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RESEARCH BY DESIGN
Architecture is a Time Machine

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Abstract: Expanding ideas that I previously explored in »Design Research: The Next 500 Years« (Hill 2022), this article considers the contributions to temporal understanding of three analogies: architecture as a time machine, as a history, and as a fiction. Assembled from materials of all ages: from the newly formed, to those centuries or millions of years old, and incorporating varied rates of transformation and decay, a building is a time machine, transporting us to many times separately or simultaneously. Like a history, a design is a reinterpretation of the past in the present. Equally, a design is equivalent to a fiction, freely moving backward and forward in time and between types of time. In conclusion, I emphasize temporal understanding as a means by which to learn from the past, reassess the present, and speculate on future models of practice and discourse.

Keywords: Design Research; Architectural History; Fiction; Types of tTme; Future Models of Practice and Discourse.

Time Travel

Contemporary physicists dismiss anyone who believes in time – the past, present, and future – as equivalent to people who still think the earth is flat or the sun revolves around us. Carlo Rovelli acknowledges a few «dissenting voices«, including Lee Smolin, who he describes as a »great« scientist (Rovelli 2017: 191), However, Smolin traces contemporary physics back to the metaphysics of Ancient Greece. In *Timaeus*, c. 360 BCE, Plato claims that all the things we experience in the material world are modelled on ideal forms defined by geometrical proportions (Plato 1929: 121). Consequently, there are two distinct realms. One consists of timeless originals, which only the intellect can comprehend, the other of imperfect copies subject to decay. According to Smolin:

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> »Those burdened by the metaphysical presupposition that the purpose of science is to discover timeless truths represented by timeless mathematical objects might think that eliminating time, and so making the universe akin to a mathematical object, is a route to a scientific cosmology. But it turns out to be the opposite […] The research program based on the timeless universe that embraces quantum mechanics and the multiverse as the final theory has been around for more than two decades. It has not yet produced a single falsifiable prediction for a currently doable experiment.« (Smolin 2013: 238–239, 249).

Since the 18th century, knowledge has been subdivided into specialisms with limited understanding of each other's debates. Consequently, the temporal understanding of a geologist, a historian, a medical practitioner, or an architect is quite distinct. Instead, Smolin argues that temporal understanding should be disciplinary and transdisciplinary, concluding that: »a civilization whose scientists and philosophers teach that time is an illusion and the future is fixed is unlikely to summon the imaginative power to invent the communion of political organizations, technology, and natural processes – a communion essential if we are to thrive sustainably beyond this century« (Smolin 2013: 258). Distinctions between the artificial and natural are rooted in the metaphysical hierarchy of the timeless and (supposedly) mindless:

> »To learn to live with our planet, we have to rid ourselves of the vestiges of this old yearning for elevation from it […] We need to see everything in nature, including ourselves and our technologies, as time-bound and part of a larger, ever evolving system« (Smolin 2013: 257).

Time is relative. Affected by speed and mass, time is slower in the far north than at the equator, slower in the plains than in the mountains, and slower at your feet than at your head (Rovelli 2017: 12; Sorenson 2008: 79). Light weaves through spacetime. Given the speed of light and thus the time that light takes to reach us, the stars we see in a night sky are in the past not the present. Equally, the sun we observe on a summer's day is the past sun not the present sun.

Rovelli quips: »Time travel is just what we do every day, isn't it? Every single day we travel one day ahead in time« (Rovelli 2019). According to Dean Buonomano, »the brain is a time machine« collecting the past and assessing the present to anticipate the future (Buonomano 2017: 15). Some people are

better time travellers than others. An exceptional footballer can project themselves forward in time and predict the movement of the ball and opponents. The building is also a time machine. Assembled from materials of various ages, from the newly formed, to those centuries or millions of years old, and incorporating varied rates of transformation and decay, a building can curate the past, inform the present and imagine the future, transporting us to many different times simultaneously. The stones of a building belong to the geological time they were wrought, the time they were quarried, the time they were integrated into a construction site, the ever-progressing time of subsequent environmental change, and the varied times they are experienced. We may seem to travel back in time, while architectural materials and components have literally traveled forward to us. Just as much as any collection of papers or drawings, a building is an archive. Rather than static, it is an evolving collection of ideas, values, materials, and lives, with the capacity to acknowledge the histories and timeframes of related disciplines, whether thousands of archaeological years or millions of geological ones. Gazing at a marble wall, we can appreciate the geological »Abyss« of deep time (Gould 1987: 61–65). Our thoughts may be cast back to a pre-human era when ancient creatures inhabited the earth or forward to a post-human era when humans are extinct. If we contemplate a sedimentary stone, we see time's arrow and the possibility of ruin. If we gaze at an igneous or metamorphic stone, we see time's cycle and the possibility of repair.

In many time travel tales, the protagonists wish to change the past not just observe it. But since H.G. Wells coined the term in 1895, the time machine is notably unreliable (Wells 1895). The unpredictability of time travel is exploited for narrative tension. Architecture is also an erratic rather than a reliable time machine. It cannot change the past but may alter our understanding, while it can potentially change the future. A building does not just exist in time; it creates time, traveling forward as a message to the future. However, there is nothing as old-fashioned as a past vision of the future. We have all experienced the sense that time has reversed. An era that seemed to be in the past becomes the future. In the early 21st century, the environmental catastrophe of agricultural overproduction sees hedgerows replanted, industrial pesticides discarded, and farms rewilded. The low tolerance and high susceptibility to failure of complex building systems sees thermal comfort reassessed and traditional technologies revived.

Architects of History and Fiction

Architecture's time travel tools and techniques are varied and interdependent: buildings, books, models, and drawings, histories, fictions, memories and designs. Architects use history in differing ways. Either to indicate thoughtful continuity with the past or cathartic divergence from it. From the Renaissance to the early 20th century, the architect was a historian in the sense that a treatise combined design and history, and a building was expected to manifest the character of the time and knowingly refer to earlier eras. Sometimes continuity and catharsis combined, as in the 19th-century critique of classicism and revival of gothic.

Modernism ruptured this system in principle if not always in practice. Walter Gropius excluded the history of architecture from the Bauhaus syllabus, breaking from previous educational models and advocating designs specific only to the present. In the »Manifesto of Futurist Architecture« (1914 CE), Antonio Sant'Elia and Filippo Tomasso Marinetti proclaimed: »This architecture cannot be subject to any law of historical continuity« (Sant'Elia and Marinetti 1914: 34–38). However, even early modernists who denied the relevance of the past relied on histories to validate and articulate modernism. Books such as Nikolaus Pevsner's *Pioneers of the Modern Movement* (1936)[1] and Sigfried Giedion's *Space, Time and Architecture* (1941), identify a modernist pre-history to justify modernism's historical inevitability, rupture from the past, and systematic evolution. These authors present modernism as homogenous and primarily Western, which implies that other regions should be judged against this model. For example, in China and Japan, the idea of the architect as a designer, and architecture as an art, arrived with modernism. Consequently, Arata Isozaki concludes that a pre-modern Japanese building could retrospectively become architecture and the architect could »be interpolated, however anachronistically, between patron and master carpenter« (Isozaki 2006: 293).

By the mid-20th century, modernism was no longer new and was ripe for reassessment. World War II was more scientific than World War I, undermining confidence in technological progress as a means of social transformation. Notably, for the generation of architects who were old enough to see military service, modernism's previously dismissive reaction to social norms,

1 *Pioneers of the Modern Movement* was reprinted as *Pioneers of Modern Design* in 1949 and revised in 1960.

cultural memories, and historical references became anachronistic. Modernism developed into a polycentric, worldwide network of distinct, varied, and interdependent regional and local modernisms.

In a radio broadcast in 1966, a decade before Charles Jencks familiarized the term, Pevsner characterized the post-war designs of Le Corbusier and Denys Lasdun as »postmodern«, which he associated with the anxious aftermath of war. (Pevsner 1966: 299, 307; Hudnut 1945: 70–75). But it is more accurate to categorize their designs as simultaneously pre-modern, modern and post-modern. Associating history writing with storytelling, Lasdun remarked that each architect must devise their »own creative myth«, a collection of ideas, values, forms, and techniques that stimulate design. He concluded: »My own myth […] engages with history«, emphasizing that »I don't mean myth in the sense that it is untrue« (Lasdun 1984: 137,139; Lasdun 1979: 9). In a similar vein, in 1969, Vincent Scully stated that the architect will »always be dealing with historical problems –with the past and, a function of the past, with the future. So the architect should be regarded as a kind of physical historian […] the architect builds visible history« (Scully 1969: 257). Thus, the architect is a historian twice over: as a designer of buildings and an author of books.

A history is an interpretation of the past in the present. It is also a reflection on earlier histories. One history may need to be categorically rejected so that another can be formulated. Instead, selective appraisal may be fruitful. Alternatively, past ideas, forms, practices, and histories can be acknowledged as incomplete, and thus ready to be revived, enriched, and expanded in the present.

As a design is equivalent to a history, we may expect the architect »to have a certain quality of *subjectivity*« that is »suited to the objectivity proper to history«, as Paul Ricoeur concludes (Ricoeur 1965: 22). Historical writing requires imagination as well as analysis, but the architect does not usually construct a history with the rigor expected of a contemporary historian and may combine varied qualities and genres instead.

Histories and novels need to be convincing in different ways. Although no history is unbiased, to have any validity it must appear truthful to the past. However, a novel may be believable but not true. In »The Fiction of Function« (1987), Stanford Anderson emphasizes that there was no coherent theorization of functionalism in the early 20th century and little indication that it was rigorously applied to design. Instead, he argues: »modern architecture, more than that of any other time, emphasized stories about func-

tion« (Anderson 1987: 21). This encourages us to consider the stories about history that architects fabricate.

The architect is a »physical novelist« as well as a »physical historian« (Hill 2021: viii–xix). Like a history, a design is a reinterpretation of the past in the present. Equally, a design is equivalent to a fiction, convincing users to suspend disbelief. We expect a history or a novel to be written in words, but they can also be delineated in drawing, cast in concrete, or seeded in soil.

Exceptional architects are exceptional storytellers. Such tales have special significance when they resonate back-and-forth between private inspiration and public narrative. A building tells stories through its forms, spaces and uses, means of construction, combination of materials, and relations with physical, social, and environmental contexts. Architectural stories can address the most important, stimulating issues of the day. For example, ideas about climate express wider values, including attitudes to nature, ethics, and governance. Conceiving the architect as a storyteller places architecture at the center of cultural and social production, stimulating ideas, values, strategies, and emotions that inform and influence individuals and societies.

Technologies of the Self

The earliest known histories originated over 4,000 years ago through record-keeping in Mesopotamia and Egypt, while the term »history« derives from Ancient Greece. Emphasizing Enlightenment reason, objectivity, and progress, the Western idea of history spread around the world with the colonial powers. Rather than necessarily enlightening, it was a means to perpetuate Western ideology, establishing a benchmark against which alternative histories were deemed deficient. In the second half of the 20th century especially, suspicion of meta-narratives developed in many regions of the world, including the West. A historical method embedded in skepticism became subject to skepticism. Although the Western idea of history remains influential and widely disseminated it has been informed and transformed by its travels. Other models are also evident. For example, there is a strong oral history tradition in Africa, where historical writing initially developed through contact with Christianity and especially Islam in North Africa. History today does not offer a singular model but a multiplicity of hybrid approaches.

Concepts of fiction today are equally varied. The history of long prose fiction is around 2,000 years old, but the novel is a more recent innovation. The

date and location of the first novel is disputed, depending on the literary tradition that is selected. Admired for its convincing depiction of court life in early 11th-century Japan, Murasaki Shikibu's *Tale of Genji* is a candidate for the first novel. Often characterized as the first European novel, Miguel de Cervantes' *Don Quixote*, (1605–1615), claims to be an accurate account of an actual person. The Catholic Counter Reformation ensured that Cervantes' skeptical, secular relativism was comparatively rare in 17th-century Spain (McKeon 1987: 293). The novel's development into a distinctive, popular literary form is often identified with early 18th-century England. In valuing direct experience, precise description, and a skeptical, questioning approach to »facts«, empiricism created a fruitful climate for »factual fiction« (Davis 1983: 213). In contrast to the epic or romance, which incorporated classical myths and archetypes, the novel concentrated on everyday lives in enterprising, expansionist, and increasingly secular societies, emphasizing individualism as well as imperialism, unfortunately.

The dilemmas of personal identity and fortune were ripe for narrative account. Frequently described as the first English novel, Daniel Defoe's *Robinson Crusoe* (1719), is a fictional autobiography. Defoe describes his other famous novel *Moll Flanders* (1722) as »a private History«, and *Roxana* (1724), as »laid in Truth of Fact« and thus »not a Story, but a History« (Defoe 1722: 3; Defoe 1724: 21). Supporting authors' claims that their novels were histories, the transition to a methodical, comparative method was slow and most 18th-century histories inherited some of the rhetorical approach of earlier histories.

The early novels – fictional autobiographies – developed in parallel with early diaries – autobiographical fictions. People have written about themselves for millennia but the formation of modern identity in the 18th century is associated with a type of diary writing that Michel Foucault describes as a »technology of the self«, the process of self-examination by which moral character and behaviur are constructed and reimagined (Foucault 1984: 369; Foucault 1988: 18–19). Objectivity may be an aspiration, but no diary is entirely truthful, and the diarist cannot fail to edit and reinvent their life while reflecting upon it, altering the past and influencing the future.

In 1714, William Kent began a visual and textual diary, »Remarks by Way of Painting & Archit.« which records his journeys around Italy. Written in English and Italian, the diary analyzes buildings, gardens, and paintings, and includes small drawings and diagrams in the margins and the text. The most impressive section is the final one, which contains delicate illustrations of complex perspectival techniques in line and wash (Kent 1714–1717: 25–36).

Equivalent to a visual, textual, and spatial diary, the process of design –from one drawing to the next iteration and from one project to another – is itself an autobiographical »technology of the self«, formulating a design ethos for an individual or a studio.

Emphasis on individualism and self-reflection triggered fractured narratives, alternative scenarios, and myriad digressions in the garden as well as the novel and diary. Equally, the early 18th-century landscape is equivalent to a history, reimagining the past in classical reconstructions and imported trees. Kent's Rousham, Oxfordshire, 1737–1741, is a fiction and a history, as well as an allegory of the life and declining health of Kent's patron, General James Dormer, who died just as the garden was completed.

In 17th and 18th–century societies, the emergence of a secular understanding of time focused more on life and less on the afterlife, giving greater emphasis to distinctions between the past, present, and future, and stimulating abundant temporal metaphors such as the setting sun, weathered and ruined buildings, and decaying vegetation. The pleasures of life were especially poignant because they were fleeting and perishable. Reference to the seasons of the year and the seasons of a life suggest both a cyclical concept of time from one spring to the next, in which death renews life, and time becomes a linear concept from one year to another.

Architectures of Remembering and Forgetting

Rousham is an early and influential example of the picturesque landscape. For an 18th-century architect or patron, classical buildings in an Arcadian setting would have conjured associations with the architecture and landscape of Ancient Rome – including those depicted by 17th-century painters such as Claude Lorrain and Salvador Rosa – translated and improved for a new time and site. But for many visitors a picturesque estate that now seems quintessentially English would have also seemed shockingly new.

A prospect of the future is implicit in many histories, novels, and diaries, but it is explicit in many designs. An architect does not necessarily design for today and may have a different time in mind. Some architects plan for the present, some imagine a mythical past, while others conceive for a future time and place. Alternatively, an architect can envisage the past, the present, and the future in a single architecture. In many eras, the most fruitful architectural innovations have occurred when ideas and forms have migrated from one time and place to another by a translation process that is as inven-

tive as the initial conception. Thus, a design can be specific to a time and place and a compound of other times and places.

In *The Seven Lamps of Architecture* (1849), John Ruskin remarks that »we cannot remember without« architecture (Ruskin 1849: 169), yet each building is an attempt to forget some things and remember others (Forty 1999: 16). Written during the troubled aftermath of war and foreseeing a dystopian near-future, George Orwell refers to the Party slogan in 1984: »Who controls the past controls the future. Who controls the present controls the past« (Orwell 1949: 44). A building is commissioned, designed, and constructed with specific agendas in mind, promoting some values and ignoring others, but it is rarely so didactic and dogmatic, and may be open to numerous interpretations. Original meanings are soon obscured or transformed unless they are continuously reaffirmed through everyday behavior and careful maintenance, which are as necessary to perpetuating collective memory as any material object. Whether collective or personal, memory varies according to who is remembering and when. Our perceptions and memories are fallible and creative. For example, the eyes receive inexact information and the brain extrapolates from previous knowledge and experience to create a plausible, seemingly comprehensive image. Rather than just living in the moment, we filter the present through memories of the past, and speculations on the future that are permeated by personal and collective values woven many times into one. As we move from place to place, we may seem to move backward or forward in time or oscillate between them.

Future Practices

Twenty-first-century architects can appreciate the shock of the old as well as the shock of the new (Edgerton 2008). To ask what is new involves other questions: why is it new, how is it new, and where is it new? In William Gibson's memorable statement: »The future is already here – it's just not very evenly distributed« (Gibson 1992). To understand what is new, we need to consider the present, the past, and maybe even the future: we need to think historically. Defining something as new is an inherently historical act because it requires an awareness of what is old.

The first such program in the United Kingdom, the PhD in Architectural Design at The Bartlett School of Architecture, UCL, was established in the mid-1990s. The first student completed the doctorate in 2000, and over 80 students have graduated since. The architectural design doctorate is a com-

paratively new architectural qualification but its methods and means are not. Indeed, they have been invaluable to architects for centuries.

The Renaissance's concern for history was inseparable from its own history. Erwin Panofsky identifies a creative and critical nostalgia for classical antiquity »that distinguishes the real Renaissance from all those pseudo- or proto-Renaissances that had taken place during the Middle Ages« (Panofsky 1955: 302–303). In *Anachronic Renaissance*, Alexander Nagel and Christopher S. Wood write: »The ability of the work of art to hold incompatible models in suspension without deciding is the key to art's anachronic quality, its ability really to ›fetch‹ a past, create a past, perhaps even to fetch the future« (Nagel and Wood 2010: 18).

The Renaissance reasserted classical antiquity's appreciation of the timeless, immaterial geometries of ideal forms but introduced a fundamental change in perception to proclaim that drawing mediates seamlessly between the mind and the world, allowing the three visual arts – architecture, painting, and sculpture – to be acknowledged as arts concerned with ideas, acquiring advanced status that they had not received before the 15th century. The term »design« derives from the Italian *disegno*, which means drawing, and associates drawing a line with drawing forth an idea. The status of painters, sculptors, and architects is founded on the myth that artistic creation is solitary and private, even though it is more often collaborative. The painting and sculpture are unique, thus appearing closer to the world of the individual intellect in contrast to the architectural drawing, which is seen in relation to other drawings and a building. A painting or sculpture may require more physical labor than an architectural drawing, but fabrication is less public than on the construction site. The architectural drawing depends on two related but distinct concepts. One indicates that drawing is an intellectual, artistic activity distant from building labor. The other emphasizes the architect's mastery of the collaborative construction process. Creativity as well as confusion has arisen from this contradiction.

In the new division of labor, architects acquired complementary means to practice architecture: drawing, writing, and building. To affirm their advanced status, architects began to theorize architecture both for themselves and for their patrons, ensuring that the authored book became more valuable to architects than to painters and sculptors, whose artistic status was more secure and means to acquire and complete commissions less demanding. A multi-directional web of influences – drawing, writing, and building – have all stimulated architects' creative development for over 500 years.

Celebrating the creative interdependence of drawing, writing, and building, The Bartlett's architectural design doctoral thesis is founded on the tradition of the architectural book and stimulated by the many forms it has taken globally in the past 500 years. Emphasizing the value of historical understanding, critical analysis, and »factual fiction« to design, the thesis consists of a project and a text that share a theme and express a mutually productive dialogue. The project can be filmed, sculpted, drawn, or built and employ any methods and media that are interesting and appropriate to the subject. When establishing the PhD, we retained the existing 100,000-word limit for UCL doctorates because we appreciated that design can be written as well as drawn and speculated that a student might want to produce a purely written design PhD. That happened just a few years later, with a thesis that included lyrical texts, analytical texts, and writings that combined the two.

Architectural design PhD students often create a thesis that integrates various research methods and distinct narrative voices. If you produce a singular piece of work with one type of output, you may tend to have a singular idea of authorship but if you work between media, as you do with an architectural design doctorate, you need to conceptualize your place within that creative process (Hill 2022).

Architectural books tend to adhere to a Western, linear conception of time but other models are possible when time is understood as cyclical or non-progressive. Architecture changes but it does not necessarily get better. We can learn from novels that freely move backward and forward in time and between types of time. We can also conceive of alternative architectural trajectories if we study the practices of other disciplines.

UCL is a large multi-disciplinary university. The principal doctoral supervisor is within The Bartlett School of Architecture, while the subsidiary supervisor can be from any department in UCL, whether anthropology, computer science, medicine or fine art, for example. Our intention is for doctoral subjects and supervisions to be as broad as the discipline of architecture and to connect research to related disciplines in order to foster productive and rewarding collaborations. Looking at a subject through another discipline's eyes enables a doctoral student to reassess architectural research and to critically expand their research methods and authorship.

Studying the history of practice, as well as the history of architecture, allows us to appreciate that architecture is not only made by architects. The architectural design doctorate is not accredited by the profession and can look beyond it. The contemporary relevance of interdisciplinary research,

which occurs within and between disciplines, indicates that the profession is but one model of practice and implies that a combination of past and future models may be more rewarding. In many current disciplines, numerous practices and procedures of differing ages remain relevant and stimulating. The result is an interdependent network of diverse – new and old – models of architectural authorship that exist alongside each other, or in conjunction, not simply because they are useful but because they have social and cultural value. The architectural design doctorate is a means to learn from the past, reassess the present, and speculate on future models of practice and discourse.

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