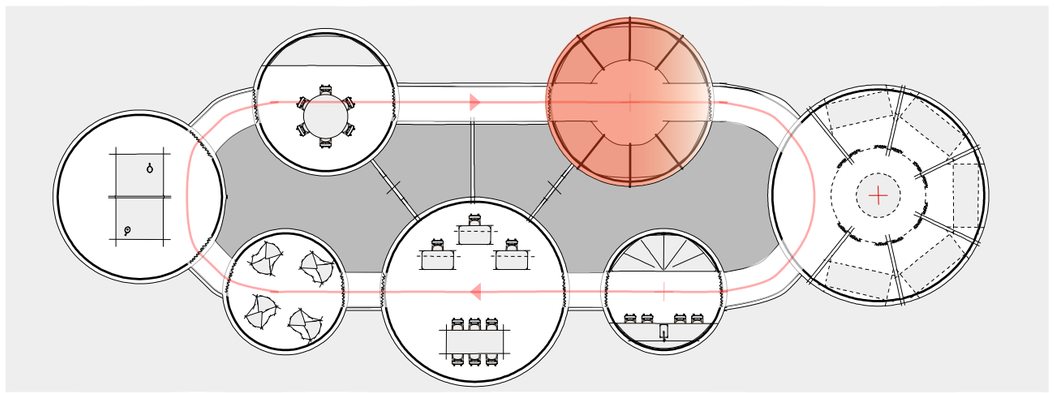


Room 4: Nap Phase

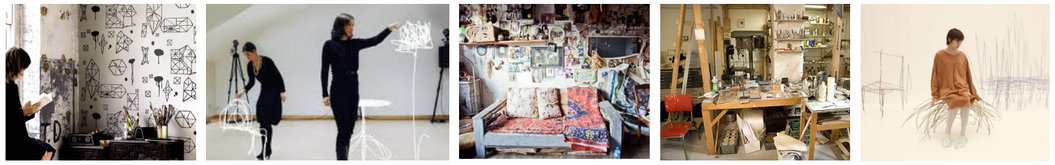


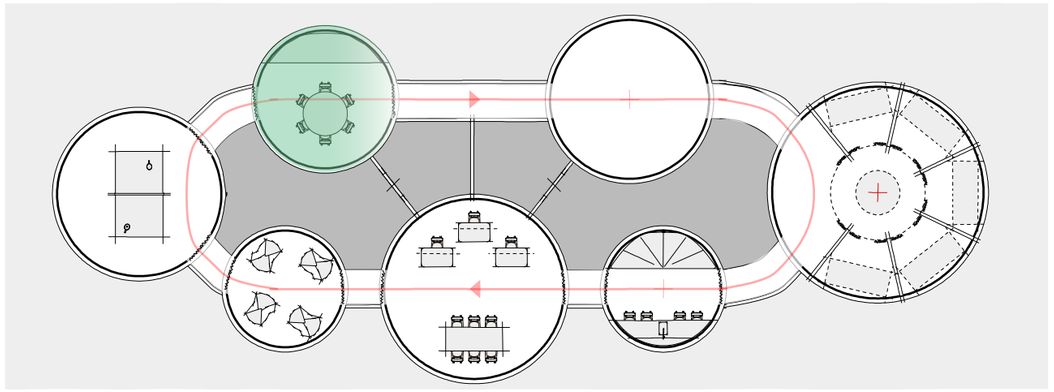
Room 5: Physical Performance Phase





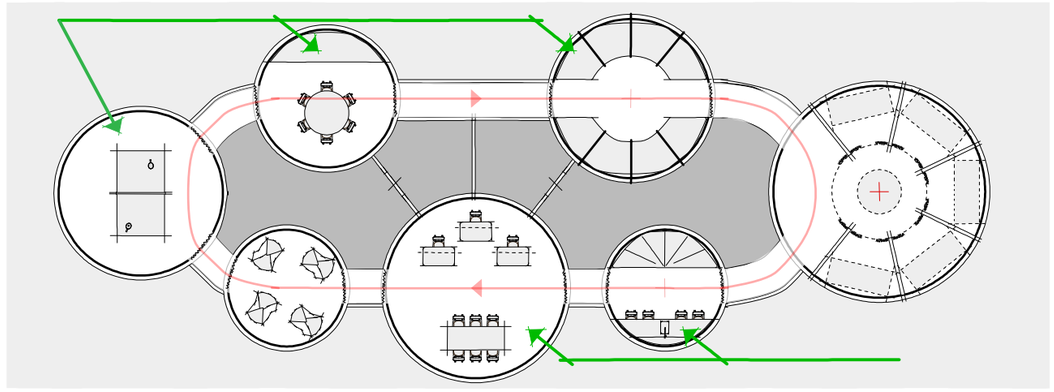
Room 7: Sleepiness Phase





Room 6: Intuitive Phase

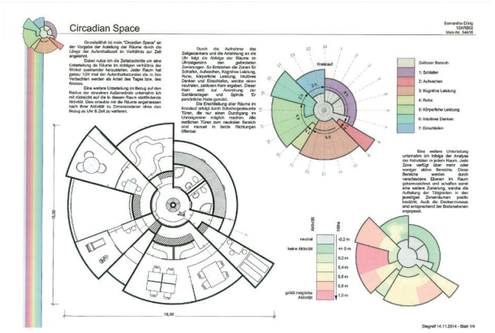
Service Hatch for Food

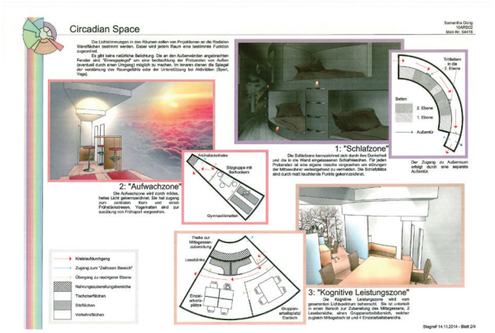


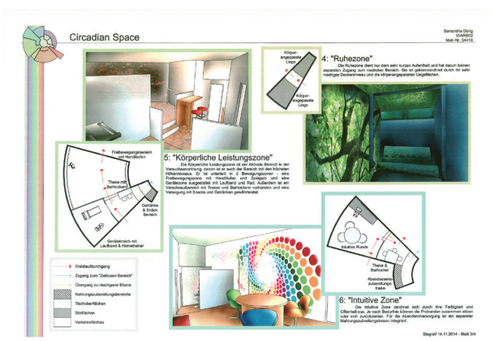
Service Hatch for Food

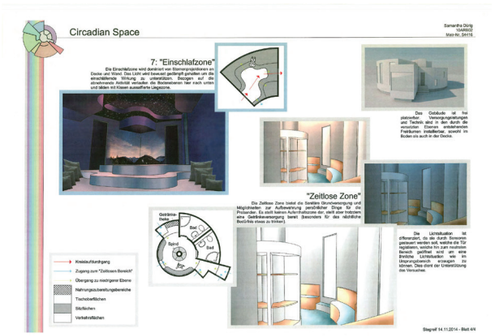
F

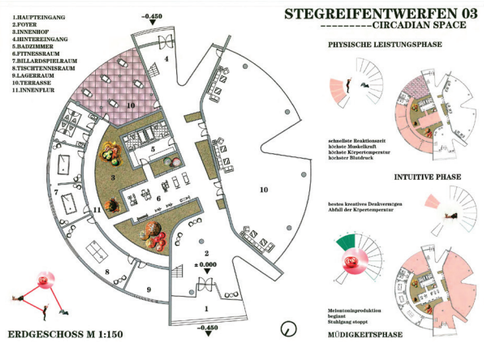
ARCHITECTURAL WORKSHOP

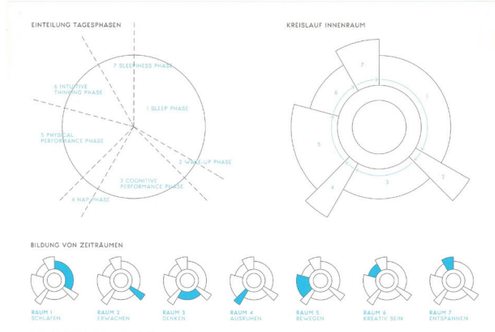

Circadian Space
Samantha Döring
Matr.Nr. 64419
Grundidee ist es, eine "Circadian Space" als
der Vorgabe der Aufteilung der Räume durch die
Uhrzeit und Aufenthaltsdauer in Verbindung zur Zeit
stehend.
Dabei nutze ich die Zeitabschnitte um eine
Unterteilung der Räume in Kreisform, welche sich im
Winkel zueinander herausbilden, indem Raum bei
genau 12/24 Uhr der Aufenthaltszeit/den ich in ihn
verbringen werden als Anfang des Tages bzw. des
Kreises.
Eine weitere Unterteilung im Bezug auf den
Raum, welcher sich in Kreisform um die Uhr bildet,
mit Hinblick auf die in diesem Raum stattfindende
Aktivität. Dies erlaubt mir die Räume angemessen
zu gestalten, um so die Aufenthaltsdauer dieser dem
Bezug am Ort & Zeit zu verbinden.
Durch die Aufteilung des
Zeitgerüstkreises und die Anordnung an die
Uhr folgt die Abfolge der Räume in
Kreisform. Diese sind in verschiedene
Zonierungen, bis Einbringen der Zonen für
Schlafen, Aufwachen, Kognitive Leistung,
Ruhe, Körperliche Leistung, Intuitive
Denken und Einschlafen, welche einen
reinheiten, zeitlichen Kern ergeben. Dieser
Kern ist für Aktivitäten wie Essen,
Gemeinschaften und Spiele für
persönliche Weiterentwicklung.
Die Anordnung einer Räume im
Kreislauf erfolgt durch Aufenthaltsgebunde
Dinge, die nur einen Durchgang im
Kreislauf haben, wie Flure, Treppen und
weitere Türen zum nächsten Bereich
oder Hemd in beide Richtungen
offenbar.
Kreislauf
Zeitlicher Bereich
1: Schlafen
2: Aufwachen
3: Kognitive Leistung
4: Ruhe
5: Körperliche Leistung
6: Intuitive Denken
7: Einschlafen
Eine weitere Unterteilung
unternahm ich infolge der Analyse
der Aufenthaltsdauer, wo jede
Zone verfügt über mehr oder
weniger aktive Bereiche. Diese
können in verschiedene
verschiedene Ebenen im Raum
gekennzeichnet und schaffen somit
eine weitere Abstufung in der
Aufteilung der Tätigkeiten in den
jeweiligen Zonenräumen (mehr
Ruhe, mehr Aktivität) und
sind entsprechend der Bedürfnissen
angepasst.
neutral
keine Aktivität
größt mögliche Aktivität
Abstand
Wert
+0,2 m
+/- 0 m
0,2 m
0,4 m
0,6 m
0,8 m
1,0 m
Stegreif 14.11.2014 - Blatt 1/4

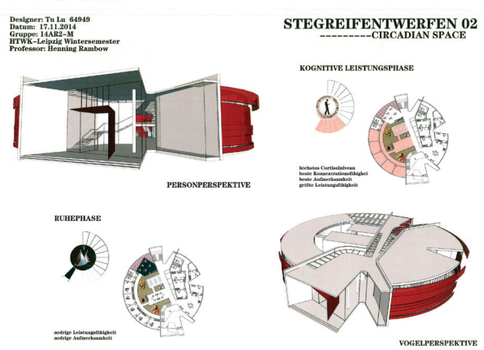

Circadian Space
Samantha Döring
Matr.Nr. 64419
Die Lichteinmessen in den Räumen sollen von Projektionen an die Wänden
Veränderungen bestimmt werden. Dabei wird jedem Raum eine bestimmte Funktion
zugeordnet.
Es gibt keine natürliche Beleuchtung. Die an den Außenwänden angebrachten
Fenster sind "Scheinfenster" mit einer Nachbildung der Projektion von Außen
(eventuell durch einen Umgang) möglich so machen. Im binnen dienen die Spiegel
der Verstärkung des Raumgefühls oder der Unterstützung bei Aktivitäten (Sport,
Yoga).
2: "Aufwachzone"
Die Aufwachzone soll durch sehrhelles
helles Licht gekennzeichnet. Sie hat zugang
zum zentralen Kern von einer
Schiebetür/Schiebetüren getrennt und bei
Annäherung mich Prämgrid eingeschlossen.
Schiebetür/-türen
Sitzgruppe mit Büchsofern
Gymnastikmatten
1: "Schlafzone"
Die Schlafzone kennzeichnet sich durch ihre Dunkelheit
und da in die Wand angebrachten Schallfenstern. Für jeden
Raum ist ein Schlafzone vorgesehen, welche sich durch
die Mehrzahlerer verbindgeformt zu vermeiden. Die Schlafzone
sind durch matt leuchtende Punkte gekennzeichnet.
Schiebetür in die 2. Ebene
Seiten
2. Ebene
1. Ebene
Außenflur
Der Zugang zu Außenraum
erfolgt durch eine separate
Außentür.
Kreislaufrichtung
Zugang zum "Zeitlosen Bereich"
Übergang zu niedrigerer Ebene
Nahrungsaufenthaltsgebereiche
Tischtischflächen
Stehflächen
Verkehrsflächen
3: "Kognitive Leistungszone"
Die Kognitive Leistungszone wird vom
gemeinschaftlichen Kern durch eine Schiebetür
in einer Bereich zur Zuteilung des Mitlagerraum, d.
Lesebereiche, einem Gruppenschülbereich, welcher
zugleich Mitlagerfläch ist und 4 Einzelarbeitsbereiche.
Stegreif 14.11.2014 - Blatt 2/4

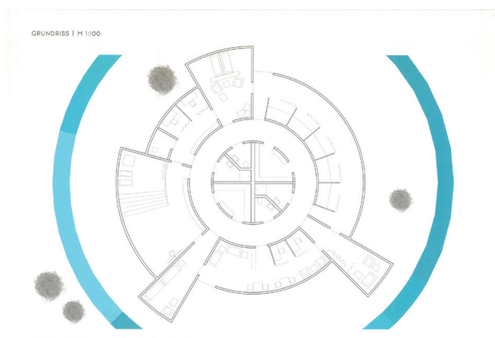

Circadian Space
Samantha Döring
Matr.Nr. 64419
4: "Ruhezone"
Die Ruhezone liegt nur dem sehr nurzen Aufenthalt und hat darum keinen
separaten Zugang zum nächsten Bereich. Sie ist gekennzeichnet durch ihr sehr
niedrige Deckenhöhe und die Hängesitzgelegenheit Liegeflächen.
Körper-angepasste Liege
Körper-angepasste Liege
5: "Körperliche Leistungszone"
Die Körperliche Leistungszone ist der nächste Bereich in der
Verweilbestimmung, darum ist er auch der Bereich mit den höchsten
Deckenhöhen. Er ist der Bereich, in dem sich alle Aktivitäten mit
Freibewegungszone mit Handlichen sind. Eingang und alle
Gerätezone ausgestattet mit Laufband und Rad. Außerdem ist ein
Gymnastikbereich mit Matten und Sprossenwand vorhanden und eine
Verbindung mit Dusche und Garderoben gewährleistet.
Freibewegungsbereich mit Handflächen
Theke mit Barhocker
Garderobe & Schließ-Bereich
Sonnenbereich mit Laufband & Hantelständer
6: "Intuitive Zone"
Die Intuitive Zone zeichnet sich durch ihre Farbigkeit und
Offenheit aus. Je nach Bedürfnis können die Profunden zusammen einen
oder sich zurückziehen. Für die Abendbeleuchtung ist ein separater
Beleuchtungsmöglichkeitsgebiet integriert.
Kreislaufrichtung
Zugang zum "Zeitlosen Bereich"
Übergang zu niedrigerer Ebene
Nahrungsaufenthaltsgebereiche
Tischtischflächen
Stehflächen
Verkehrsflächen
Stegreif 14.11.2014 - Blatt 3/4


Circadian Space
Samantha Döring
Matr.Nr. 64419
7: "Einschlafzone"
Die Einschlafzone wird durch ein Sternenprojektionen als
Decke und Wand. Das Licht wird abgesenkt und ermöglicht eine
entschleichende Wirkung zu unterstützen. Bezogen auf die
Aufenthaltsdauer ist die Besonderheit hier nicht vorhanden
und daher mit Kissen ausreichend ausgestattet.
Das Oddsofa ist frei
platziert und kann durch Schiebetüren
und Tischen wird in den durch die
einzelnen Ebenen entstehenden
Bereichen eingeteilt. Es wurde so
Boden als auch in der Decke.
"Zeitlose Zone"
Die Zeitlose Zone bietet die
Möglichkeiten zur Aufbewahrung persönlicher Dinge für den
Profunden. Es stellt keinen Aufenthaltszone dar, stellt aber trotzdem
eine Verbindungsverlegung heart. Besonders für den täglichen
Bed. Gebrauch zu nutzen.
Die Lärmkulisse ist
differenziert, da die durch funktionale
Gegebenheiten, wie Lüftung, Licht, Heizung
regulieren, welche hin zum nächsten
Bereich geöffnet wird am eine
Lärmkulisse zu erzeugen, die
Orientierung ermöglicht. Dies dient der Orientierung
des Verlaufes.
Gedränge-Hocker
Kreislaufrichtung
Zugang zum "Zeitlosen Bereich"
Übergang zu niedrigerer Ebene
Nahrungsaufenthaltsgebereiche
Tischtischflächen
Stehflächen
Verkehrsflächen
Stegreif 14.11.2014 - Blatt 4/4

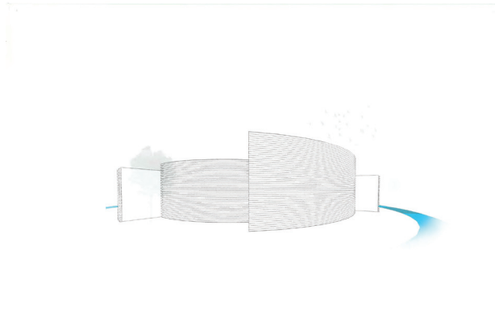

1.HAUPTEINGANG
2.FOYER
3.INNENHOF
4.HINTEREINGANG
5.BADEZIMMER
6.FITNESSRAUM
7.SELBSTSPIELRAUM
8.TISCHTENNISRAUM
9.LAGERRAUM
10.TERRASSE
11.INNENFLUR
-0.450
±0.000
-0.450
ERDGESCHOSS M 1:150
STEGREIFENTWERFEN 03
CIRCADIAN SPACE
PHYSISCHE LEISTUNGSPHASE
schnellste Reaktionszeit
höchste Muskelkraft
höchster Körpertemperatur
höchster Blutdruck
INTUITIVE PHASE
bestes kreatives Denkvermögen
Abfall der Körpertemperatur
Melatoninsignreduktion
beginnt
Blutdruck steigt
MÜDIGKEITSPHASE


EINTEILUNG TAGESPHASEN
1 SLEEP PHASE
2 CIRCULAR PHASE
3 COGNITIVE PERFORMANCE PHASE
4 NAP PHASE
5 PHYSICAL PERFORMANCE PHASE
6 INTUITIVE THINKING PHASE
7 SLEEPINESS PHASE
KREISLAUF INNENRAUM
BILDUNG VON ZEITRÄUMEN
RAUM 1 SCHLAFEN
RAUM 2 ERWACHEN
RAUM 3 DENKEN
RAUM 4 AUSRUHEN
RAUM 5 BEWEGEN
RAUM 6 KREATIV SEIN
RAUM 7 ENTSPANNEN


Designer: Tu La 64949
Datum: 17.11.2014
Gruppe: 14AR2–M
HTWK–Leipzig Wintersemester
Professor: Henning Rambow
STEGREIFENTWERFEN 02
CIRCADIAN SPACE
KOGNITIVE LEISTUNGSPHASE
höchstes Cortisolniveau
beste Konzentrationsfähigkeit
beste Aufmerksamkeit
größte Leistungsfähigkeit
PERSONPERSPEKTIVE
RUHEPHASE
niedrige Leistungsfähigkeit
niedrige Aufmerksamkeit
VOGELPERSPEKTIVE


GRUNDRISS I M 1:100

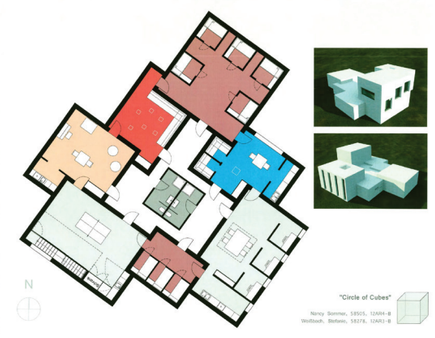

1.FOYER OBEN
2.INNENHOF
3.SCHLAFZIMMER
4.KÜCHE
5.WOHNZIMMER
6.LAGERRAUM
7.GEMEINSAMER ATLIER
8.MINI BIBLIOTHEK
9.PRIVATES ATLIER
10.TERRASSE
11.INNENFLUR
-0.450
±0.000
±0.000
OBERGESCHOSS M 1:150
STEGREIFENTWERFEN 01
CIRCADIAN SPACE
SCHLAFPHASE
tiefster Schlaf
niedrigste Leistungsfähigkeit
niedrigster Körpertemperatur
AUFWACHPHASE
Melatoninsinnausschüttung stopt
hohe Cortisolausschüttung
Blutdruck steigt an
höchster Testosteronproduktion



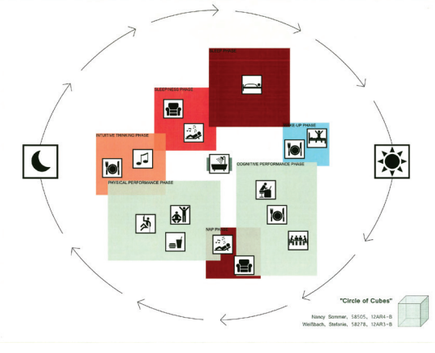
Entwurf

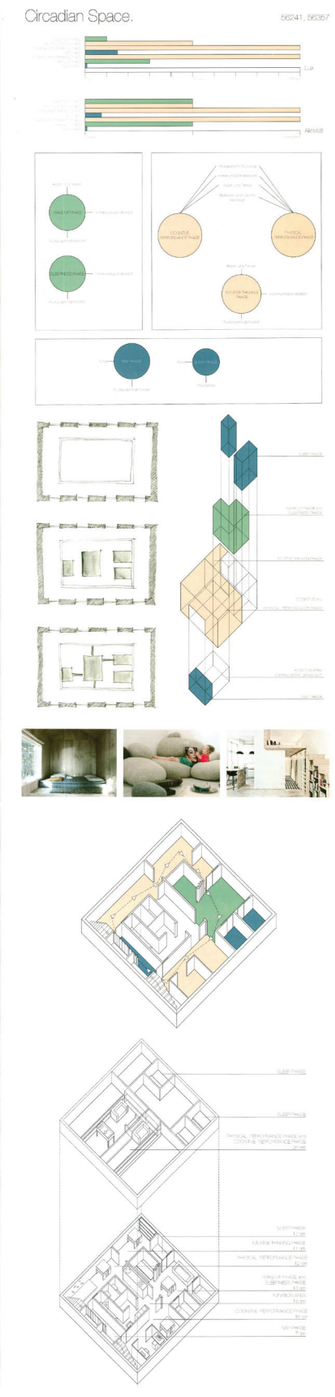
Entwurf

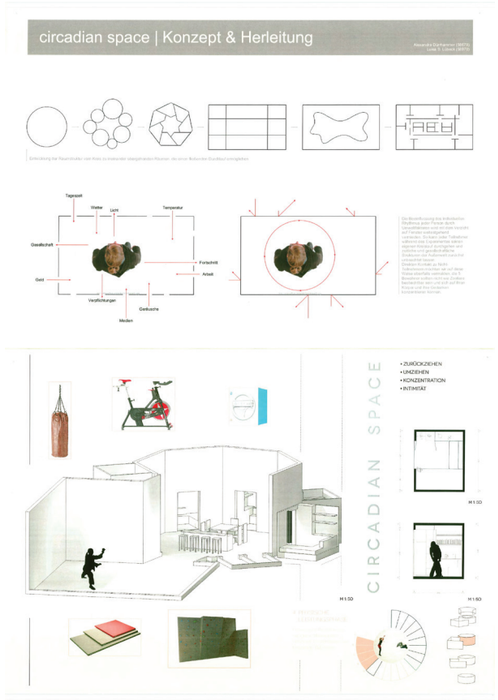
Grundriss

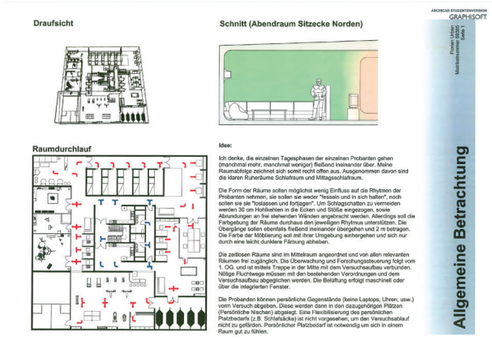


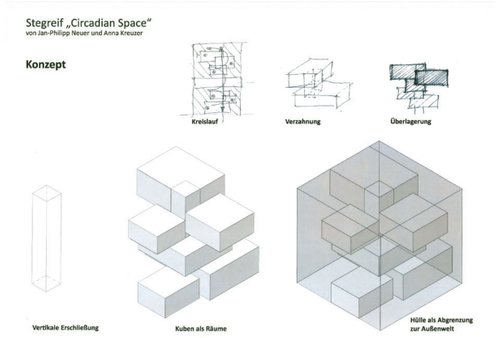
Konzept

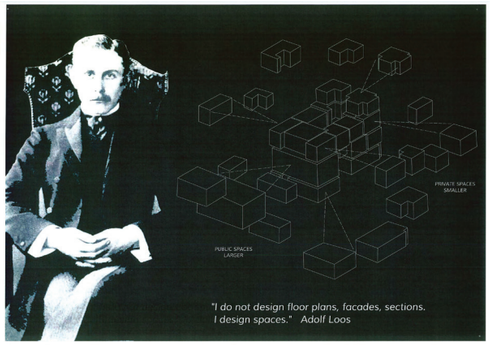


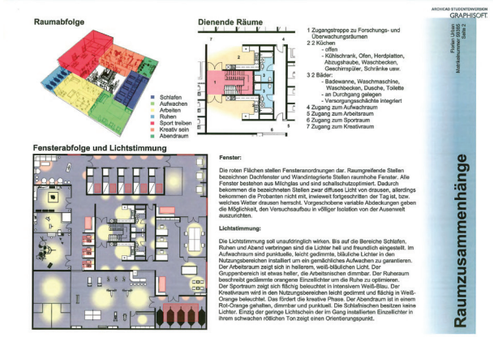





Draufsicht
Schnitt (Abendraum Sitzecke Norden)
Raumdurchlauf
Idee:
Ich denke, die einzelnen Tagesphasen der einzelnen Probanten gehen (manchmal mehr, manchmal weniger) fließend ineinander über. Meine Raumabfolge zeichnet sich somit recht offen aus. Ausgenommen davon sind die klaren Ruheräume Schlafraum und Mittagsschlafraum.
Die Form der Räume sollen möglichst wenig Einfluss auf die Rhytmen der Probanten nehmen, sie sollen sie weder "fressen und in sich halten", noch sollen sie sie "loslassen und fortjagen". Um Schlagschatten zu vermeiden werden 30 cm Hohlkehlen in die Ecken und Stöße eingezogen, sowie Abrundungen an frei stehenden Wänden angebracht werden. Allerdings soll die Farbgebung der Räume durchaus den jeweiligen Rhytmus unterstützen. Die Übergänge sollen ebenfalls fließend ineinander übergehen und 2 m betragen. Die Farbe der Möblierung soll mit ihrer Umgebung einhergehen und sich nur durch eine leicht dunklere Färbung abheben.
Die zeitlosen Räume sind im Mittelraum angeordnet und von allen relevanten Räumen frei zugänglich. Die Überwachung und Forschungssteuerung folgt vom 1. OG, und ist einfach Treppe in der Mitte mit dem Versuchsaufbau verbunden. Nötige Fluchtwege müssen mit den bestehenden Vorschriungen und dem Versuchsaufbau abgeglichen werden. Die Belüftung erfolgt maschinell oder über die integrierten Fenster.
Die Probanden können persönliche Gegenstände (keine Laptops, Uhren, usw.) vorm Versuch abgeben. Diese werden dann in den dazugehörigen Plätzen (Persönliche Nischen) abgelegt. Eine Flexibilisierung des persönlichen Platzbedarfs (z.B. Schlafsäcke) ist nicht vorgesehen, um den Versuchsablauf nicht zu gefährden. Persönlicher Platzbedarf ist notwendig um sich in einem Raum gut zu fühlen.
ARCHICAD STUDENTENVERSION
GRAPHISOFT
Poster Haus Mahlknechtweg 2009/10
Allgemeine Betrachtung


Stegreif „Circadian Space"
von Jan-Philipp Neuer und Anna Kreuzer
Konzept
Kreislauf
Verzahnung
Überlagerung
Vertikale Erschließung
Kuben als Räume
Hülle als Abgrenzung zur Außenwelt


PUBLIC SPACES LARGER
PRIVATE SPACES SMALLER
"I do not design floor plans, facades, sections. I design spaces." Adolf Loos


Raumabfolge
Dienende Räume
Schlafen
Aufwachen
Arbeiten
Ruhen
Sport treiben
Kreativ sein
Abendraum
1 Zugangstreppe zu Forschungs- und Überwachungsräumen
2 2 Küchen
- offen
- Kühlschrank, Ofen, Herdplatten, Abzugshaube, Waschbecken, Geschirrspüler, Schränke usw.
3 2 Bäder
- Badewanne, Waschmaschine, Waschbecken, Duschte, Toilette
- an Durchgang gelegen,
- Vorraumgangsschächte integriert
4 Zugang zum Aufwachraum
5 Zugang zum Arbeitsraum
6 Zugang zum Sportraum
7 Zugang zum Kreativraum
Fensterabfolge und Lichtstimmung
Fenster:
Die roten Flächen stellen Fensteranordnungen dar. Raumgreifende Stellen bezeichnen Dachfenster und Wandintegrierte Stellen raumhohe Fenster. Alle Fenster bestehen aus Milchglas und sind schallschutzoptimiert. Dadurch bekommen die bezeichneten Stellen zwar diffuses Licht von draussen, allerdings bekommen die Probanten nicht mit, inwieweit fortgeschritten der Tag ist, bzw. welches Wetter draussen herrscht. Vorgeschobene variable Abdeckungen geben die Möglichkeit, den Versuchsaufbau in völliger Isolation von der Auserwelt auszurichten.
Lichtstimmung:
Die Lichtstimmung soll unaufdringlich wirken. Bis auf die Bereiche Schlafen, Ruhen und Abend verbringen sind die Lichter hell und freundlich eingestellt. Im Aufwachraum sind punktuelle, leicht gedimmte, bläuliche Lichter in den Nutzungsbereichen installiert um ein gemächliches Aufwachen zu generieren. Der Arbeitsraum zeigt sich in hellerem, weiß-bläulichen Licht. Der Gruppenbereich ist etwas heller, die Arbeitsnischen dimmbar. Der Ruheraum beschreibt gedämmte orangene Einzelnischen um die Ruhe zu optimieren. Der Sportraum zeigt sich flächig beleuchtet in intensivem Weiß-Blau. Der Kreativraum wird in den Nutzungsbereichen leicht gedimmt und flächig in Weiß-Orange beleuchtet. Das fördert die kreative Phase. Der Abendraum ist in einem Rot-Orange gehalten, dimmbar und punktuell. Die Schlafnischen besitzen keine Lichter. Einzig der geringe Lichtschein der im Gang installierten Einzellichter in ihnen schwachen nötigen Ton zeigt einen Orientierungspunkt.
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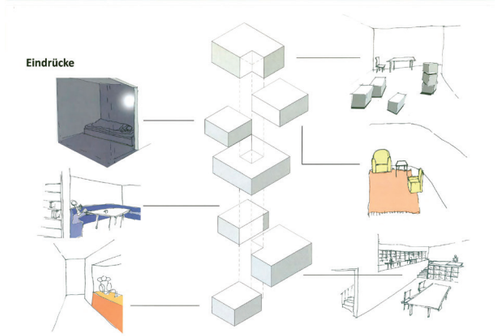
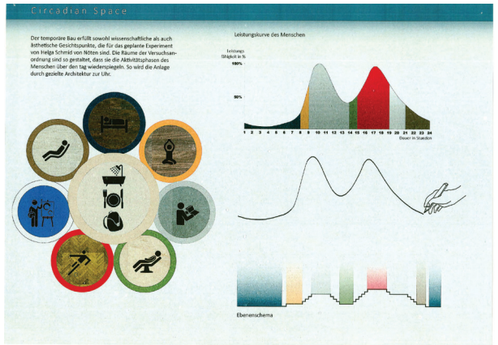
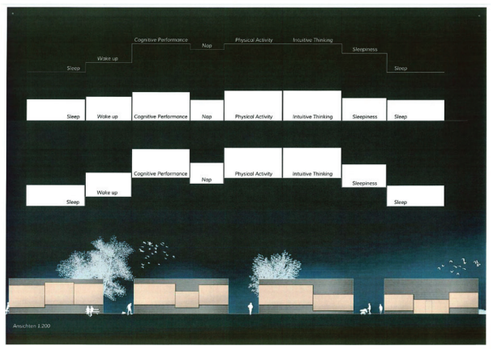
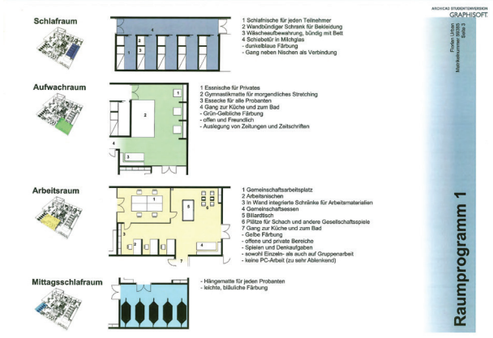
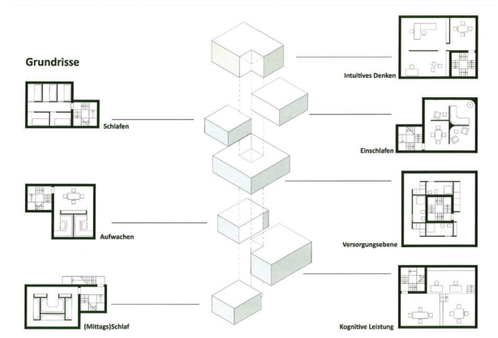
Poster Haus Mahlknechtweg 2009/10
Raumzusammenhänge

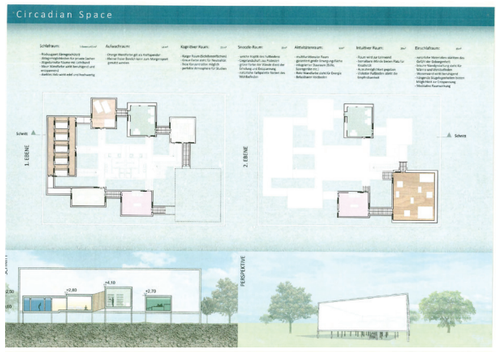

Eindrücke

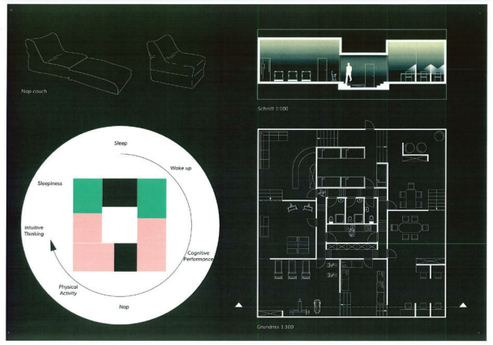

Circadian Space
Der temporäre Bau erfüllt sowohl wissenschaftliche als auch ästhetische Gesichtspunkte, die für das geplante Experiment von Helga Schmid von Nöten sind. Die Räume der Versuchsanordnung sind so gestaltet, dass sie die Aktivitätsphasen des Menschen über den tag wiederspiegeln. So wird die Anlage durch gezielte Architektur zur Uhr.
Leistungskurve des Menschen
Ebenenschema


Cognitive Performance
Nap
Physical Activity
Intuitive Thinking
Sleepiness
Wake up
Sleep
Ansichten 1:200

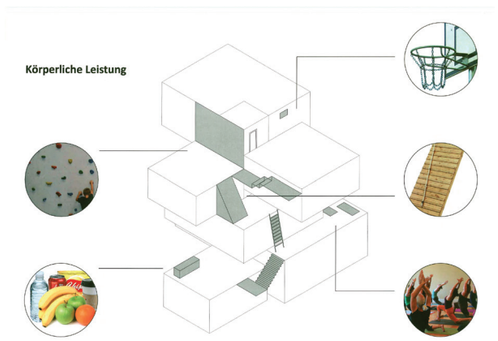

Schlafraum
1 Schlafnische für jeden Teilnehmer
2 Wandbündiger Schrank für Bekleidung
3 Wäscheaufbewahrung, bündig mit Bett
4 Schiebetür in Milchglas
- dunkelblaue Färbung
- Gang neben Nischen als Verbindung
Aufwachraum
1 Essnische für Privates
2 Gymnastikmatte für morgendliches Streching
3 Essecke für alle Probanten
4 Gang zur Küche und zum Bad
- Grün-Gelbliche Färbung
- offen und Freundlich
- Auslegung von Zeitungen und Zeitschriften
Arbeitsraum
1 Gemeinschaftsarbeitsplatz
2 Arbeitsnischen
3 In Wand integrierte Schränke für Arbeitsmaterialien
4 Gemeinschaftssessen
5 Billardtisch
6 Plätze für Schach und andere Gesellschaftsspiele
7 Gang zur Küche und zum Bad
- Gelbe Färbung
- offene und private Bereiche
- Spielen und Denkaufgaben
- soweit Einzeln- als auch auf Gruppenarbeit
- keine PC-Arbeit (zu sehr Ablenkend)
Mittagsschlafraum
- Hängematte für jeden Probanten
- leichte, bläuliche Färbung
ARCHICAD STUDENTENVERSION
GRAPHISOFT
Poster Haus Mahlknechtweg 2009/10
Raumprogramm 1


Grundrisse
Intuitives Denken
Schlafen
Einschlafen
Aufwachen
Versorgungsebene
(Mittags)Schlaf
Kognitive Leistung

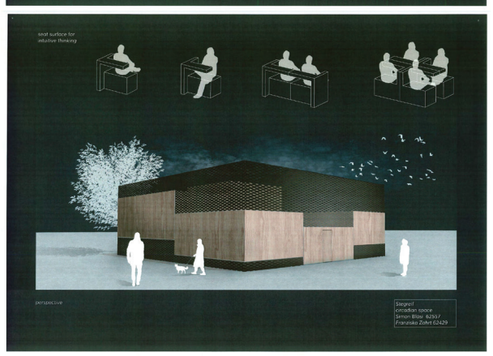

Circadian Space
Schlafraum:
Aufwachraum:
Kognitiver Raum:
Soziale Räume:
Aktivitätsraum:
Intuitiver Raum:
Einschlafraum:
1. EBENE
2. EBENE
PERSPEKTIVE


Nap couch
Schnitt 1:100
Sleep
Wake up
Sleepiness
Intuitive Thinking
Cognitive Performance
Physical Activity
Nap
Grundriss 1:100


Sportraum
1 Umkleidekabine mit Schränken für jeden Probanten
2 Theke mit Kühlschrank
3 Gang zur Küche und zum Bad
4 Sportgeräte (Hantelbank, Rückentrainer, Radergerät, Laufband, Hometrainer, Tischtennisplatte)
5 Stützgeländer
6 Squashplatz
7 Wandintegrierte Schränke für Sportgeräte (z.B. Squashschläger)
8 Gang zum Kreativraum
- helleste Färbung
- gemeinsame und persönliche sportliche Aktivität
Kreativraum
1 Gang zum Sportraum
2 Schreibnischen
3 Gemeinschaftssessen
4 Musikraum
- variables DJ-Pult
- Musikanlage
- Gitarre, Bass, Schlagzeug, Piano
5 Zeichenraum
- Podest mit Tisch für Modelle
- Zeichenstaffel, Farben, Bücher über Kunst
- Waschbecken, Musikanlage
6 Modellwerkstatt
- Modelpodest
- Musikanlage, Bücher über Holzhandwerk, Besen und Eimer
- Werkzeug, Holz zum bearbeiten
7 Gang zum Abendraum
8 Gang zur Küche und zum Bad
- orangene, anregende Färbung
- einzelne Kreativblume
Abendraum
1 Gang zum Kreativraum
2 zwei Hocker
3 private Lesesplätze
- wandhängende Schränke für Bücher, Musikintegration usw.
- Sitzsäcke
4 Gemeinschaftsplatz
- Sofa
- Spielen mit Gemeinschaftsspielen
- Fernseher mit DVD-Player und Musikanlage
- dunkelgrüne, heimische Färbung
- "Gemeinschaftsnische" als Rückzugsort
ARCHICAD STUDENTENVERSION
GRAPHISOFT
Poster Haus Mahlknechtweg 2009/10
Raumprogramm 2


Körperliche Leistung


Circadian Space
SCHLAFRAUM
SPIEGEL RAUM
ATMOSPHÄRE
SINNESKAMMER


seat surface for intuitive thinking
perspective
Lageplan
circadian space
Simon Blöst 82367
Franziska Zickel 82429

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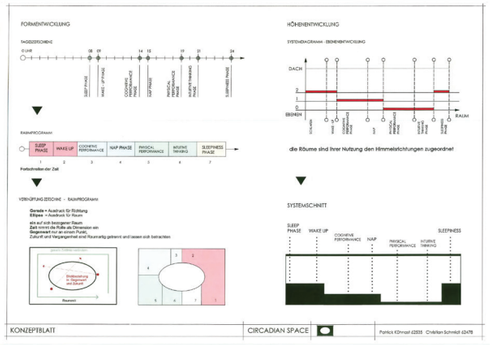

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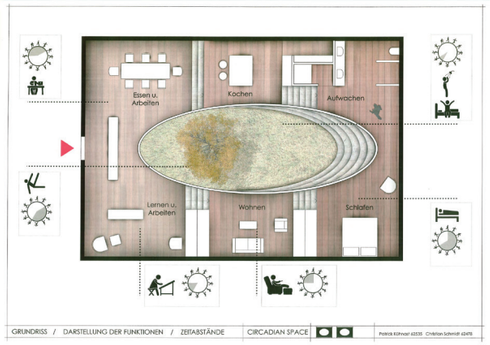

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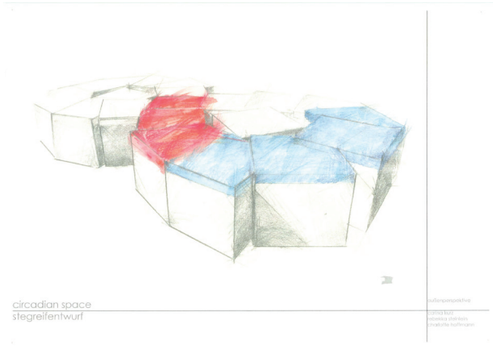
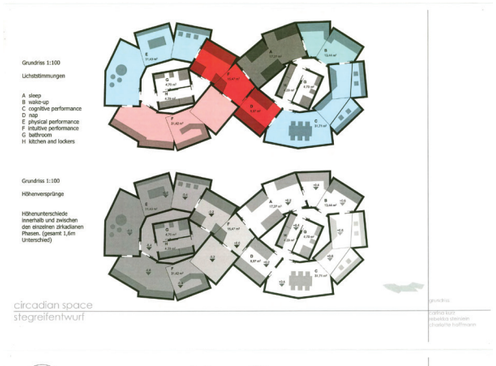


circadian space
stegreifentwurf



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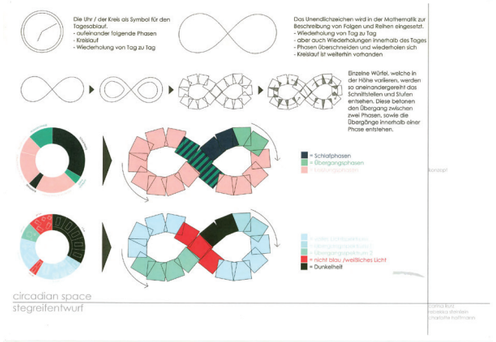

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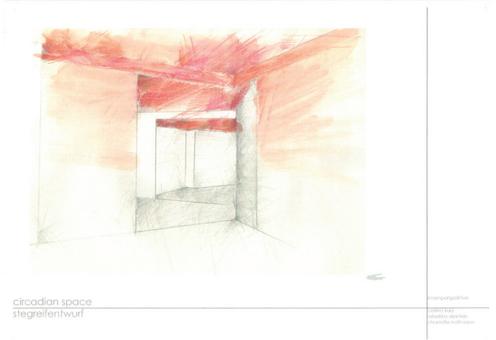

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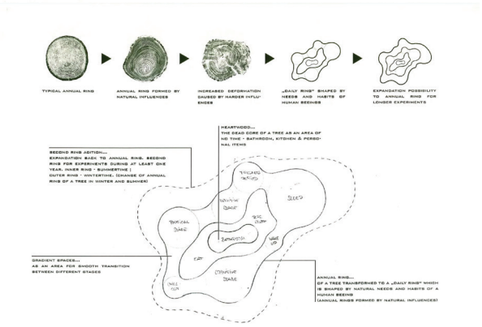
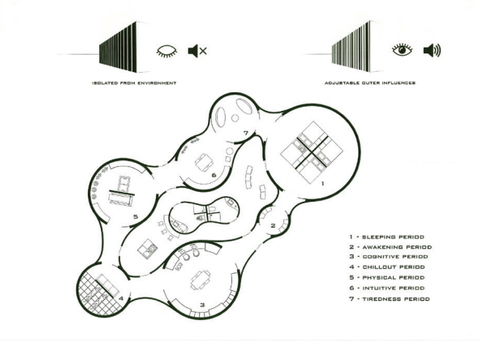
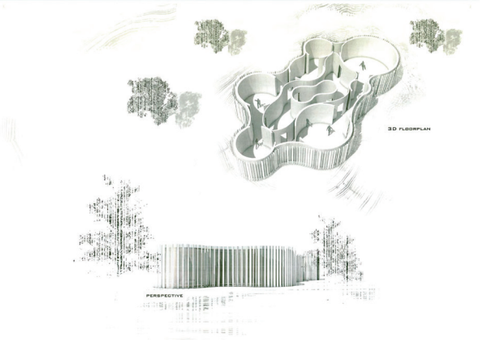
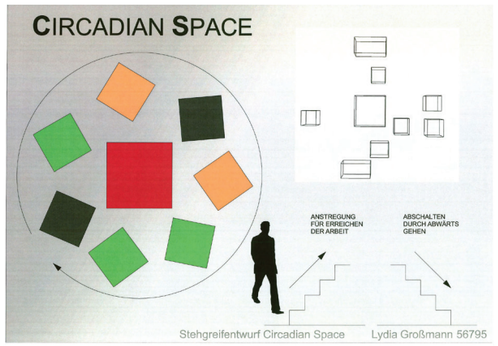
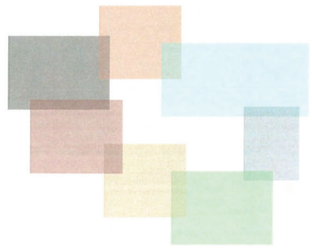
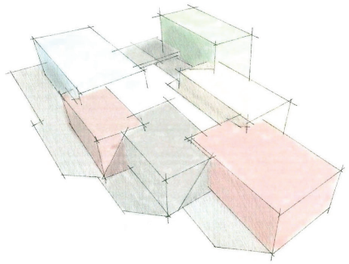


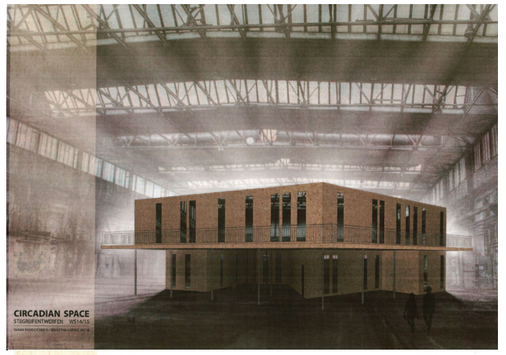


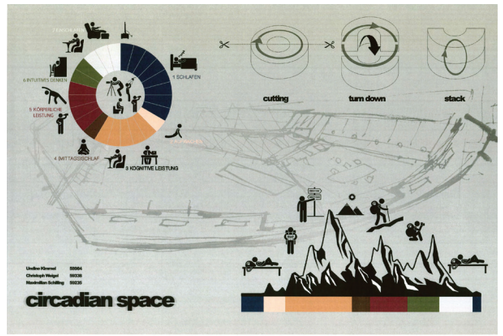



CIRCADIAN SPACE
ANSTREGUNG FÜR ERREICHEN DER ARBEIT
ABSCHALTEN DURCH ABWÄRTS GEHEN
Stehgreifentwurf Circadian Space
Lydia Großmann 56795

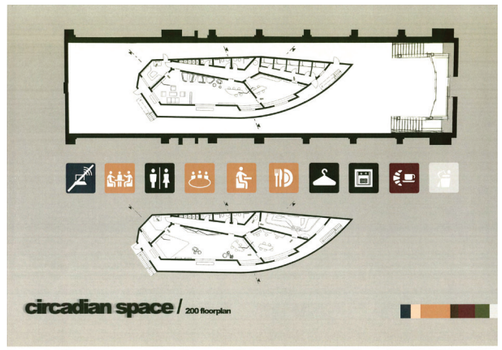


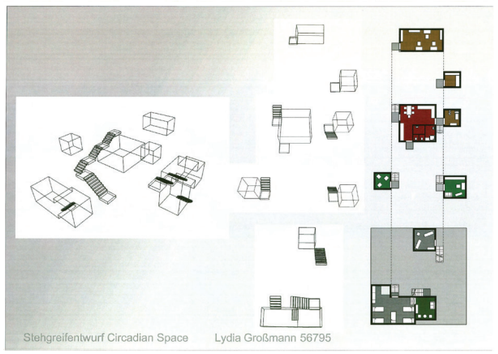



CIRCADIAN SPACE


cutting
turn down
stack
circadian space


UPPER FLOOR M1:100
PHASES UF M1:200


circadian space / 200 floorplan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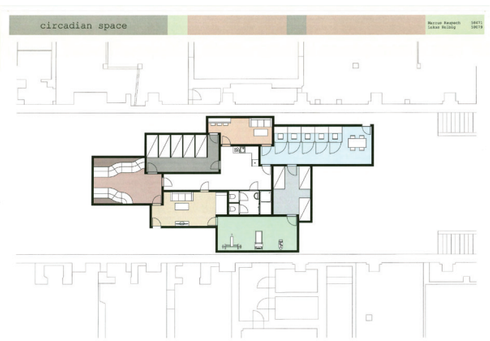
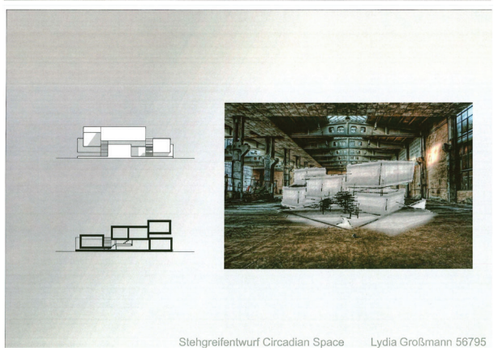
Lydia Großmann 56795


circadian space


GROUND FLOOR M1:100
PHASES GF M1:200


circadian space / 100 section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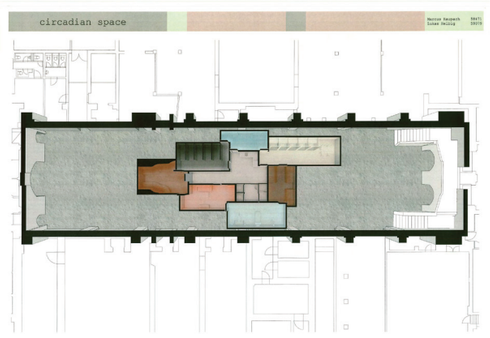
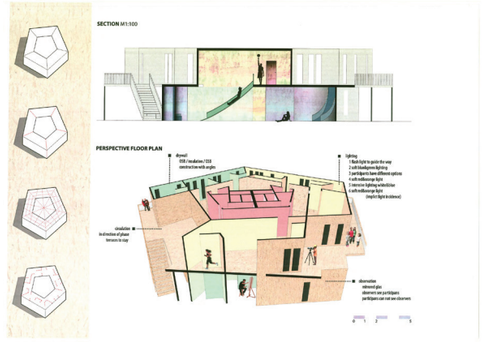
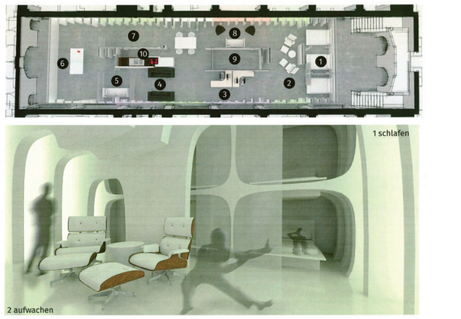
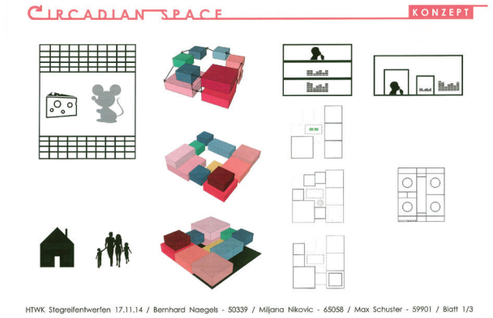
Lydia Großmann 56795


circadian space


SECTION M1:100
PERSPECTIVE FLOOR PLAN


circadian space





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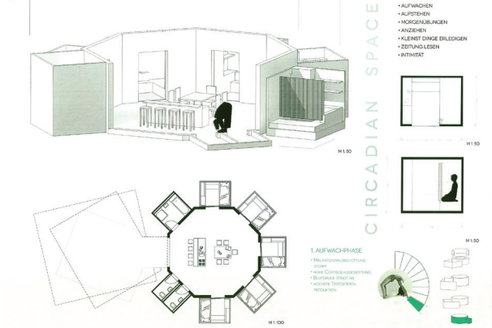

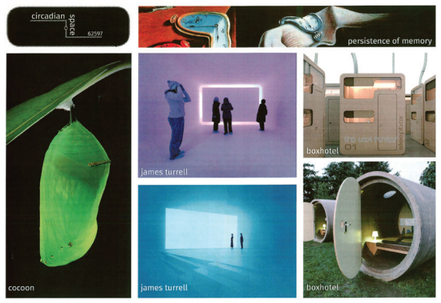

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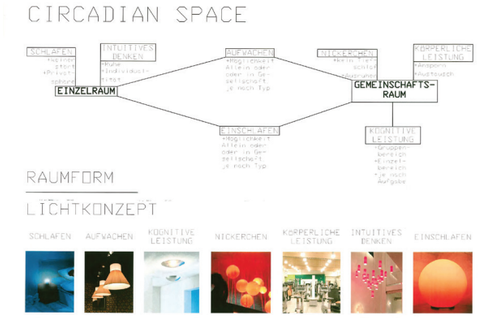

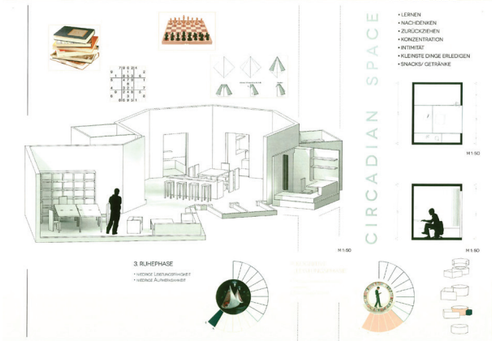

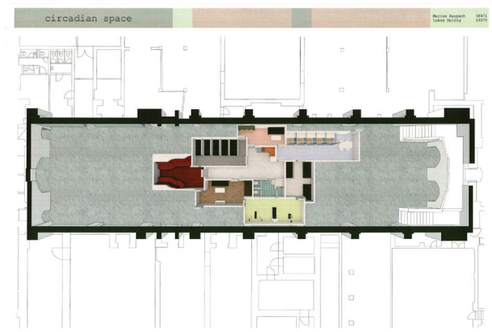

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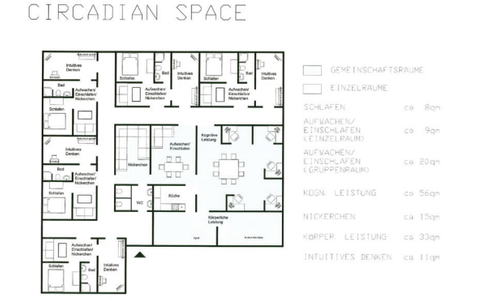
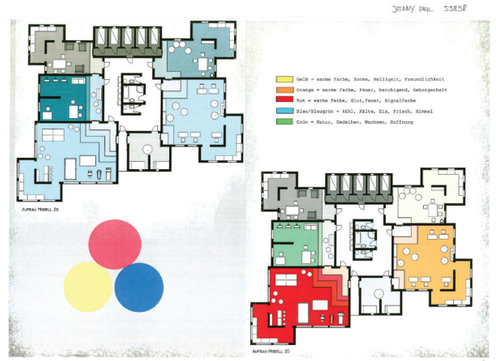
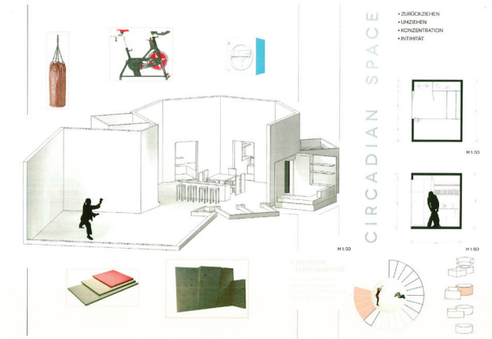
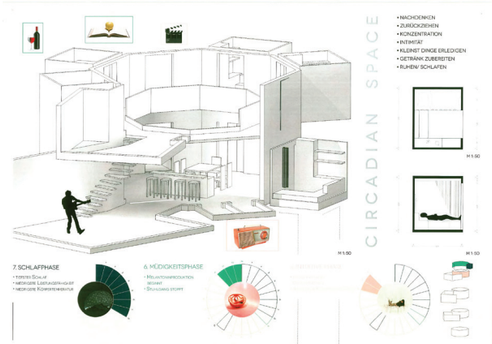
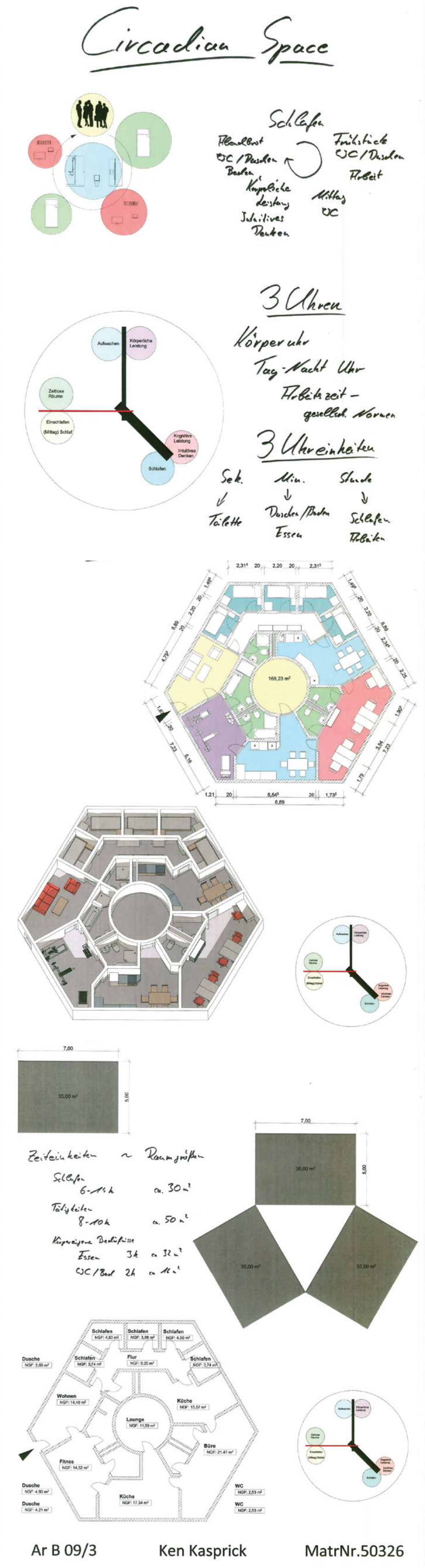
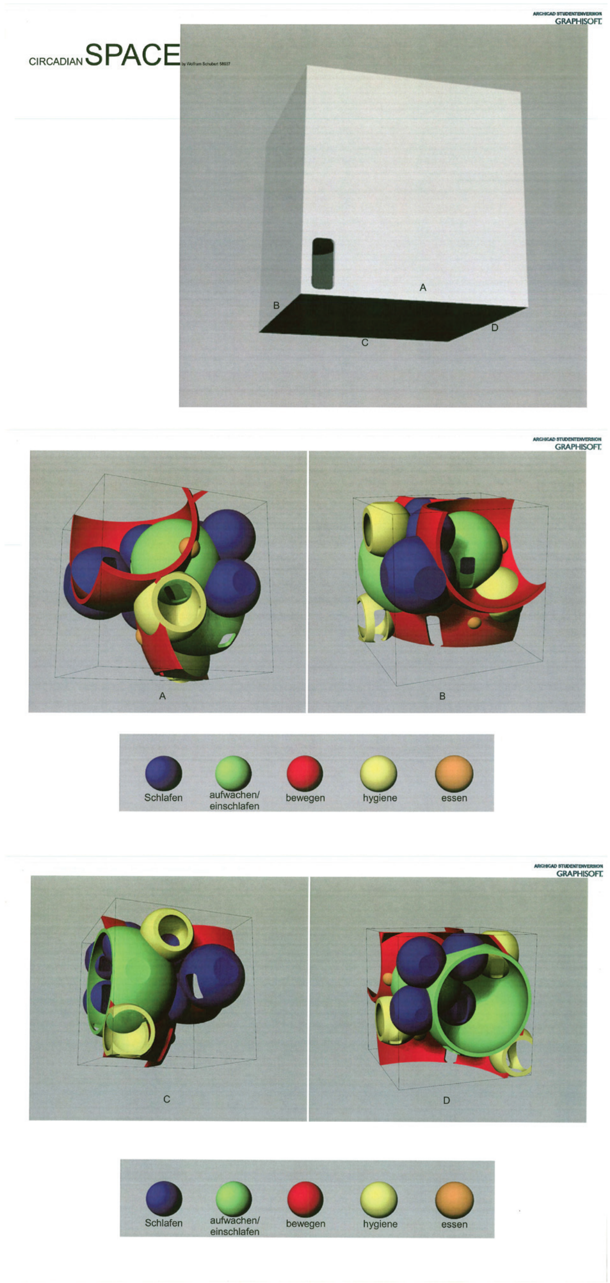




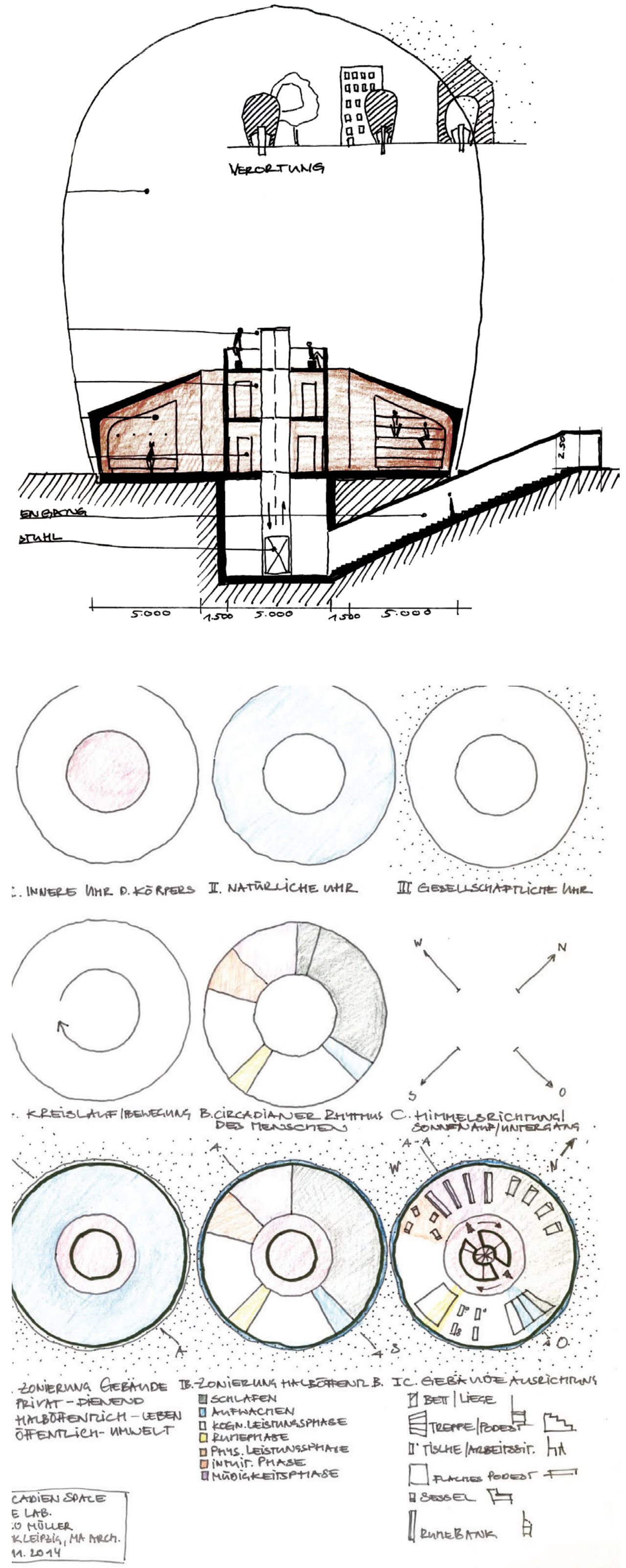





Circadian Space
3 Uhren
3 Uhreinheiten
Ar B 09/3
Ken Kasprick
MatrNr.50326

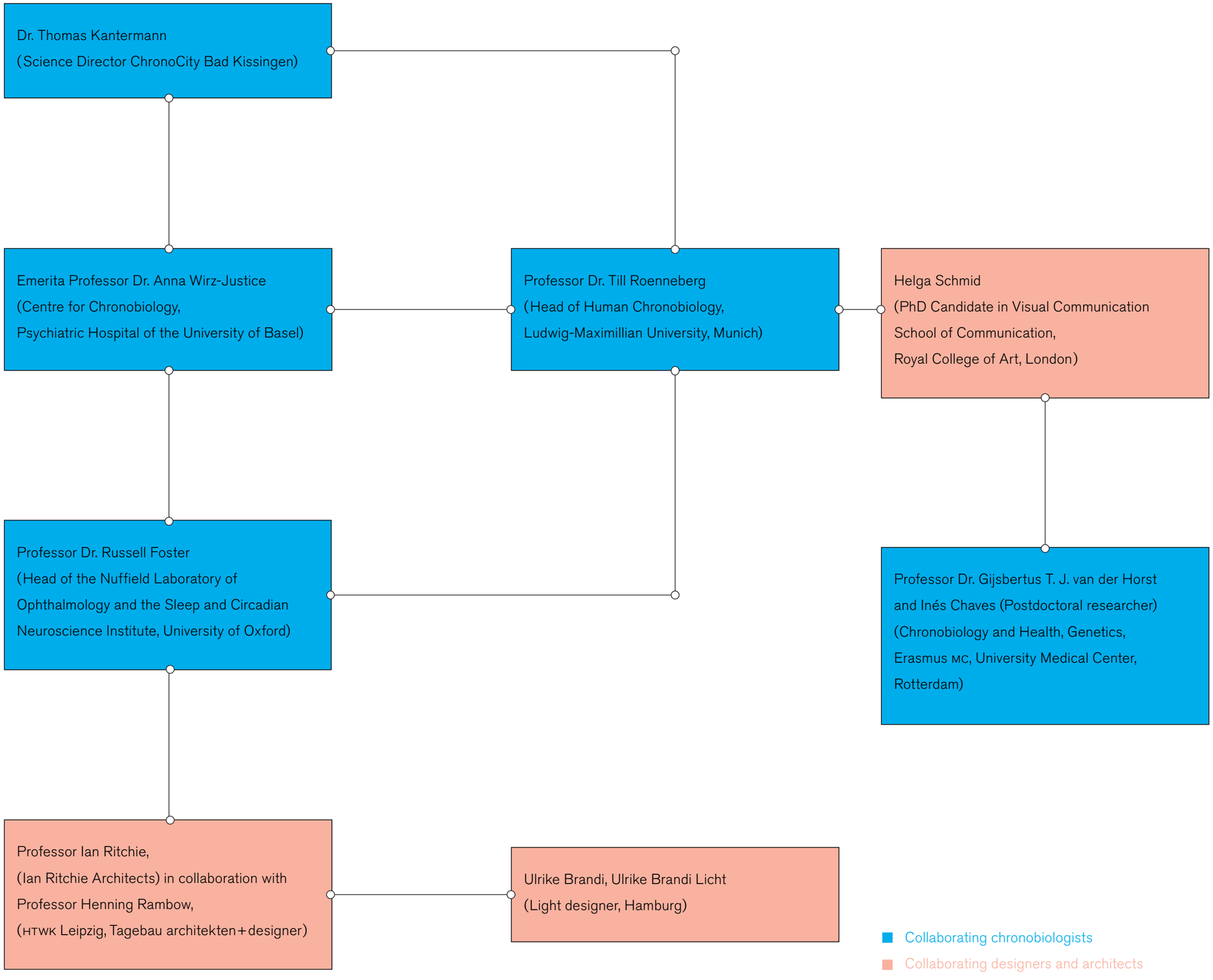

CIRCADIAN SPACE
Schlafen
aufwachen/einschlafen
bewegen
hygiene
essen


CIRCADIAN SPACE
CIRCADIAN SPACE
chronobiology
plan
light concept


VERORTUNG
I. INNERE UHR D. KÖRPERS
II. NATÜRLICHE UHR
III GESELLSCHAFTLICHE UHR

G

INTERDISCIPLINARY NETWORK MAPS


Dr. Thomas Kantermann
(Science Director ChronoCity Bad Kissingen)
Emerita Professor Dr. Anna Wirz-Justice
(Centre for Chronobiology,
Psychiatric Hospital of the University of Basel)
Professor Dr. Till Roenneberg
(Head of Human Chronobiology,
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Helga Schmid
(PhD Candidate in Visual Communication
School of Communication,
Royal College of Art, London)
Professor Dr. Russell Foster
(Head of the Nuffield Laboratory of
Ophthalmology and the Sleep and Circadian
Neuroscience Institute, University of Oxford)
Professor Dr. Gijsbertus T. J. van der Horst
and Inés Chaves (Postdoctoral researcher)
(Chronobiology and Health, Genetics,
Erasmus MC, University Medical Center,
Rotterdam)
Professor Ian Ritchie,
(Ian Ritchie Architects) in collaboration with
Professor Henning Rambow,
(HTWK Leipzig, Tagebau architekten+designer)
Ulrike Brandi, Ulrike Brandi Licht
(Light designer, Hamburg)
Collaborating chronobiologists
Collaborating designers and architects

Ulrike Lehner, Ninetynine
(Interior designer, Amsterdam)

Louis Buckley
(Science communicator and
creative producer, London)

Dr. Kevin Walker
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School of Communication,
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Helga Schmid
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School of Communication,
Royal College of Art, London)

Professor Dr. Claudia Mareis
(Director of the Institute of Research
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Art and Design, Basel)

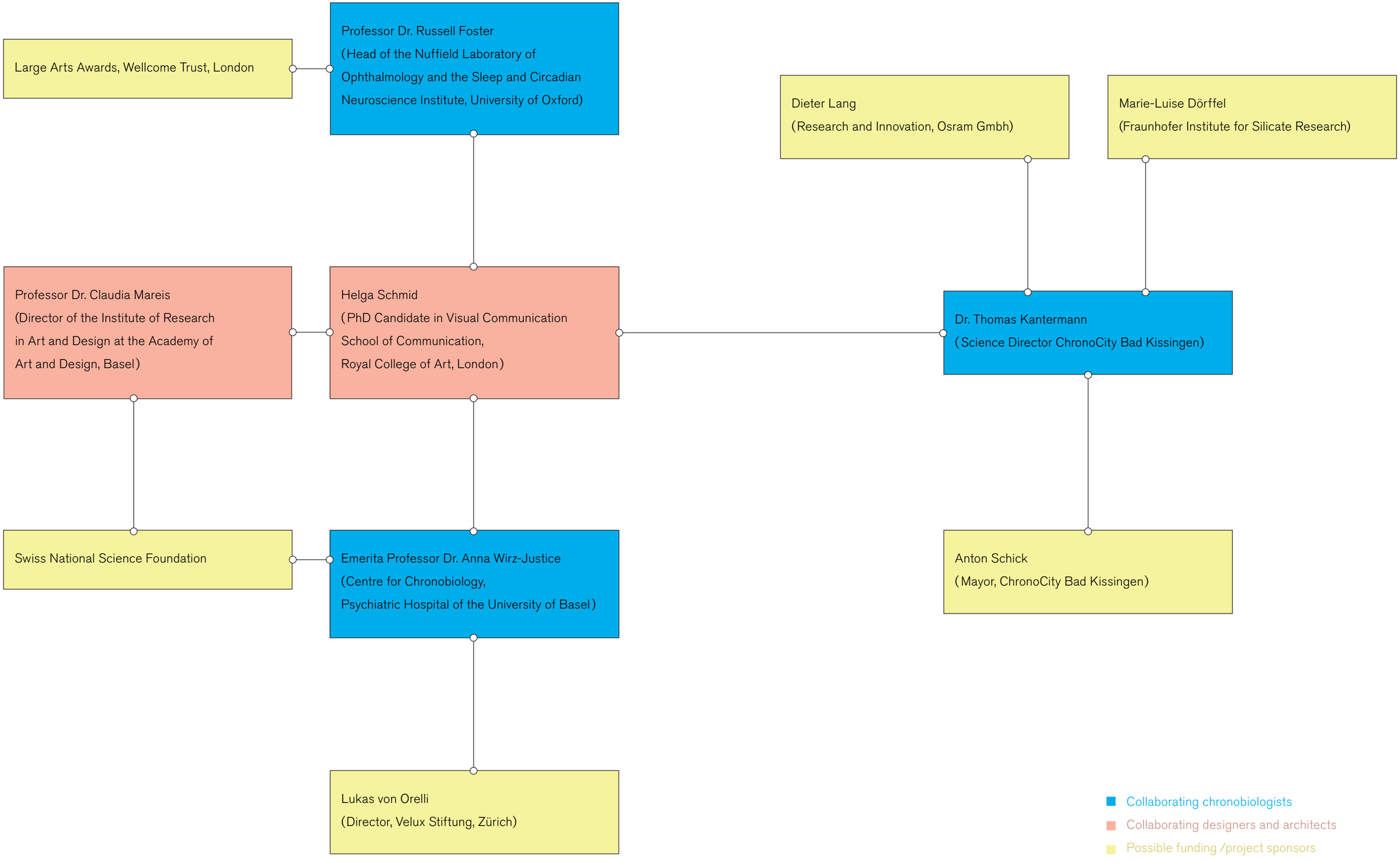
Emerita Professor Karlheinz Geißler
(Time researcher)

Professor Dr. Hartmut Rosa
(Institute of Sociology,
Friedrich-Schiller-University Jena)

Emerita Professor Barbara Adam
(Cardiff School of Social Sciences,
Cardiff University)

Collaborating sociologists

Collaborating designers and architects


Large Arts Awards, Wellcome Trust, London
Professor Dr. Russell Foster
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Ophthalmology and the Sleep and Circadian
Neuroscience Institute, University of Oxford)
Dieter Lang
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(Centre for Chronobiology,
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Lukas von Orelli
(Director, Velux Stiftung, Zürich)
Collaborating chronobiologists
Collaborating designers and architects
Possible funding /project sponsors

GLOSSARY

Alternative history. A genre in science fiction. The term is used synonymously with the term alternate history, counterfactuals or allohistory. The stories suggest an alternative course of history which is different from history.

Biological clocks. Self-sustained oscillators which generate biologic rhythms in the absence of external periodic input.

Biotemporal patterns. Biotemporal patterns are those time behaviors of a biological organism that represent the structure of its time-based activities.

Chronobiology. Derived from the Greek (chronos for time, bios for life, and logos for study), the word is used to denote the study of biological rhythms.

Chronosociology. The sociology of time investigates the principles and structures of temporal systems. It analyses societal specifities, cultural changes and new time norms and phenomena.

Circadian rhythm. From Latin circa and dies, 'about a day'. A biological rhythm that persists under constant conditions with a period length of around a day.

Cockaigne. An imaginary place of plenty.

Chronotypes. A human attribute reflecting at what time of the day the physical functions (e.g. hormone level, body temperature, cognitive faculties) of an individual are active, change or reach a certain level.

Desynchronisation (chronobiology). External: loss of synchronisation between rhythm and Zeitgeber, and internal: loss of synchronisation between two rhythms within an organism.

Entrainment. The process by which a biological oscillator is synchronised to an environmental rhythm such as the light-dark cycle.

Free-running. The endogenous rhythm exhibited by a circadian system under constant conditions.

Oscillator. A system capable of producing a regular fluctuation of an output around a mean. In chronobiology, an oscillator refers to the molecular mechanism within a cell capable of generating self-sustained rhythms. oscillations

Physiotemporal patterns. Steaming from physics and astronomy and representing temporal regularities in quantities, these patterns regulate the movement of physical bodies.

Proper time. A time, solely belonging to the self.

Rhythmicity. The state of having rhythm.

Suprachiasmatic nuclei. Paired nuclei within the ventral hypothalamus that function as the circadian pacemaker in mammals.

Social jet-lag. A malaise similar to jet-lag, resulting from differences between the external social time (clock time) and the internal biological clock.

Sociotemporal patterns. Sociotemporal patterns are those structures or regularities that occur in time and represent the time-based social interactions of an organism or group of organisms.

Speculative future. Future scenarios and products are imagined on the basis of current developments in science or technology.

Vita activa. The active life is categorised into three different activities of labor, work and action (in reference to Hannah Arendt).

Vita contemplativa. The contemplative life, understood here as the 'experience of being [Seinserfahrung]' in contrast to the active, nervous life.

Zeitgeber. From the German for 'time-giver', an entrainment signal.

The terms in the glossary are from:

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