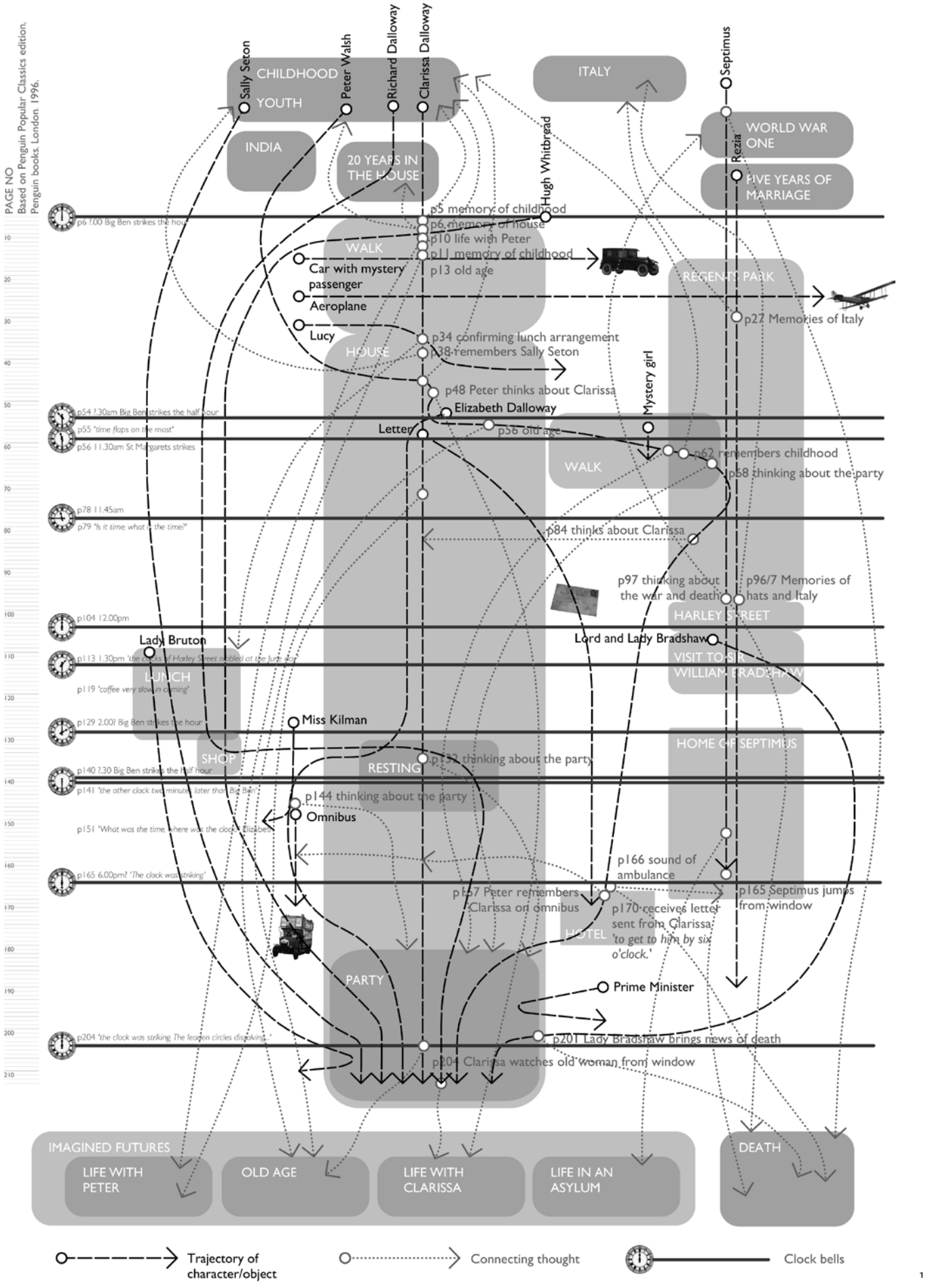





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Concepts of succession and duration are used to examine the temporality of architecture and inform a series of design studies exploring temporal structures and the architectural chronotope.

# The quick and the dead: temporality, temporal structure, and the architectural chronotope

*Andrew Carr*

Architecture is often perceived as a stable background that persists independently of time. It does, however, exist within rhythms of use, entropy, climate, and experience. As such, architecture must engage with time if only to attempt to defy or deny it. A series of design studies, under construction, unbuilt or speculative, are used to explore the temporality of architecture, its organisation according to specific temporal structures, and the architectural chronotope that 'artistically connects temporal and spatial relationships'.

The concepts of *succession* and *duration* are used to identify different temporal attitudes to architecture. Typically architecture that is based on *duration* seeks to persist unchanged within time while that based on *succession* engages with change, transience, and rhythm. The organisation of *succession* and *duration*, according to different temporal structures, is used to inform each of the design studies. Structures are explored relating to the weather, programmed and unconsidered use, clock time, mechanical time, circadian rhythms, entropy, and space-time.

These ongoing design studies and thinking have their roots in design-based research developed at the Welsh School of Architecture in 1999, under the supervision of Professor Dean Hawkes, and continued in studies developed by the author speculatively and in practice with Brady Mallalieu Architects, based in London.[1]

## A deep defence?

> *No single and final definition of the concept of time is possible since, far from representing a self-contained form, such a concept is always conditioned by man's understanding of it.*[2]

Friedrich Kümmel's essay 'Time as Succession and the Problem of Duration' contained in J. T. Fraser's interdisciplinary survey *The Voices of Time* from 1966 uses the concepts of *succession* and *duration* to help navigate the very broad range of positions that thinkers have adopted in relation to time.[3] Indeed as Kümmel himself admits, his distinction, in itself, conditions our understanding of time. It does however provide a useful temporary scaffold from which to begin exploration, even if it is to be discarded later.

'We conceive of time as either flowing or as enduring.'[4] The notions of past, present, and future imply that time might 'flow', have a directional quality or be understood as a series of moments that are different but connected in some way. These properties, to which we might add change and flux, are the concerns of *succession*. Conversely we are aware that time has a certain 'length', whether this be an hour, day, or moment. Time, in this sense, 'lasts', endures, and has a persistence that could be described as *duration.*

Architecture might also be understood through this scaffold of *succession* and *duration*. Often viewed as having more in common with duration, than succession, architecture is frequently seen as a stable background in defiance of time, concerned with the maintenance of a single state and designed, in the words of Karsten Harries, as a 'Deep defence against the terror of time.'[5] Inner spaces modulate the variable outside climate, the effects of which are countered through the use of hard-wearing, long-lasting materials. Often it tries 'to stop time or at least give the illusion that time is suspended in stillness'.[6] Such architecture is concerned with *duration*. In reality, a building will be subject to perpetual changes in its physical state, light, inhabitation, use, and interpretation. Architecture that seeks to engage with these properties and embraces their related rhythms is concerned with *succession*.

There are various examples of practicing architects who are consciously exploring temporal structures and ideas: A body of work produced by Bernard Tschumi has used notation to conceive architecture based on events and movement.[7] Specific indeterminacy has been explored by Florian Beigel and Philip Christou in a series of large-scale works where 'carpets will become the generators of a variety of building patterns'.[8] Steven Holl regards architecture as a 'frame of measure for lived time'[9] whereby 'the impermanence of contingency and circumstance are bracketed by architecture's material firmness.'[10] To help describe and generate his work he has identified 'Seven Times of

1 A Day in June, based on Mrs Dalloway by Virginia Woolf (originally entitled The Hours).

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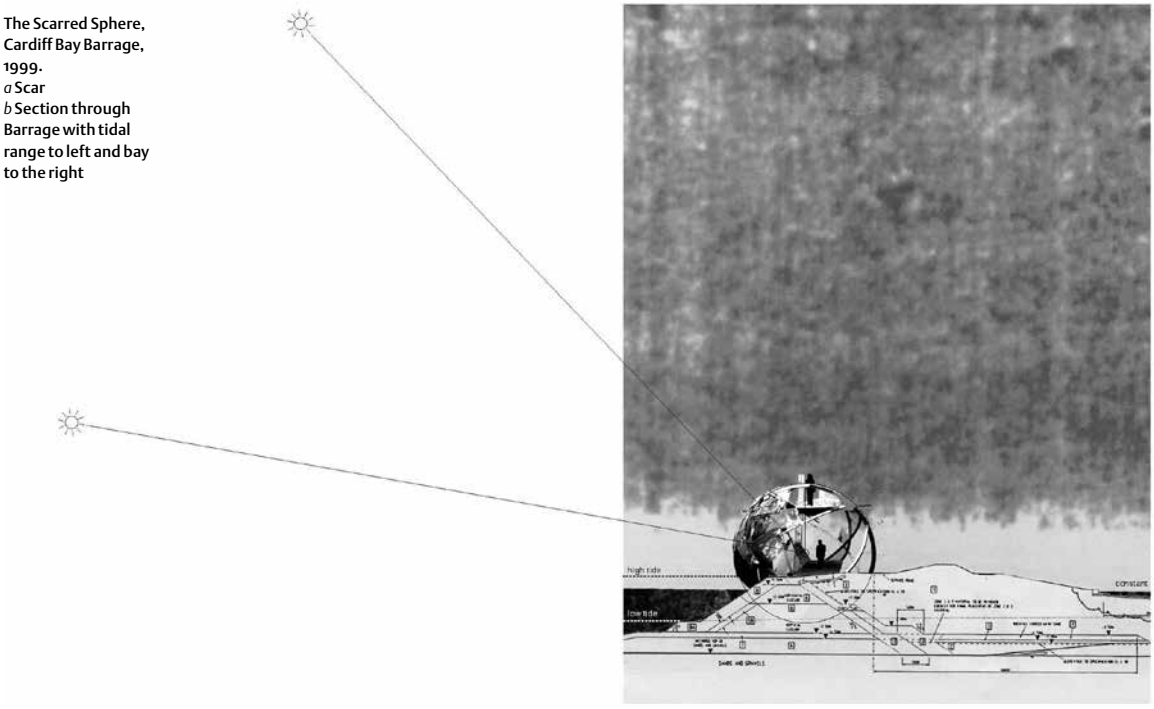
Architecture' as 'Diurnal time, Seasonal Time, Linear Time (Cyclical Time), Local Site Time (Global Time), Duration of Conception/Construction, Experiential Time and Duration',[11] to which he has recently added 'immeasurable time'.[12]

A broader range of architectural positions on time are collected in volumes such as Malcolm Quantrill's *Constancy and Change* (1991), Cynthia Davidson's *Anytime* (1999) or more recently Karen Franck's *Architecture Timed* (2016).[13] The work of individual authors establishes more particular positions: Stuart Brand in *How Buildings Learn* (1995) emphasised the way buildings are inhabited and used over time, challenging architects to propose buildings with *shearing layers of change* which are renewed at different rates.[14] Jeremy Till, in *Architecture in Space, Time* (1996) and *Architecture Depends* (2009),[15] restates Brand's challenge for buildings to engage with time, in the context of a wider discussion on contingency and architectural agency, and Jonathan Hill in *Weather Architecture* (2012) considers weather, and its associated temporality, as an author of architecture.[16]

More common are texts that address specific aspects of architecture which engage with time such as weathering, materiality, light, or use. Reference, where relevant, will be made to such texts in the discussion that follows. Often these more specific observations may not connect back to a broader overall position or relate to other temporally relevant aspects of architecture. This exploration attempts to connect broader temporal ideas and structures with a palette of more specific aspects of architecture that engage with time. Using the distinction between *succession* and *duration* the design studies identify some of the specific aspects of architecture that engage with time, whether this engagement is oriented to *duration* and a denial or resistance to the passage of time, or an acceptance or submission to *succession*. Just as Kümmel used the distinction to help navigate the broad range of understandings of time, here, the relative organisation of succession and duration establishes different temporal structures that contribute to wider architectural chronotopes.



2a



2b

2 The Scarred Sphere, Cardiff Bay Barrage, 1999.
*a* Scar
*b* Section through Barrage with tidal range to left and bay to the right

## Temporal structure and the architectural chronotope

> *We will give the name chronotope (literally, 'time space') to the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature* [...] *In the literary artistic chronotope, spatial and temporal indicators are fused into one carefully*


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> *thought-out, concrete whole. Time, as it were, thickens, takes on flesh, becomes artistically visible; likewise, space becomes charged and responsive to the movements of time, plot and history. This intersection of axes and fusion of indicators characterizes the artistic chronotope.*[17]

Mikhail Bakhtin uses the term chronotope to identify the spatial and temporal organisation of different types of Greek literature. The term and concept have since been adopted and applied by others within the field of literature and beyond.[18] The notion of a chronotope fuses the more immediately apparent spatial aspects of architecture with temporal attributes generally only associated with other 'arts of time'.[19] While the design studies described here could be considered architectural chronotopes, each combining particular temporal and spatial relationships, they are not literary works as such, so care needs to be taken when appropriating terms and concepts such as 'plot', raising important issues of authorship and control. Bakhtin's use of the literary chronotope is based on the 'movements of time, plot and history', where the author also controls the characters and world that has been created from the beginning to the end of the novel. The authorship of most architects and their control of 'time, plot and history' typically ends with the 'completion' of construction when a building is handed over and must serve its inhabitants. Nonetheless, the resultant architecture will shape the way the building is occupied and experienced. As such the architect, as author, is projecting both spatial and temporal structures into the future.

In an architectural context, K. Michael Hays has used the term chronotope to aid his interpretation of the work of John Hejduk, drawing also upon Bakhtin's interest in the carnivalesque.[20] While Hejduk is not our specific point of interest, his work has a very specific, scripted quality 'where it is no longer possible to tell what is being "designed" – the habitat or the inhabitant [...]'.[21] His work often combines a text based description of an inhabitant, including details about their behaviour, with timings and a drawn architectural proposition, thus making both spatial and temporal projections.[22] Lily Chi, in *The Problem of the Architect as Writer*, contrasts the architect-author role of Hejduk with the approach of Aldo Rossi where 'the making of architecture becomes a preparation of settings, of modest "instruments"'[23] resulting in a much less specific architecture, where many narratives may, or may not, occur.

While both approaches take clear positions on authorship and the anticipation of potential future narratives, all architectural works exist within time and must, therefore, have a relationship to it, even if this is unconscious on the part of the designer. A useful distinction is made by Paul Ricoeur in *Time and Narrative* between 'tales of time' and 'tales about time', borrowed from Adam Abraham Mendilow's *Time and the Novel*.[24] 'Tales of time' relate to all fictional narratives, which by their nature must inevitably take place in time, as might also be argued for architectural works. 'Tales about time' are consciously based on temporal structures and transformations. A cursory examination of one of Ricoeur's 'tales about time', in this case Virginia Woolf's *Mrs Dalloway*, reveals an overt temporal structure organised in a single day in June running from morning through to evening *[1]*. Into this basic structure the trajectories of various characters and objects is described as they move and dwell in a range of spaces within London. Different characters meet and part as narrative strains intertwine and evolve, recollect the past and speculate on potential futures. Past and future interweave and thicken a drifting present punctuated by the measured time of the clock as bells ring across the city. Woolf actively uses contrasting temporal structures to organise her work and the inhabitation of her fictional world.[25] Such structures have much in common with several of the design studies which follow, but, as author, she has complete control of the temporal and spatial relationships of her fictional world. Though the architectural approaches of Hejduk and Rossi do not exert this level of control they do establish spatial and temporal structures in the present that inform the future. A tension is apparent between the projection of a specific temporal structure into the future, which architects readily impose spatially, and a more open-ended approach that might account for the unconsidered.

The design studies that follow propose architectural 'tales about time' based upon different temporal structures, using temporally dependent aspects of architecture organised according to succession and duration.

## Entropy

Material and structural stability are the hallmarks of a common architectural chronotope that seeks to persist unaltered through time maintaining a single state of duration regardless of the succession of use, weather, and movement. The first study proposes a counterpoint to this approach by exposing a static platonic form to succession through environmental change, decay, and erosion.

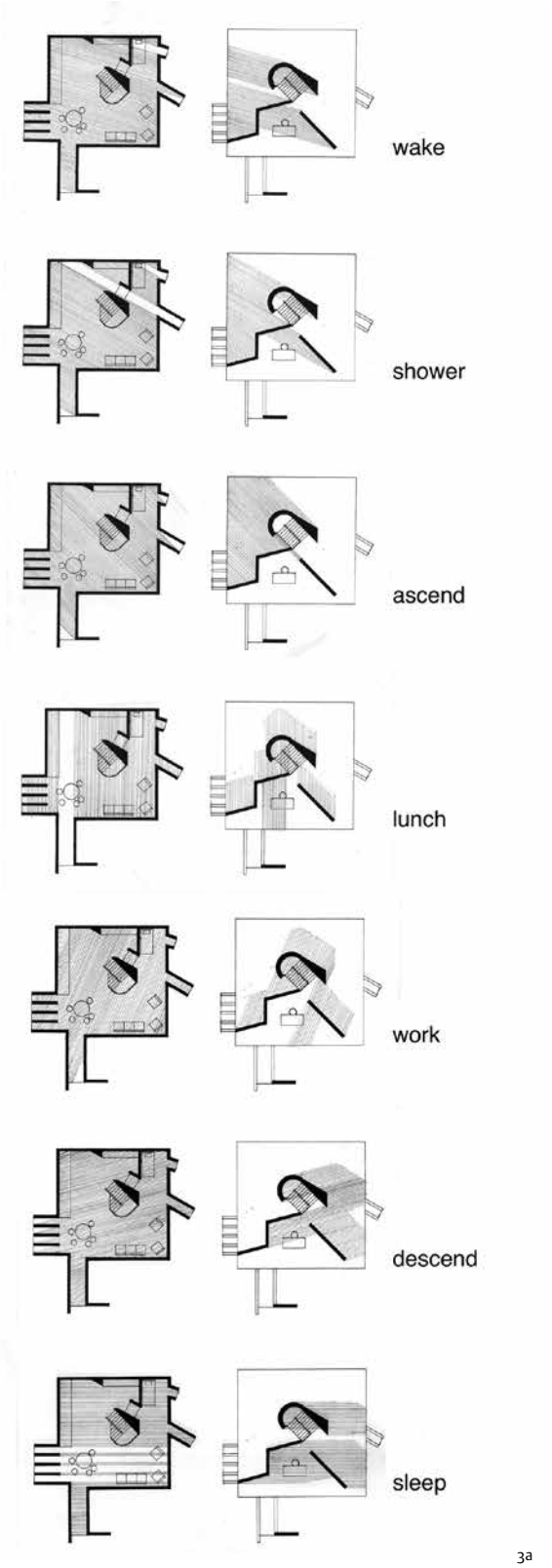
A partial, badly attached skin of battered metal panels forms an imperfect sphere, resting on Cardiff Bay barrage between tidal and non-tidal water *[2a,b]*. Though it appears to have been sited by chance, two slits precisely locate the sphere within its changing surroundings. One faces due south, its upper and lower dimensions set by the midday summer and winter solstices, relative to a small eyepiece hung so that it casts a shadow onto a metallic strip laid into a concrete floor plane. The eyepiece also provides a fixed eye position for making observations through the second slit. At high tide the restricted field of vision provided by the slit is covered by water, at low tide all that is seen is the base of the barrage. A ladder provides a route to the top of the sphere where visitors can make observations freely with their own senses.

Here the spherical form becomes a register for the succession of decay. This linear temporal process is measured against its idealised original form as are



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the rhythms of tide and sun that contribute to its demise. Typically a building is made from durable materials forming a protective, controlled, enclosure from a changeable external environment. Left to the succession of entropy this protective carapace will fall into a ruin. Built form is continually decaying, being worn by the rain, wind, and the touch of people, being bleached by the sun or corroded by pollutants in the atmosphere. Stone crumbles. Wood rots. Metals corrode and patinate. These changes in the state of a material inform us of the passage of time. Mohsen Mostafavi and David Leatherbarrow, in *On Weathering* (1993), argue that 'finishing ends construction, weathering constructs finishes.'[26] Buildings can be designed in such a way that they last for a relatively long period of time, relying upon perpetual maintenance to persist. Construction and demolition in themselves take time. Conversely a building might deliberately make use of the *immaterial*,[27] embracing decay and engaging with rust and dirt or using more delicate papers, meshes, and transient materials.




3a

## Circadian rhythms

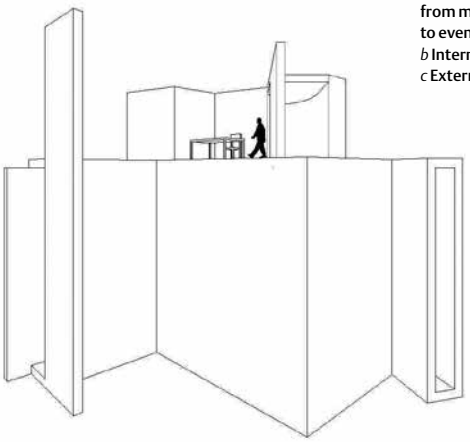
As well as entropy, the natural environment includes other temporal structures, such as the sun and seasons, which help regulate our circadian rhythms. 'Daily circadian rhythms (circa, about; diem, a day) are orchestrated by a central clock to keep our bodily systems working in harmony.'[28] To explore potential architectural responses to these rhythms, the material aspects of the following studies assume attitudes of duration to focus on succession through light, heat, and movement.

Studies for the home of a park keeper create succession through sunlight moving across a space throughout the day, informing movement and occupation. As the day progresses the keeper follows the sunlight around his home [3a,b]: in the morning, a shaft of light gradually moves down the wall alongside his bed until falling upon his head where



3b

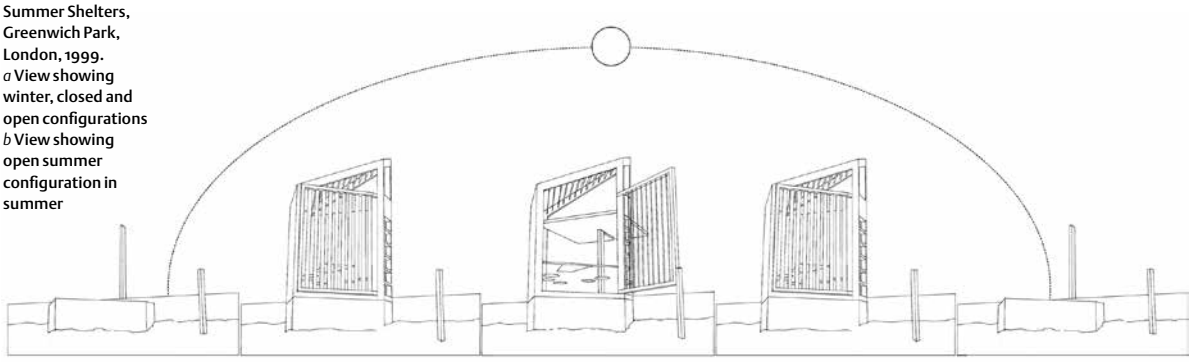
3 Park Keeper's House, Greenwich Park, London, 1999.
*a* Light and shade from morning (top) to evening (bottom)
*b* Internal view
*c* External view



3c



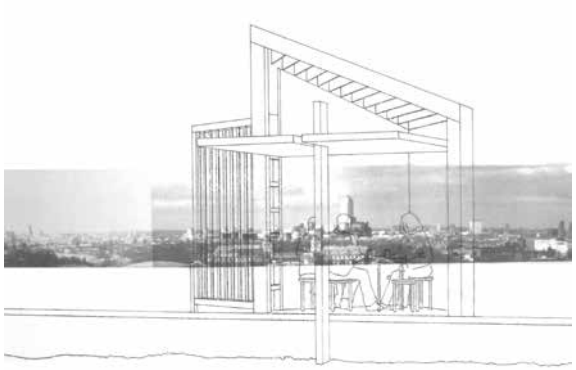
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4 Summer Shelters, Greenwich Park, London, 1999. *a* View showing winter, closed and open configurations *b* View showing open summer configuration in summer

it rests on a pillow. A little later, a shaft of light is cast across through a narrow gap, across the shower and into the kitchen. As the shaft begins to narrow, more light falls from the staircase, indicating that it's time to go upstairs to deal with his paperwork *[3c]*. During the rest of the morning, a shadow cast by the large plane to the south moves until it obscures the desk at lunchtime. As the hungry worker walks down the stairs, the midday sun has cast a shaft of light across the dining table and into the kitchen, at the base of the stair. Once lunch is over and the light from the south has moved around, he returns to work, until later in the day when the light disappears. The dining area and lounge are then lit. He retires to bed in darkness, awaiting the sunrise. As the seasons vary, so too do the relative timings of the pattern of light within the keeper's home.

In *Experiencing Architecture* (1959), Steen Eiler Rasmussen declared that 'architecture itself has no time dimension, no movement, and therefore cannot be rhythmic in the same way as music and dancing are [...]. But to experience architecture demands time.'[29] Exploration in and through a building inevitably take time and can often be deliberately composed by the architect.[30] Changes in position, through successive moments, opens up new views as we rise up steps, move through doorways and walk among and around forms. Memory and anticipation inform how we navigate a route and make connections between past, present, and future. Here, the linear experience of movement is connected with a temporal structure associated with sunlight, season, and circadian rhythms informing use. The material aspects of architecture assume attitudes of duration, creating a background for succession articulated primarily though light, which in turn begins to inform succession through movement and use. Sunlight reveals the passage of time as the sun casts shifting shadows across a space. It imposes its own temporal geometry on buildings, due to its daily and yearly movement. It follows that buildings, such as the one described here, might actively orientate themselves to receive light at a particular time of day.[31] The only way of denying this succession is to construct spaces that minimise changes in the quality and quantity of light or deny its access completely. The introduction of artificial sources of light has freed the architect from such constraints of geometry and temporal structure. Light can be supplied to any place at any time and might be employed to create succession or duration.



A variant on this study proposes outdoor structures that have an annual and daily structure. Towards the end of spring, the small structures begin to appear from their hibernation and are erected on the northern slopes of Greenwich Park, London *[4]*. Taking advantage of the excellent views, they provide a place to eat and socialise. Each shelter arrives closed; at sunrise two panels hinge to form an entrance porch, which doubles as a shade, while another panel opens to frame views across London. The light within the pavilion varies throughout the day, loosely based on mealtimes. The eastern, morning light is blocked from the side while being diffused by the louvers on the roof. The hotter, midday sun is blocked, allowing the table area some shade. By evening the sun has moved around to the west and is diffused by the side panel, until it has lost enough of its intensity, and comes into view before beginning to set. At night, the panels are closed until the next sunrise.

There are various combinations of succession at work here: The structures themselves migrate, appearing and disappearing in response to the season. The opening and closing of the structure introduces succession through a dynamic, moveable element of the architecture. Thirdly the geometry of sunlight, filtered through the structure, creates succession through changes in the quality of light that also then relates to succession through temperature and informs use. All of this is structured by the annual and daily climatic cycles that inform the more variable weather.

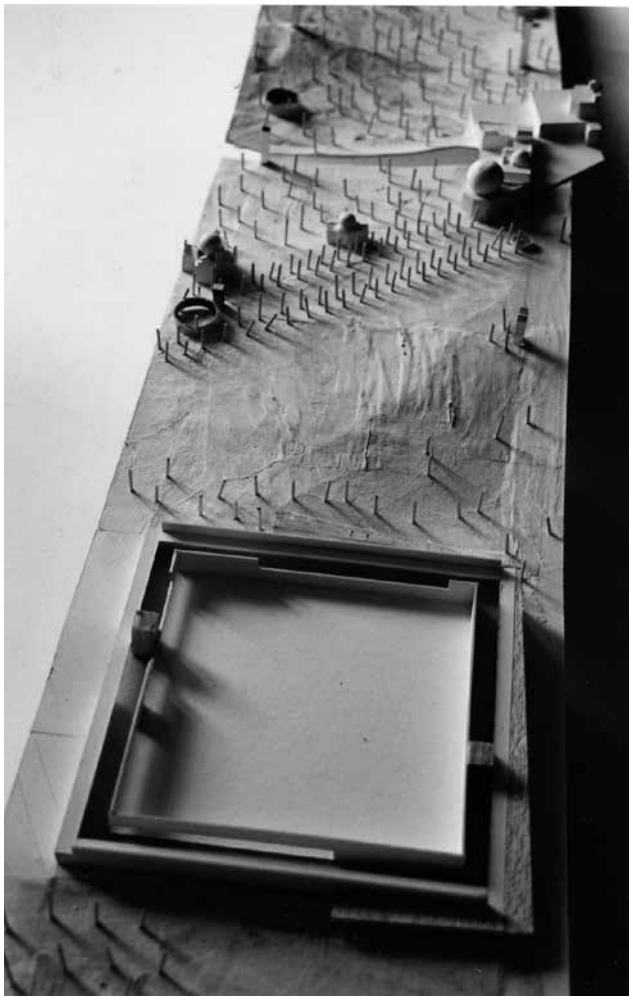
Architecture typically dampens these cycles to provide controlled, comfortable conditions for its occupants. Thermally massive structures will minimise temperature fluctuations relative to the successive, cyclical qualities of the climate. Artificial heating and cooling systems combined with sealed



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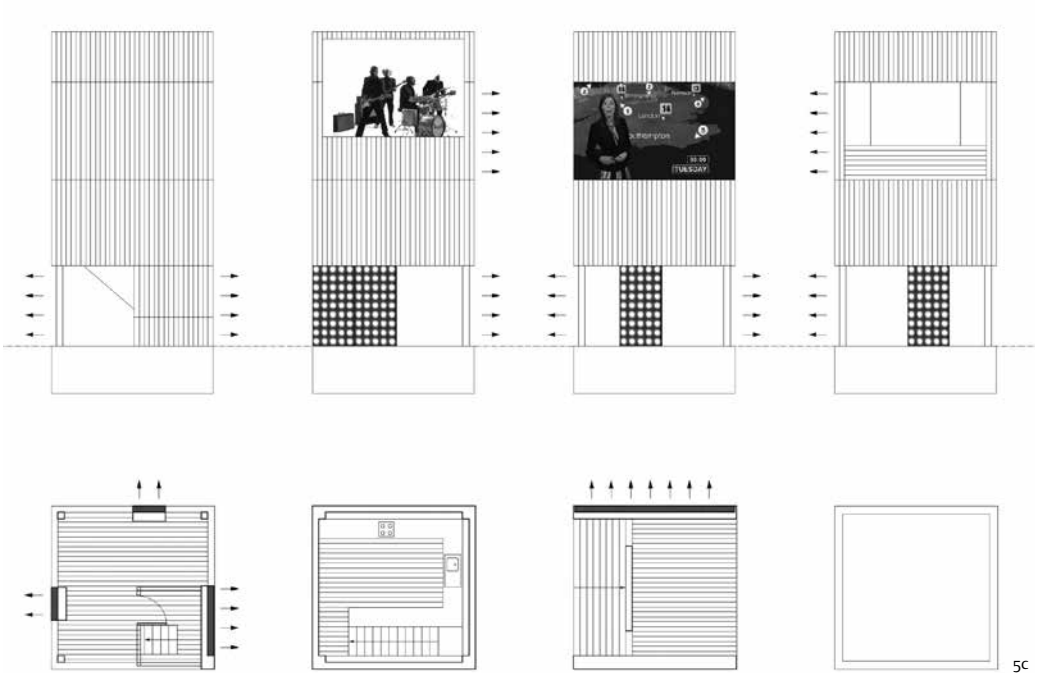
5a



5b



5d



5c

5 Clock Square, Greenwich Park, London, 1999.
*a* Perimeter wall elevations plotted with openings relating to clock time
*b* Aerial view of model
*c* Plans and elevation of moving boxes
*d* Composite image of Clock Square showing the movement of the perimeter box relative to the boundary wall at different times of day relating to different events.



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insulated building envelopes release us from the temporal structure of climate and allow us to maintain a constant temperature, so long as we have the energy to sustain it. These systems can also be used to impose a temporal structure onto a space, through the use of a timing device, building management system or a manually operated heating or cooling device.[32]

Henri Lefebvre and Catherine Régulier's 'Attempt at the Rhythmanalysis of Mediterranean Cities'[33] describes the social relations, rites, and cyclical natural rhythms that make up the rhythm and tempo of these towns, which they see as being based on the sun, in contrast to the lunar, tidal cites of the north. They conclude their tentative attempt at rhythmanalysis with speculation on the arrhythmia caused to these societies by globalisation. Natural rhythms have been damped, or lost, by artificial lighting, environmental technologies, financial cycles, shift working, patterns of living, and distance from food production and harvest. Rhythms from other places now co-exist. Non-solar light and twenty-four-hour activity disrupt biological circadian rhythms. Paul Virilio, describing our culture of speed and immediacy, has declared that 'one day the day will come when the day will not come.'[34]

## Occupied devices

The previous study introduced dynamic, moveable elements to create succession responsive to natural cycles. Here these elements are organised according to more regular and absolute temporal structures, exploring the arrhythmia identified between natural cycles and the clock, and the potential of mechanical succession to relate to a more lived experience of time. Isaac Newton considered time as measurable such that it 'flows equably without relation to anything external'.[35] This framework of absolute time assumes independence to the events that occur within it and is explored in an events space in the middle of Greenwich Park. Entry, exit, and the events that take place within the square are governed by the absolute time of the clock regardless of the time of the solar year, day, season, or the vagaries of the British weather.

A walkway runs around the perimeter of the square next to which is a moat containing two floating boxes. The boxes rotate clockwise around a central space alongside walls with openings formed at choreographed locations *[5a,b]*. As the boxes rotate they take on different relationships with the openings such that different faces become visible from within the square. Through one opening a kitchen is exposed that serves food between 8 am and 2 pm, another an LCD screen that shows films to the crowds between 3 pm and 6 pm and another a stage for musicians is revealed to perform between 7 pm and 9 pm. Entry and exit to the square is similarly limited by the relation between box and opening. The boxes complete one circuit of the square every twenty-four hours, but due to differences between an absolute twenty-four-hour day and a true solar day (24.0164 hours), the programmed events will fall out of phase with natural cycles, only synchronising every leap year. As such, food will be served regardless of mealtimes and events will occur regardless of the weather conditions, time of year, or local solar time and its associated lifestyle patterns *[5c]*.

Here the potential to use the event space is limited by a tension between the temporal structures of both weather and absolute time, the latter being imposed by a dynamic element, in this case a moving box, which provides access through openings in the static boundary walls. More commonly, simple kinetic interventions, such as windows and doors, provide the possibility of a variable connection to an adjacent space in the otherwise static elements, such as walls, floor and roofs, upon which architecture commonly relies. Most buildings are built in a single place, having foundations buried into the ground. They are permanent and static. Space can be given a successive quality through the manipulation of the dynamic elements set within its fixed boundaries or pushed to an extreme, whereby static elements are abandoned entirely, resulting in a nomadic, temporary relation to site.[36]

A variation on the event space, combining both static and dynamic elements, is contained in a competition proposal for a temporary 'room' on the rooftop of the Queen Elizabeth Hall, on the South Bank of the River Thames, London. The structure would exist for one year and be occupied by successive visitors for one day at a time. A reflective outer skin dematerialises the external form of the building, merging it with the changing weather and artificial light of the city at night *[6a]*. The room combines a fixed outer container, perforated with openings, with a moving inner platform, controlled by the occupant *[6b]*. As the platform rises its container frames and denies glimpses across the London skyline culminating in a panoramic roof terrace. Different heights give access to different facilities, light, views, and storage *[6c,d]*. The occupant chooses where within the container they want to rest. Perhaps they want some privacy, to be on show, to wake to the rising sun, to have some peace and stillness or to engage with city rhythms. The occupant decides, based on the choices offered by the room. Here dynamic elements, providing succession through changing spatial conditions and relationships with views, light, and facilities, are governed by a lived, spontaneous approach to time rather than an absolute temporal structure. Choice is, however, limited by the framework of static openings and the potential dynamic movement implicit in the architecture. While the movement of the platform, and hence this choice, might be determined by one user it would be denied to a second. Simultaneous use of different levels of the space is denied and hence access to storage, views or the bathroom is temporally limited.

## The predicted and the unconsidered

Thus far the studies have relied upon heavily-scripted approaches to temporal structure. Specific activities have been organised to occur at particular times, according to these structures. The previous study created a more open set of possibilities, but even this



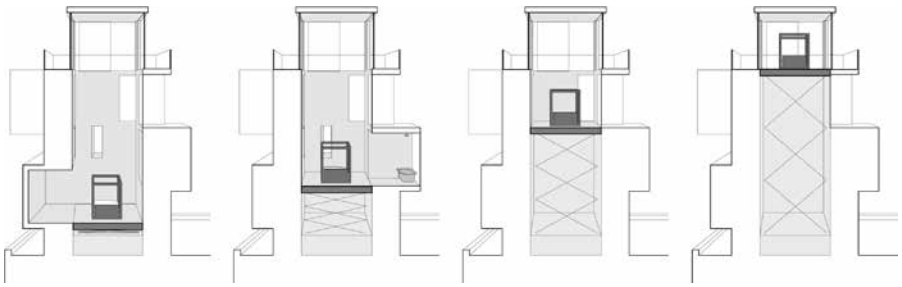
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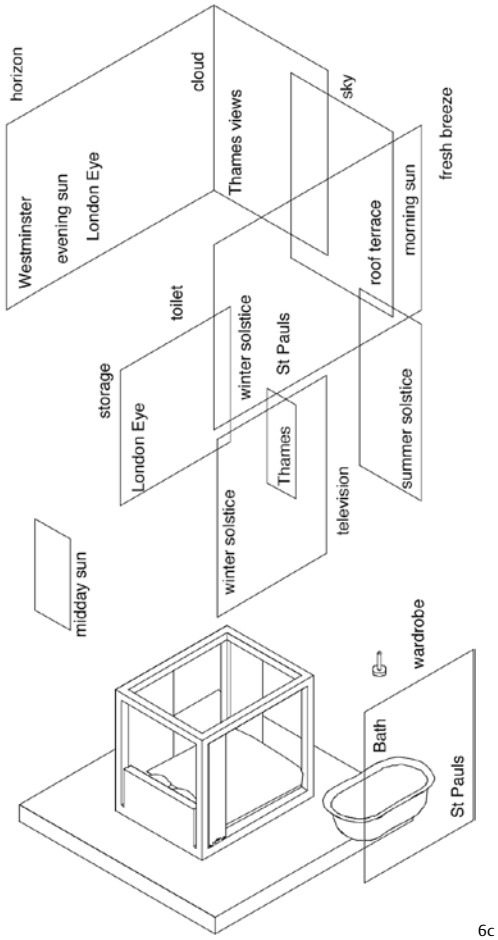
6a

is within a predetermined framework of anticipated use, light, and views. Proposals under construction for a new community centre combine known, timed activities, that are organised according to a programme, with a lobby space that is designed to encourage a more spontaneous, indeterminate approach to succession through use and inhabitation. It seeks to be a 'prepared setting' rather than a 'scripted' space.

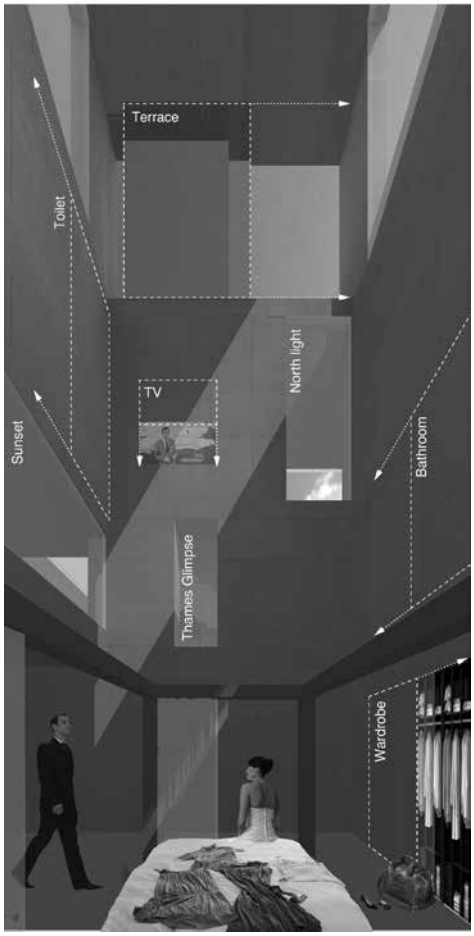
The Ivy Hall Community Centre in Crouch Hill, London, hosts two charitable organisations working with children, together with activities ranging from youth clubs, parent and child groups, drop-in sessions, cookery classes, local meetings, celebrations, a church and a variety of clubs including homework, gardening and keep fit. These activities are governed by a community centre timetable, which defines what will happen and at what time. Organised over three floors the community centre has a large, double-height lobby space at its centre *[7a]*. This unprogrammed space



6b




6c




6d

6 Room for London, South Bank, London, 2010. (Brady Mallalieu Architects)
*a* Daytime view
*b* Serial view showing platform at different heights
*c* Diagram showing apertures
*d* Annotated view of main space

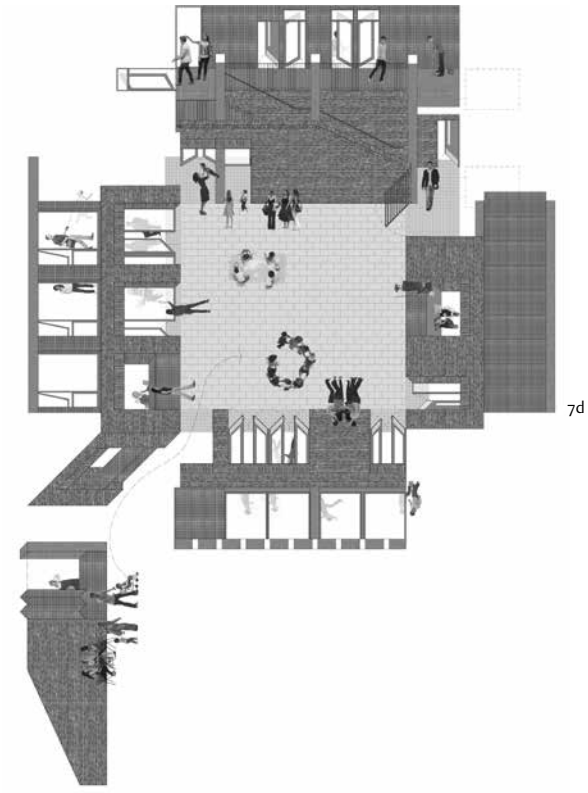

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7a

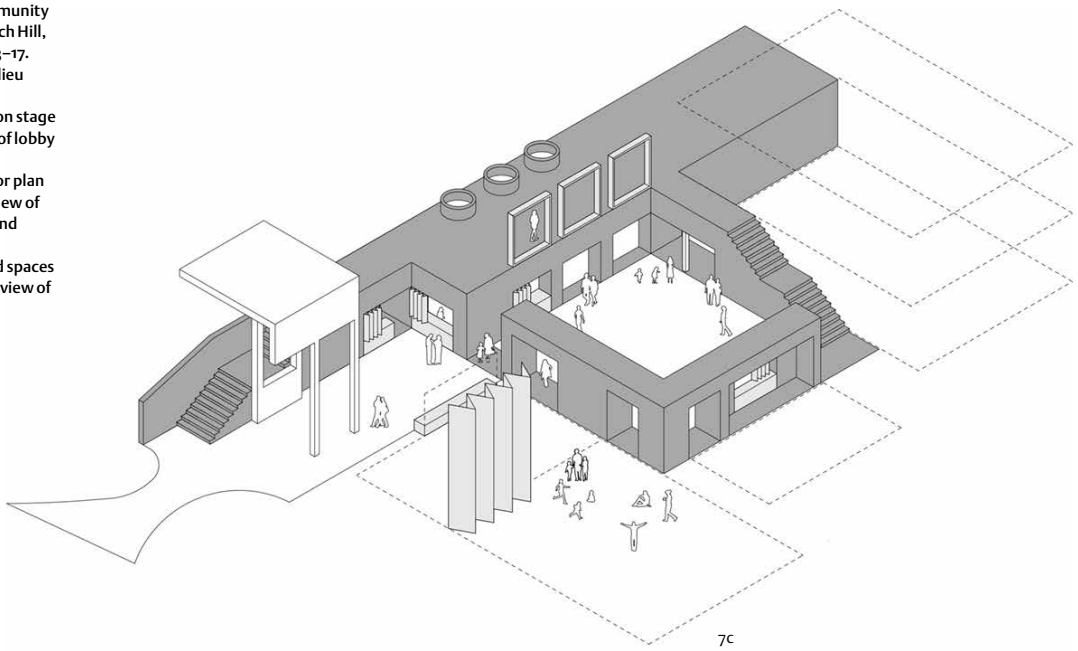


7b



7d

acts as a static datum and organising space for the whole building, visitors pass through it to use any of the programmed spaces that surround it *[7b]*. While the space is unprogrammed, it is designed to prompt and host more casual encounters, events and inhabitation. The lobby perimeter includes intermediate spaces, such as balconies and staircases, that create overlaps with the programmed areas, while openings and solid walls permit, deny or partially allow spatial, acoustic, and visual connections *[7c,d]*. The potential for several known scenarios that are likely to occur has been designed into these relationships to help activate the

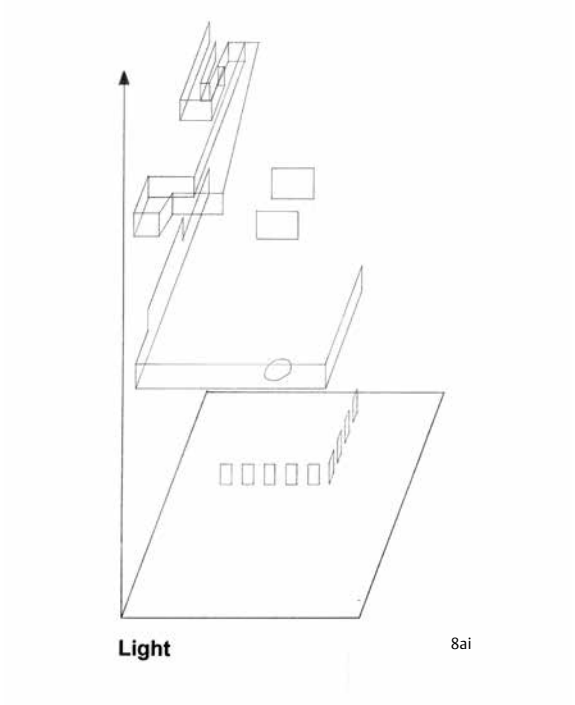


7c

7 **Ivy Hall Community Centre, Crouch Hill, London, 2013–17. (Brady Mallalieu Architects)**
*a* **Construction stage photograph of lobby space**
*b* **Ground floor plan**
*c* **Isometric view of main lobby and surrounding programmed spaces**
*d* **Composite view of lobby space**



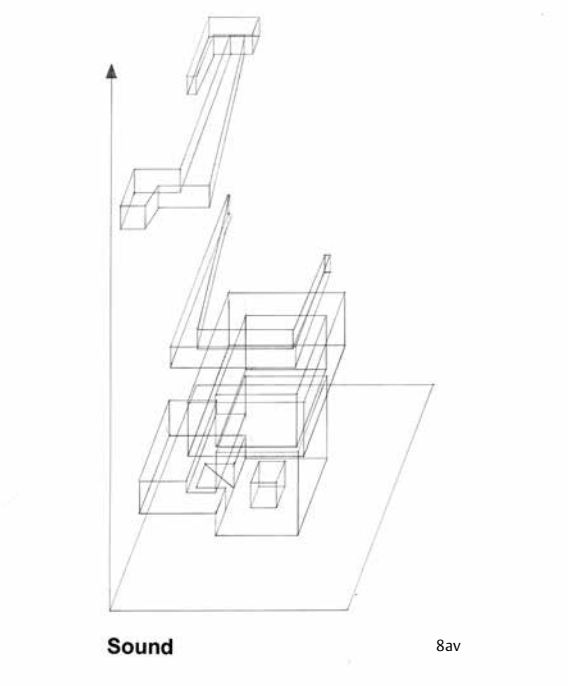
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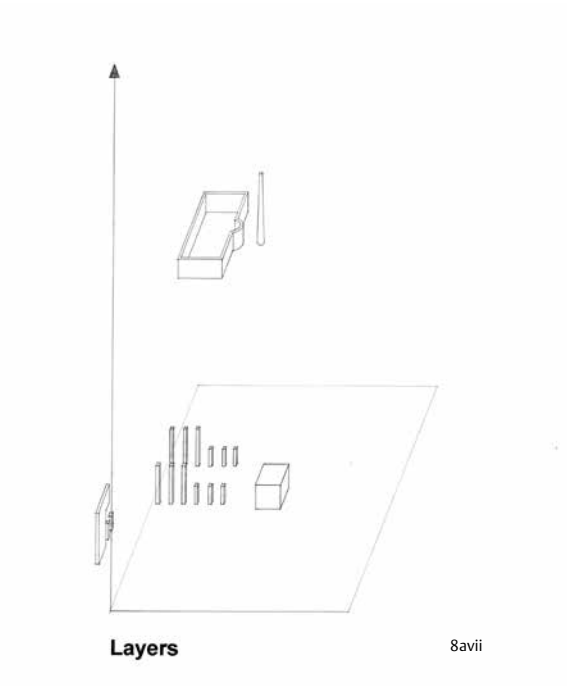

8 Twins Building, Greenwich, London, 1999.

*a* Diagrams exploring the vertical application of temporal elements from slow at the base to fast at the top:
*i* The upper spaces of the building admit both sunlight and daylight which situate them within the cycles of day and night which will vary throughout the year. Lower floors gradually restrict the entry of natural light and make use of artificial light. The only room denied any natural light is the rare books room of the library. Here a dim, even, artificial light persists.
*ii* The lower regions of the building use the mass of the ground and building fabric to minimise any thermal changes. Moving upwards this mass is gradually replaced with a thermally more lightweight steel structure and larger areas of glass exposed to the outside. The uppermost level is extremely vulnerable to changes in temperature. Its expansive areas of glass will mean that spaces will become too hot or too cold at certain times of the year. The uppermost level contains areas that are fully exposed to the climate.
*iii* The stone of the lower section of the building is longer lasting and capable of developing a patina caused by scratches and the eventual smoothing of areas that are touched and rubbed against. The glass and steel cladding that forms the upper levels cannot display this depth of time as easily. Upper floor materials must be replaced more often.
*iv* The geometry of the building gradually changes from a centralised axial organisation on the lower floors, which can be understood without movement, to increasingly complex U-shaped, L-shaped, and Z-shaped geometries on the upper floors where from a single point it is impossible to perceive or deduce that which remains hidden. These spaces must be explored in time. The use of transparent and translucent materials in these areas combined with a more complex geometry further confuse perception.
*v* The slowest spaces in the base of the

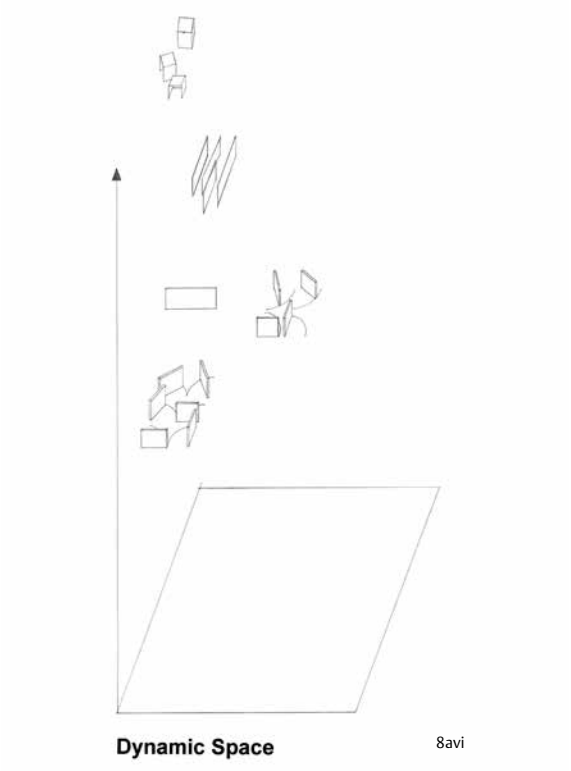

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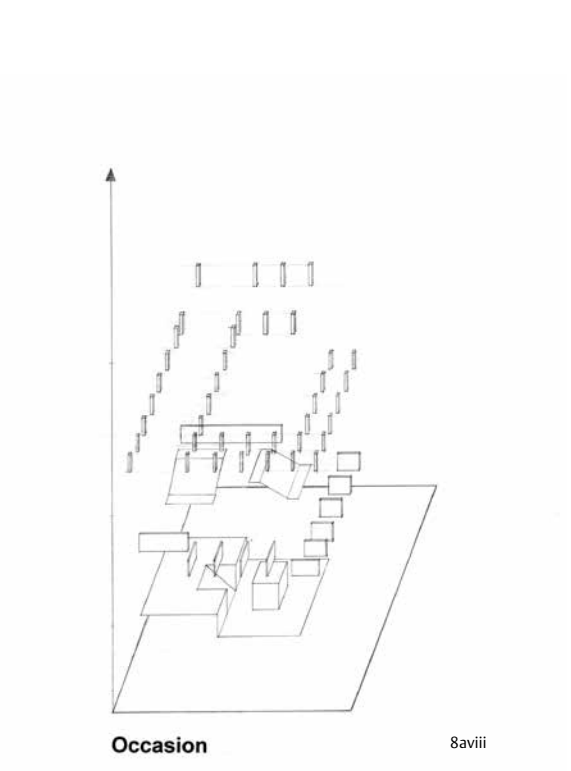
**Sound** 8av



**Layers** 8avii



**Dynamic Space** 8avi



**Occasion** 8aviii

building have a long reverberation time created by large volumes resulting in a thickened hush. The mass of the lower regions insulates them against any sound from adjacent spaces, ensuring a quieter environment. The quicker spaces on the upper floors are intentionally noisier, having reflective glass and metal surfaces and more fluid links with adjacent areas.

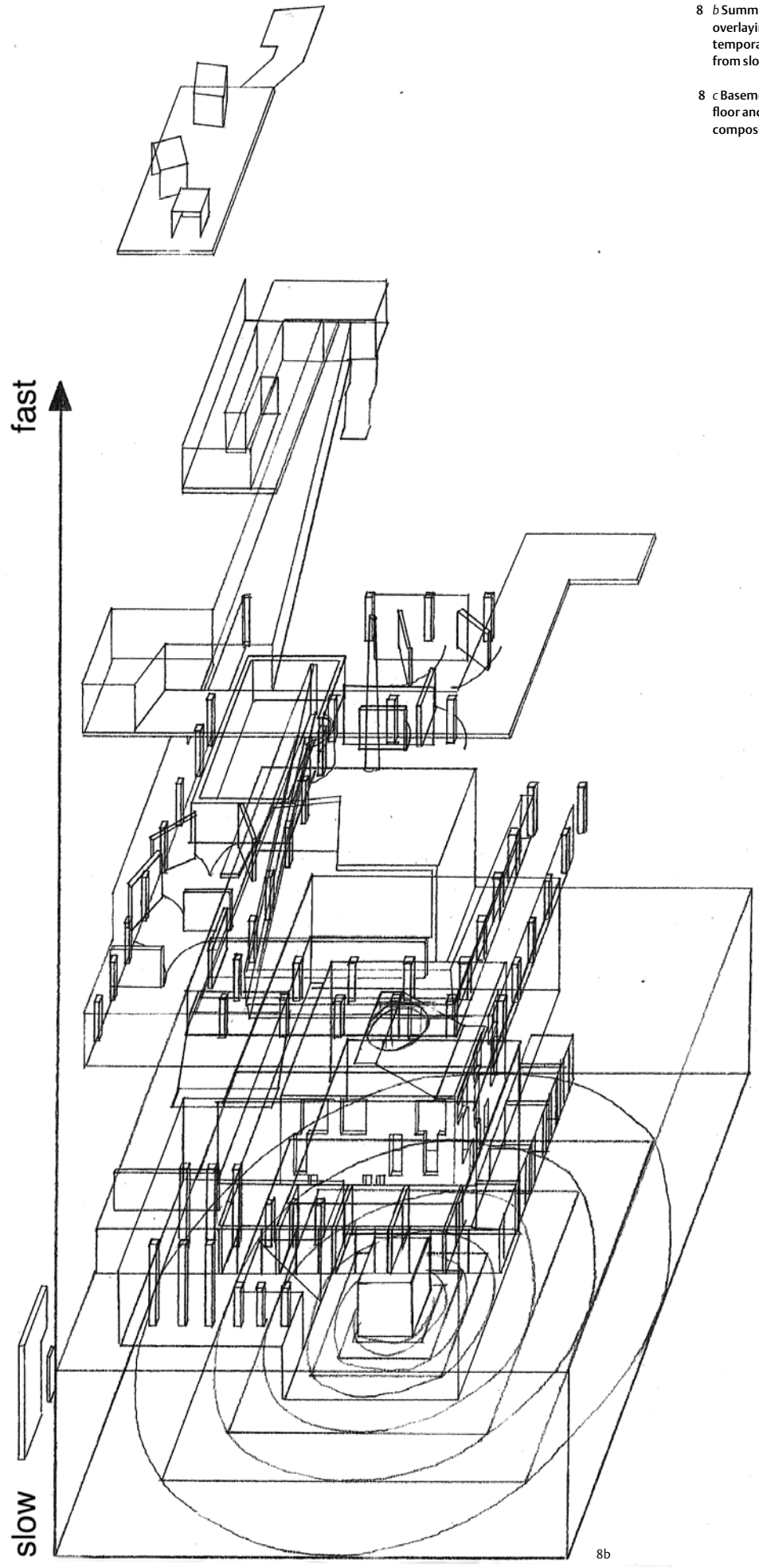
*vi* The lower floors of the building have a fixed arrangement of walls and spaces and are directly connected to the site. Screens on the fourth level rotate to change spaces from small meeting and discussion rooms to larger spaces, which could be used for gatherings or as exam halls. The roof level contains several moveable seating structures which can be reconfigured by the buildings users.

*vii* The top of the building is completely new, but lower levels make increasingly more distant references to the history of the site. At the first floor chimney and wall elements are preserved from the previous building on the site that was demolished to allow the new construction. The ground floor library and reading area make reference to a church which once occupied the site with two lines of columns forming colonnades, suggesting an archetypal 'nave' and 'aisles', which lie on axis of the 'altar' of the rare books room in the centre of the basement.

*viii* Specific, unchanging parts of the programme, such as the library and reading room, are placed on the lowest level. A series of cross walls on the next level sets out a framework which implies a series of spaces that can be infilled with less permanent partitions and doors and provide offices which can respond to changes in organisation and staffing. Above here is a simple grid of columns creating a more indeterminate framework that can be interpreted more freely and might be used for meeting rooms, temporary offices, computer rooms, exams and university events.



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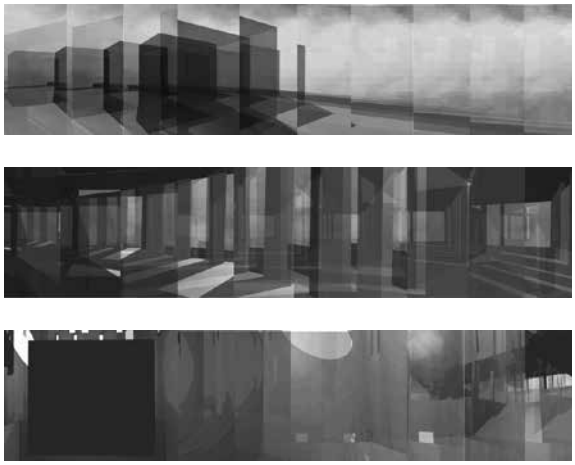



8 *b* Summary diagram overlaying all temporal elements from slow to fast.

8 *c* Basement, first floor and roof level composite views



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unprogrammed space: Large doors to the teaching kitchen open onto the lobby for cookery skills demonstrations, visitors will enquire at the office space that opens directly into the lobby and informal performances might take place there with a casual audience. While the lobby connects the spaces and activities that surround it, it nonetheless has an identity and temporal presence as a space in its own right. It is envisaged that it will host its own activities and events, both predicted and unconsidered.

The space proposed is an inversion of the event space in Greenwich Park. Both spaces are bounded by walls punctuated with openings that regulate succession according to a clock-based temporal structure. In the event space use is prescribed, regardless of environmental, and social conditions. Here, the perimeter spaces are temporally programmed according to the clock but the inner lobby space has a deliberately contrasting, indeterminate quality. A static enclosure of walls is punctuated with simple kinetic devices, such as doors and screens, to organise access to the predicted, programmed elements of the community centre. Such an arrangement is common to many buildings where the use of space is organised according to the clock. The lobby space is a more open counterpoint, one that offers prompts and possibilities for unconsidered use beyond the projected timetable. While the Park Keeper's House imposed a temporal structure based on sunlight and the Clock Square a mechanical time here the 'inhabited lobby'[37] space explores the potential of a more open approach to time where unpredictability is accepted and encouraged. The duration of the space, as a 'prepared setting', creates a ground for the succession of comings and goings of community life.

## The twins building

Each of the studies explored tend to focus on the use of a limited number of temporal elements. The final study attempts to apply a broad palette of elements used to create both succession and duration within a single building. These phenomena are structured according to a metaphorical application of the *twins theory,* which derives from the implications of Einstein's thinking on *space-time*.[38] According to the theory time passes more slowly in a stronger gravitational field and therefore will pass more quickly at the top of a building in comparison to its basement. This begins to order the building according to an interdependence between time and space; slower spaces will be located in the lower parts of the building and quicker spaces on its upper levels. Slower spaces will deny any form of succession, promoting duration, while quicker ones will exploit it *[*8a–d*]*.

Situated on the edge of Greenwich Park, London, this speculative proposal for a university building is located within and programmed with numerous temporal cycles: It has a new intake of students each year whose study is organised into terms. During Easter, Christmas, and in the summer months, undergraduates will not receive teaching in the school, though some may resit examinations. During term time their activities will be dictated by a timetable of lectures, tutorials, and examinations. The staff inhabits the department throughout the year; providing teaching support during semesters and engaging in research at other times. Some facilities will permanently occupy the building, such as the resources of the library. All of these changing patterns of occupation are also caught up within the climatic cycles the building must exist within. Seasonal variations in temperature, weather, and the height of the sun accompany variable daily cycles. In a linear sense the curriculum of the department may change over time, as might the use of the building or the state of its repair.

Successive elements are gradually exposed to these cycles and rhythms at higher points within the building. A range of different temporally dependent aspects of architecture are deployed to achieve this; combining considerations of light, heat, materiality, dynamic elements, programmed and unprogrammed space, sound, movement, and historical layers *[*8a,b*]*. A short summary of the handling of each element is contained with the illustrations opposite. The resultant building form changes from centralised, axial, mass-based lower floors to lighter upper floors with less rigid geometry more exposed to the local light and climate.

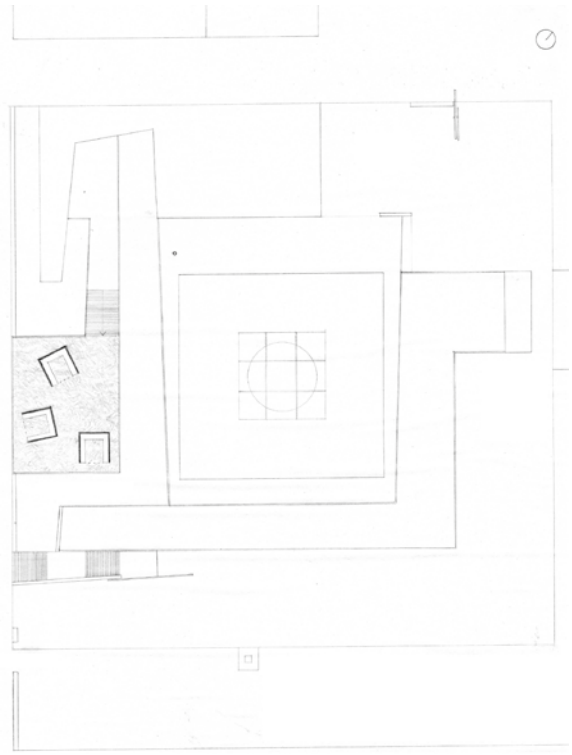
## The quick and the dead

This exploration began using Kümmel's distinction between *succession* and *duration* as a tool to help investigate architectural temporality and temporal structure. Temporally dependent aspects of architecture, identified and explored through design studies, have been organised according to temporal structures relating to the weather, programmed and unconsidered use, clock time, mechanical time, circadian rhythms, entropy, and space-time.

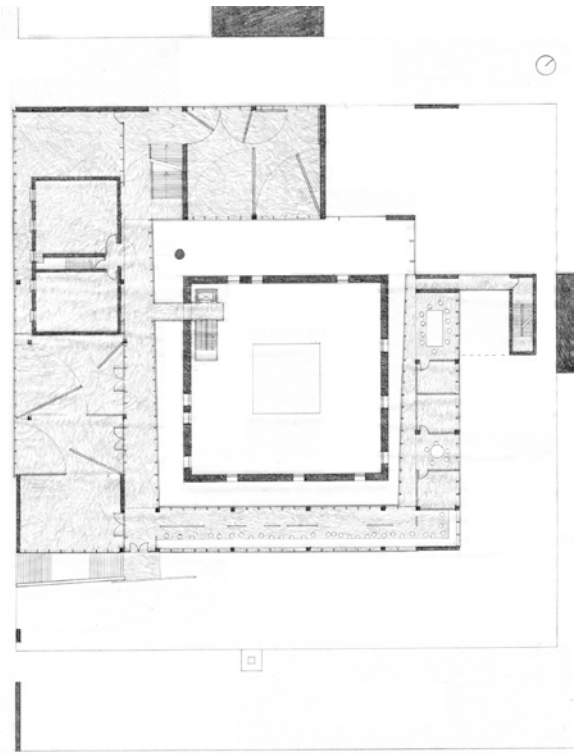
In many cases sites and programmes have been used that already have an obvious temporal character to which the architecture respond; the sphere rests between tidal and non tidal water in an exposed site where decay is accelerated, the Park Keeper has a set routine and the summer pavilions engage with natural cycles. The beginnings and endings of each of the design studies are relatively unexplored. They tend to create a system, or



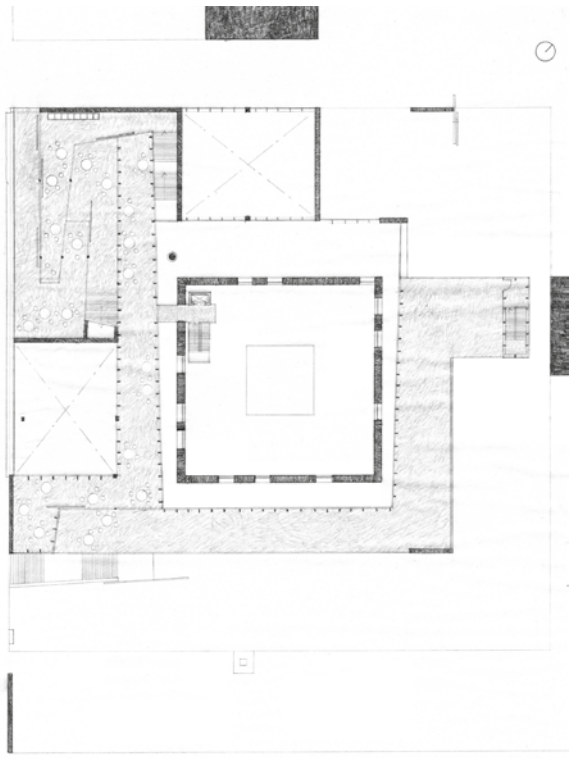
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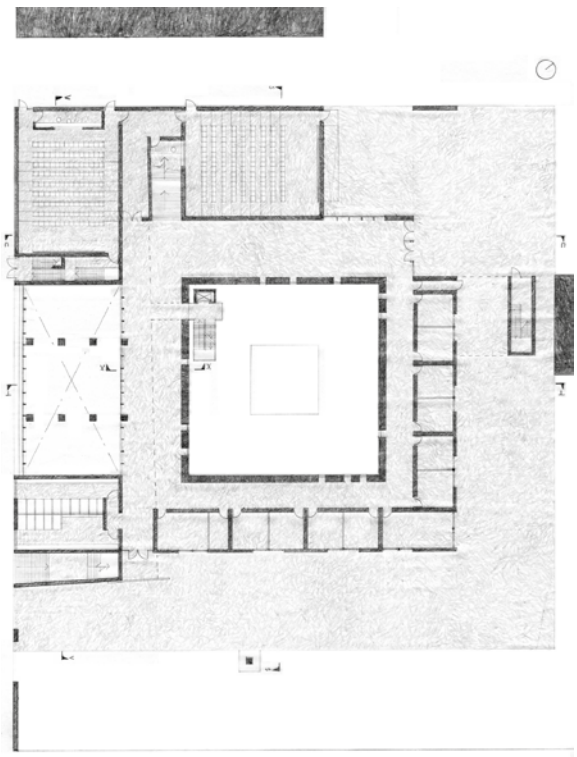
8di



8diii



8dii

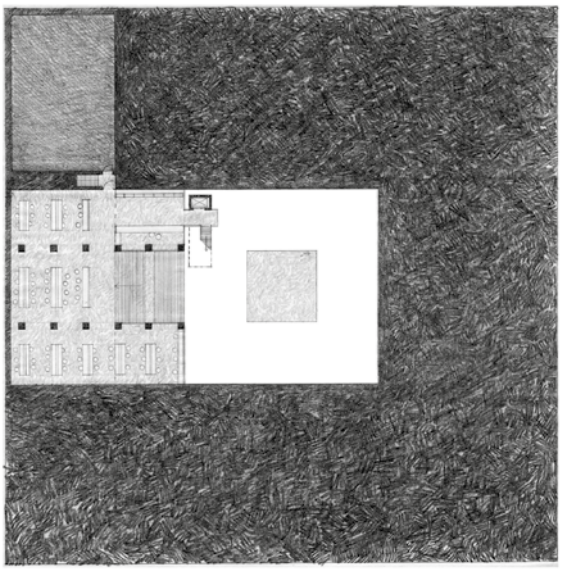


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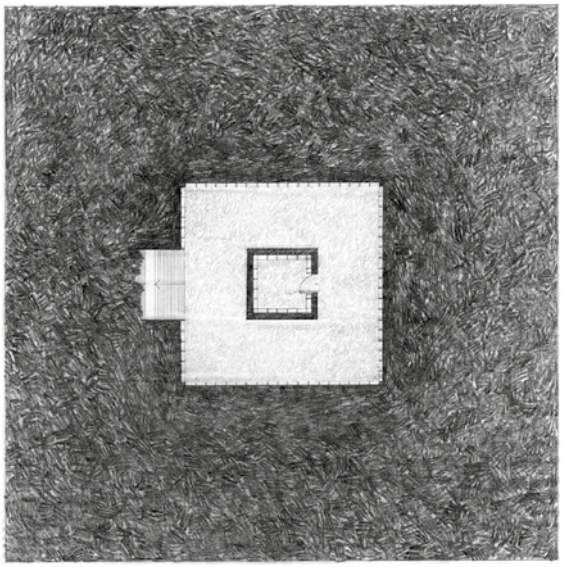
mechanism, attuned to one aspect of time without reference to its creation, maintenance, decay, or destruction. Moving parts are common, producing device-like structures,[39] within which occupants are placed. This almost penitential handling of occupation, such as in the Room for London or Park Keeper's House, presumes a script for the occupant, derived from a temporal structure, which has been imposed by the architect. There is no obligation on the occupant to follow the script, but the architecture prompts them to inhabit the space in a particular way. The architecture, and hence the architect, is imposing both a spatial and temporal structure. If someone who preferred the shadows to light occupied the Park Keeper's House, their pattern of occupation would be very different. The architecture may still be occupied in unexpected ways, or ignored entirely, but has a more temporally deterministic quality than the more open-ended Ivy Hall lobby space that offers prompts and possibilities



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8dv



8dvi

*d* Floor plans
*i* Roof plan
*ii* Second floor plan
*iii* First floor plan
*iv* Ground floor plan
*v* upper basement plan
*vi* lower basement plan

for unconsidered use, perhaps being closer to Rossi's description of architecture as a 'preparation of settings, of modest "instruments"'.

There are formal similarities between several of the studies that often contain a platonic or rectangular volume that is perforated with apertures that admit and control a temporal variable. While the spatial structures may be similar, though differing in scale or proportions, in each case they are activated by a different temporal structure. Many of the studies focus succession on a single, or small group, of temporal elements. In order to bring the successive elements to the fore other elements are given qualities of duration. The stable frame of the Park Keeper's House gives prominence to light and movement. Clock Square and Ivy Hall create fixed frames of reference, which allows the contrast between programmed events and weather, in the case of the former, and programmed events and the possibility of unconsidered uses, in the latter. In these cases, succession and duration become reliant upon each other.

The studies generally use succession on an experiential scale of minutes, hours, days, and seasons. Succession at the longer temporal scales of years, decades, centuries, or millennia is not addressed here, neglecting issues of history, memory, and the presence of the past in the unfolding present thorough monuments, memorials, and ruins.[40] Arguably these longer scales relate more to duration than succession. Kevin Lynch's *What Time is this Place?* (1972) describes the environment as a 'temporal collage'[41] that orientates us in time. Accretions and adaptions to existing buildings and their gradual replacement and redevelopment are read against more enduring structures, whether they be particular buildings, street patterns, or other urban elements.[42]

The use of the distinction between succession and duration can easily be read as a distinction between architecture that engages with time and that which does not. Indeed, many of the studies focus on an exploration of succession rather than duration, foregrounding one over the other. At its root, succession is based on change or movement rather than stillness or permanence. Taken to an extreme, an architecture that focuses solely on duration tends towards tomb-like spaces that exclude life and flux. Duration could thus be pushed to the point at which it begins to exclude the temporal, an observation made by Kümmel on the 'problem' of duration as he grapples with its differences, similarities, and interrelation with succession. This more extreme view of duration suggests notions of the eternal and timeless, or at the very least a collapse of past and future into an unchanging present. Perceptually it is perhaps more helpfully considered as a slower, thicker form of succession or an architecture of duration 'as a machine for slowing down time'.[43] Juhanni Pallasmaa contrasts the 'silence of architecture'[44] with the 'temporal fragmentation of modern life'[45] considering it a stabilising influence in the 'flat screen of the present, upon which the simultaneity of the world is projected'.[46] While superficially his emphasis is on duration his broader interest is in slowness, or a positive use of permanence: 'Architecture connects us with the dead; through buildings we are able to imagine the bustle of the medieval street, and picture a solemn procession approaching the cathedral. The time of architecture is a detained time [...]'[47] Such attitudes engage with longer timescales and are reflected in wider intellectual movements: The *longue durée* emphasises temporally deeper thinking, drawing on history and experience. Organisations such as the Long Now Foundation[48] promote long-term thinking

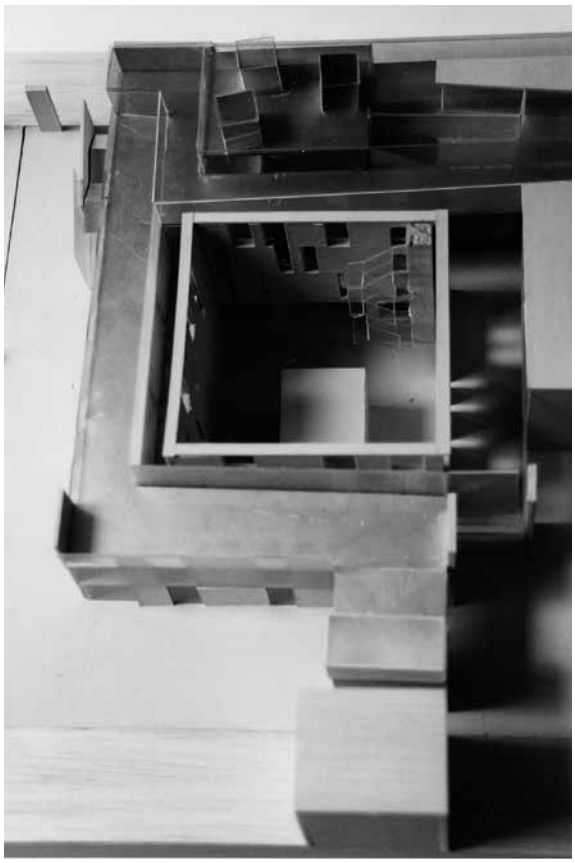


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and the Slow Movement[49] is interested in a gentler pace of life, resisting the more accelerated and accelerating speeds of contemporary living.

Kümmel's use of succession and duration is perhaps best understood as a dialogue, rather than a distinction. While Kümmel used his distinction to help navigate the diverse range of understandings of time, he was also aware that the distinction itself conditioned his understanding and is likely, therefore, to have also conditioned the resultant architectural exploration. The limits of his distinction become apparent when exposed to the particulars of each understanding, which define time on its own terms and cannot often be reduced to a simple dualism. It has here served as a useful scaffold, to identify a broad palette of temporally dependent aspects of architecture and how these might be organised in temporal structures. Similarly, the distinction between 'tales of time' and 'tales about time' should be handled carefully. While studies here might explicitly propose 'tales about time' to explore temporal structures, they help reveal temporal assumptions in all architectural works.

*e* View of physical model with roof removed



8e

The range of projects and their underlying thinking, by their nature, are a partial and ongoing study. Different sites, times, and situations provide material for the creative development of architectural chronotopes that transcend Kümmel's distinction. Just as Bakhtin used the chronotope to identify different types of literature, here it has tentatively helped to identify some different types of architectural approach. This is far from exhaustive and deserves wider study. More broadly, in the present, there is perhaps no single consensus about time but a range of overlapping positions and ideas:

> *What we may now call post-relativity temporality consists of the various sites, both human and non-human, at a multiplicity of scales, from the very small, to the very great, and the dynamic changes and the transformations which inhabit them. These immanent, entity- and material- inhabiting temporalities and their respective time-trajectories are bound together to make up a complex interwoven time with a plethora of different tempos.*[50]

Each of the studies consciously explores, or responds to, a particular temporal structure, yet there is potential for an architectural proposition to create its own sense of time. In this potentially more immanent approach 'time is not an environment in which things happen, but is it the indefatigable happening of things which is time.'[51] One of hallmarks of the chronotope is its fusion of both time and space. While it may be argued here that time has been spatialised, or perhaps we could consider space temporalised in this context, the challenge would seem to be to fuse spatial and temporal characteristics into, to borrow from Bakhtin, an '*artistic whole*'.

**Notes**

1. Andrew Carr, 'The Field of Time: The Uses of Time in Architectural Composition' (Welsh School of Architecture, Cardiff University, unpublished MPhil thesis held in university library and University of Wales Library, 1999).
2. Friedrich Kümmel, 'Time as Succession and the Problem of Duration', in *The Voices of Time*, ed. by J. T. Fraser (New York: George Brazillier, 1966), pp. 31–55.
3. J. T. Fraser, ed., *The Voices of Time*.
4. Kümmel, 'Time as Succession and the Problem of Duration', p. 31. Kümmel's distinction neatly describes the attitudes of contrasting Pre-Socratic thinkers such as Heraclitus, who advocates time as pure flux and change, and Parmenides who considers all time as duration and anything that changes as unreal.
5. Karsten Harries, 'Building and the Terror of Time', *Perspecta* 19 (1979), 59–69; Karsten Harries, *The Ethical Function of Architecture* (Cambridge, MA: MIT Press, 1997); Karsten Harries, 'Time, Death and Building', in *Constancy and Change in Architecture*, ed. by Malcolm Quantrill and Bruce Webb (Texas: A&M University Press, 1991), pp. 23–41.
6. Claudio Silvestrin, 'Something or Nothing: Minimalism in Art and Architecture', in Maggie Toy, ed., *Architectural Design* 69, Nos 5/6: Aspects of Minimal Architecture II (May–June 1999), 9.
7. Bernard Tschumi, *The Manhattan Transcripts* (London: Academy Editions, 1981); Bernard Tschumi, *Event-Cities* (Cambridge, MA: MIT Press, 1994).
8. Florian Beigel and Philip Christou, 'Time Architecture: Stadtlandschaft Lichterfelds Süd, Berlin', *arq: Architectural Research Quarterly* 3, No. 3 (1999), 208; Florian Beigel and Iñaki Abalos,



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*Time Architecture* (London: London Metropolitan University, 1999); Florian Beigel and Philip Christou, 'Brikettfebrik Witznitz: Specific Indeterminacy – Designing for Uncertainty', *arq: Architectural Research Quarterly*, 2 (1996), 18–38; and Florian Beigel and David Kohn, 'Time Architecture' *Scroope 9: Cambridge Architecture Journal*, July (1997), 49–56.

9. Steven Holl, 'Time', in Jordi Safont-Tria, Sanford Winter, Steven Holl, *Color Light Time* (Zurich: Lars-Müller Publishers, 2012), p. 104.
10. Ibid., p. 104.
11. Ibid., p. 105.
12. Steven Holl, 'Time Light', lecture given at Columbia University on 17 April 2013, online: < https://www.youtube.com/watch?v=qnp3g-6VoaU> [accessed 12 July 2017].
13. Malcolm Quantrill and Bruce Webb, eds, *Constancy and Change in Architecture* (Texas: A&M University Press, 1991); Cynthia Davidson, *Anytime* (Cambridge, MA: The MIT Press, 1999); Karen S. Franck, *Special Issue: Architecture Timed: Designing With Time in Mind* 86, No. 1 (January/February 2016).
14. Stuart Brand, *How Buildings Learn* (London: Penguin Books, 1995), p. 24. Brand's 'Shearing Layers of Change' builds on the work of Frank Duffy. See Frank Duffy, 'The Error of Timelessness', *World Architecture* 11 (1991), 50–3. See also Bernard Leupen, René Heijne, Jasper van Zwol, *Time-based Architecture* (Rotterdam: 010 Publishers, 2005), which contains examples of adaptable and flexible buildings and contains essays by significant figures in this area such as Hertzberger and Habraken.
15. Jeremy Till, *Architecture Depends* (Cambridge, MA: MIT Press, 2009); Jeremy Till, 'Architecture in Space, Time', in *Architecture and Anthropology*, ed. by Claire Melhuish (London: Academy Editions, November 1996), pp. 12–16.
16. Jonathan Hill, *Weather Architecture* (London: Routledge, 2012). Some other publications by the same author also have relevance here: *Actions of Architecture, Architects and Creative Users* (London: Routledge, 2003), and *Immaterial Architecture* (London: Routledge, 2006).
17. Mikhail Bakhtin, 'Forms of Time and the Chronotope in the Novel', in Mikhail Bakhtin, *The Dialogic Imagination* (Austin: University of Texas Press, 1981), p. 84.
18. See, for instance, Paul Smethurst, *The Postmodern Chronotope, Reading Space and Time in Contemporary Fiction* (Amsterdam: Rodopi B. V., 2000).
19. Gotthold Lessing proposed that it is possible to distinguish between arts of space (painting, sculpture, and architecture) and arts of time (poetry and music), between formative and expressive arts respectively. See Harries, 'Time, Death and Building', p. 24.
20. K. Michael Hays, 'Hejduk's Chronotope (an introduction)', in *Hejduk's Chronotope*, ed. by K. Michaek Hays (New York: Princeton Architectural Press, 1996), pp. 7–21.
21. Lily Chi, '"The Problem with the Architect as Writer..." – Time and Narrative in the work of Aldo Rossi and John Hejduk', in Louise Pelletier and Alberto Perez-Gomez, *Architecture, Ethics and Technology* (Montreal: McGill-Queens University Press, 1994), p. 203.
22. The Victims project proposed by Hejduk for a site in Berlin comprises a number of separate smaller structures within a larger compound. He includes 'Notes for a Construction of a Diary', which documents among other events, the days on which named structures will be built, incrementally over two thirty-year periods. As is common with other works by Hejduk the structures have a very specific, scripted quality. See John Hejduk, *Victims* (London: Architectural Association, 1986).
23. Ibid., p. 219.
24. Paul Ricoeur, *Time and Narrative, Volume 2* (Chicago: University of Chicago Press, 1985), p. 101.
25. *Mrs Dalloway,* originally titled *The Hours,* has an overt temporal structure as is common with other examples of Woolf's work such as: *The Years, Orlando, Jacob's Room,* and *The Waves Jacob's Room*. A shorter meditation on time is the basis of *The Mark on the Wall* contained in Virginia Woolf, *Monday or Tuesday* (Richmond: Alma Classics, 2014 [orig. pub. 1921]), pp. 69–80.
26. Mohsen Mostafavi and David Leatherbarrow, *On Weathering* (Cambridge, MA: MIT Press, 1993), p. 5. Leatherbarrow has widened these arguments further to discuss the 'performance' of a building: David Leatherbarrow, *Architecture Oriented Otherwise* (New York: Princeton Architectural Press, 2009), p. 53.
27. For a wider discussion and further examples of the *immaterial*, see: Jonathan Hill, *Immaterial Architecture* (London: Routledge, 2006).
28. Russell Foster and Leon Kreitman, *Rhythms of Life* (London: Profile Books, 2004), p. 2.
29. Steen Eiler Rasmussen, *Experiencing Architecture* (Cambridge, MA: MIT Press, 1992 [orig. pub. 1959]), p. 135.
30. For a broader study of movement, see: Peter Blundell Jones and Mark Meagher, eds, *Architecture and Movement: the Dynamic Experience of Buildings and Landscapes* (London: Routledge, 2015); and Geoffrey Baker, 'James Stirling and the Promenade Architecturale', *Architectural Review*, December (1992), 72.
31. For examples, see: 'Light and Time', in Henry Plummer, 'The Poetics of Light', *Architecture and Urbanism, Extra Edition*, December (1987).
32. See 'Time and Entropy', in Luis Fernández-Galianol, *Fire and Memory, On Architecture and Energy* (Cambridge, MA. MIT Press, 2000), pp. 55–7.
33. Henri Lefebvre and Catherine Régulier, 'Attempt at the Rhythmanalysis of Mediterranean Cities', in Henri Lefebvre, *Rhythmanalysis: Space, Time and Everyday Life* (London: Continuum, 2004), pp. 85–100.
34. Paul Virilio, *Open Sky* (London: Verso, 1997).
35. Isaac Newton quoted in A. Cornelius Benjamin, *Ideas of Time in the History of Philosophy*, in Fraser, *The Voices of Time*, p. 20.
36. See, for instance: Robert Kronenberg, *Portable Architecture* (London: Architectural Press, 1996); and Robert Kronenberg, *Houses in Motion* (London: Academy Editions, 1995).
37. For a broader exploration of the 'inhabited lobby', see: Andrew Carr, 'Inhabited Lobbies: The Social Life of Space in the Work of Brady Mallalieu Architects', *arq: Architectural Research Quarterly* 20, No. 2 (June 2016), 104–17.
38. Einstein published his *Special Theory of Relativity* in 1905 and his *General Theory* in 1915. One of the implications of these papers was that time and space were interdependent. Previously time was considered as a neutral framework within which events occurred. Now events at particular points in time also needed to be considered as occurring at particular points in space, both being linked to gravity. 'Another prediction of general relativity is that time should appear to run slower near a massive body like the earth [...] Consider a pair of twins. Suppose that one twin goes to live on the top of a mountain while the other stays at sea level. The first twin would age faster the other.' Stephen Hawking, *A Brief History of Time* (London: Bantam Press, 1988), p. 37.



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39. David Leatherbarrow has referred to architecture that attempts to engage with time using dynamic, moving parts as the 'device paradigm', contrasting it with a static topographical approach. David Leatherbarrow, *Architecture Oriented Otherwise* (New York: Princeton Architectural Press, 2009), p. 53.
40. See Christopher Woodward, *In Ruins* (London: Chatto and Windus, 2001); and Aloïs Reigl, 'The Modern Cult of the Monument', *Oppositions* 25 (autumn 1982), 21.
41. Kevin Lynch, *What Time is this Place?* (Cambridge, MA: MIT Press, 1972), p. 65.
42. See also 'Collage City and the Reconquest of Time', in Colin Rowe and Fred Koetter, *Collage City* (London: MIT Press, 1978), pp. 118–49.
43. Laurent Beaudouin, 'Manifesto for a Slow Architecture', *Architecture+Urbanism* 330 (March 1998), 4–5.
44. Juhanni Pallasmaa, *The Eyes of the Skin, Architecture and the Senses* (Chichester: Wiley-Academy, 2005), p. 52.
45. Steven Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, 'Questions of Perception, Phenomenology of Architecture', *Architecture and Urbanism*, Special Issue (July 1994), 4.
46. Juhanni Pallasmaa. *The Eyes of the Skin, Architecture and the Senses*, p. 52.
47. Juhanni Pallasmaa, in Holl, Pallasmaa, Pérez-Gómez, 'Questions of Perception, Phenomenology of Architecture', 31.
48. Stewart Brand, author of *How Buildings Learn,* serves as the co-chair and president of the Board of Directors of the Long Now Foundation: 'The Long Now Foundation was established in 1996 to develop the Clock and Library projects, as well as to become the seed of a very long-term cultural institution. The Long Now Foundation hopes to provide a counterpoint to today's accelerating culture and help make long-term thinking more common. We hope to foster responsibility in the framework of the next 10,000 years.' The Long Now Foundation, online: <http://longnow.org> [accessed 7 October 2016]. See also Stewart Brand, *Clock Of The Long Now: Time and Responsibility* (New York: Basin Books, 1999).
49. Carl Honore, *In Praise of Slow: How a Worldwide Movement is Challenging the Cult of Speed* (London: Orion, 2005).
50. Russell West-Pavlov, *Temporalities* (London: Routledge, London, 2013), p. 141.
51. Ibid., p. 84.

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