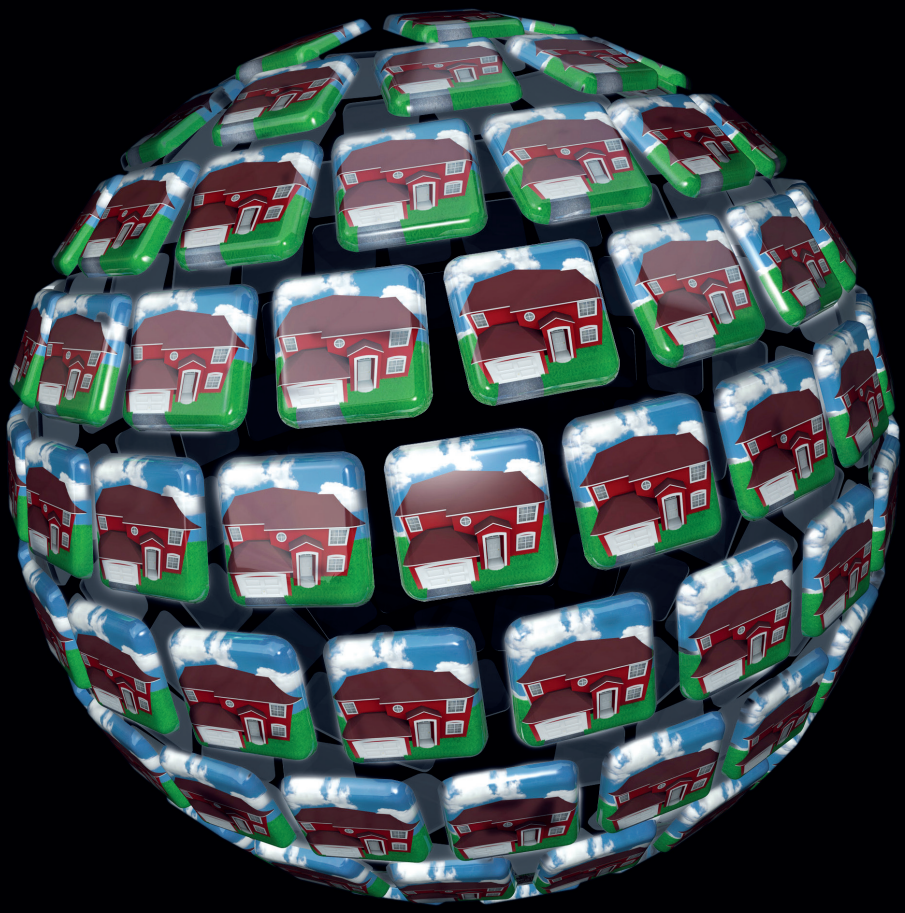
THE EXTENDED SELF

ARCHITECTURE, MEMES AND MINDS



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For Margaret Perrin

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Preface

> Nobody knows how long we have, under the present system, before some disaster strikes us, more serious than the destruction of any group of nations. The most important task today is, perhaps, to learn to think in the new way.
>
> Gregory Bateson, 1970[1]

The theory of the extended self that is presented in this book was conceived, researched and written over the past eight years. However, the full period of its gestation goes back as far as the late 1960s, beginning with my earliest efforts in applying cybernetic concepts and systems thinking to architectural and urban planning theory, as listed in the bibliography. Those first tentative steps outside conventional architectural discourses were followed by continuous explorations over the ensuing years into the impacts of the built environment on personal and cultural identities – researches that were also invariably influenced by other disciplines – together with studies of the technological aspects of architectural production and their related effects. Summarizing that early work in a 1980 conference paper partly inspired by Gregory Bateson, the American cybernetician and polymath whose prescient words are quoted above, I wrote: 'A theory of mind which disperses the processes of human mentation among the group must also take into account the role of the physical environment in the evolution of mind.'[2]

That it has taken this long to elucidate the idea crystalized in that single sentence testifies not only to the complexity of the subject, but also to the need to make a strong enough case to overcome prevailing prejudices. Following the widespread rejection of orthodox modernism's optimistic but ill-fated assumptions of universal progress, it has been fashionable among architectural theorists as well as certain philosophers for a long time now to decry and debase any grand narratives or global perspectives. Despite these trends, however, unencumbered by the deterministic thinking that misled modernists, the more enduring principles of self-organization and related concepts established by the founders of systems theory and cybernetics have since been much elaborated, providing a healthy antidote and counter-movement to the narrower and nihilistic aspects of postmodernism.

Beyond any theoretical interests or academic commitments, the urge to attempt a book of this scope has been strongly motivated by the gathering warnings of

runaway climate change and environmental degradation, for which the energy-hungry homes, automobiles and other things we typically make and use are much to blame. Whichever way postmodernists of the narrow school may like to interpret it, a grand, planetary-scale narrative with perilous consequences is unfolding in real time and urgently needs to be met by equally broad explanatory theories and alternative visions for the future. In this respect, the more than seven years I spent living in Australia – the latter five as an Australian citizen – where the great majority of people live in some of the most automobile-dependent cities in the world, have had a profound influence on my thinking, and on the direction and purpose of this book. Coming as that experience has after having also spent several years living in the USA in the late 1970s and early '80s, I was particularly struck by the similarities between Australian and American urban cultures and the spatial characteristics of their cities, as well as by the building types common to both, much of which is generated by a shared obsession with automobiles as personal possessions, beyond their utilitarian functions. The lessons I have learnt about the failures of modern dispersed cities to provide sustainable forms of habitation therefore have equal relevance on both sides of the Pacific, as well as anywhere else where similar patterns of urban life predominate.

However, while the problems of urban dispersal and automobile dependency are well known, as are the practical solutions to those problems, the reasons for the tragic failure to implement those solutions effectively are much less understood. It is the purpose of this book to shed some light on the origins of the personal and collective addiction to a technological culture that is rapidly spinning out of control. In so doing, we may be better prepared to take more effective action to cure our ills.

In addition to the guiding principles and basic concepts set out in the Introduction, the structure of the book itself is designed to help readers navigate this challenging and many-sided discourse. Broadly speaking, the first two parts offer a critical overview of the main schools of thought related to our theme, and highlight the key theoretical issues and problems to be resolved. Building on the preceding researches, the latter two parts of the book posit constructive and viable approaches and solutions to those problems, supported by numerous examples. A summary of the main ideas and conclusions presented in each group of chapters is also included at the end of that group, while each chapter also begins with a short introduction to help link the key arguments together. The Postscript further clarifies the philosophical principles underlying the approach and its relation to postmodern debates. If they wish, readers can therefore choose to run through the summaries first in order to get a quick idea of the main points before delving into each chapter.

Finally, while, as mentioned, some of the key theoretical foundations for this work were laid down many years ago, repetition of previously published texts has generally been minimized. The main exception is the final chapter, 'Appropriating Cyberspace,' passages of which are drawn from 'Cyberspace in Mind,' which was published as a chapter in an edited collection of my essays, *Architecture, Technology and Process*, by Architectural Press in 2004, and was in turn based on an earlier paper presented at a 1996 symposium, 'A Meeting of Metaphors,' by the Design

Research Society in London. Some passages in Chapters 1–3 are also abstracted from an essay of mine on the same subject, 'The Extended Self: Tacit Knowing and Place-Identity.' Originally written in 2009–10 at the request of editor Ritu Bhatt for her book *Rethinking Aesthetics: The Role of Body in Design*, the essay was published in that book by Routledge in 2013. A few passages from my 1979 essay 'Rationality and Meaning in Design,' explaining George Herbert Mead's concepts of mind and self-consciousness and their relevance to understanding architectural symbolism, are also included in the Postscript. The latter essay, together with a number of the other writings that I have described as building blocks for this book, has been republished in the first edition of my earlier collection of essays, *Architecture and Identity*, also by Architectural Press, in 1997 (the second edition, 2000, omits that essay, which was also republished elsewhere, but includes more recent works).

However, while the research covered in this book draws upon these and many accredited works written by others, the full theory of the extended self as set out in the following pages is entirely the fruit of my own recent labors.

Carrickfergus, February 2014

Acknowledgments

If the trail of the foundations for this book mentioned in the Preface were to be followed all the way back, the potential list of acknowledgments would be endless. However, most of those helpful persons concerned in those formative years have in any case already been named in the two collections of essays cited in there. I shall therefore confine myself here firstly to thanking a far smaller group of people who have had a direct impact on this particular work during the period in which it was actually written, and then latterly thank those key individuals in the more distant past who supported my previous forays into other disciplines and discourses.

Foremost among those persons to whom I am lately indebted is Professor Chris Smith at the University of Sydney, who supervised the doctoral thesis I completed in Australia in 2011 on which this book is largely based. His constructive advice and constant support were vital to the successful completion of the thesis, which bears the same title as the book. Dr John Wilkins at the University of Melbourne also lent valuable advice on speciation, which greatly helped to sharpen my own understanding of that subject and its various interpretations. I am also especially grateful to my old friend Alexander Cuthbert, emeritus professor of planning and urban development at the University of New South Wales, where I taught for several years, for his steadfast support and encouragement during some of the more difficult periods of the whole process. John Zerby, a mutual friend and former professor of urban economics still teaching at UNSW, also had many useful comments and suggestions to make, and, like Alex, understood and appreciated the scope and ambition of the exercise. Beyond Australia's shores, the invitation by Professor Bhatt at the University of Minnesota, who had read a 1981 essay I had published on the relevance of Michael Polanyi's theory of tacit knowing to architecture, to elaborate on those ideas for the edited collection cited in the Preface, greatly helped to focus my thoughts at an early stage in this work.

Loosening the timeframe, I must also express my deep gratitude for the late Harry Seidler's official and unofficial support for my migration to Australia in 2004, the environmental challenges of which loom large in these pages, and for my introduction to Tom Heneghan, then Chair of Architecture at Sydney University and still a good friend. Tom left the University before I actually began this project but was there to support my first Vertical Architecture STudio (VAST), which is briefly

mentioned among the case studies in the evolution of the tower type described in this book. Thanks to Tom and others mentioned here – not forgetting my hard-working and creative students – the years I spent in Australia were among the most productive of my career.

Going further back, aside from my earlier researches into customized automation and other advanced methods of architectural production – also documented in my book *Architecture and Identity* – I owe my qualifications to write about technological matters in good part to my close studies of the work of Norman Foster and his practice over more than a quarter of a century, both as an independent critic and as a collaborator on the practice's own monographs. Covering literally dozens of projects of every sort and scale around the world, three major examples of which are briefly mentioned in this book, the experience has afforded me the kind of detailed knowledge and insights into how buildings are conceived and made at every stage of the process that are rarely given to any academic or professional critic, for which I owe Lord Foster and his partners special thanks. Not least, their commitment to reducing the carbon footprint of buildings and cities as a whole, culminating in the experimental Masdar City project in Abu Dhabi, reinforced my own concerns with climate change and with its causes and consequences, of which this book is a direct outcome. Similarly, my early interest in the tower type and further investigations with my students in the VAST program have been inspired by the pioneering work on 'green skyscrapers' and vertical urban design by Ken Yeang, an old friend from when I was teaching in Malaysia and Singapore in the 1980s.

However, it is not possible to offer an evolutionary theory of the extended self solely based on modern technologies. As the reader will find, the discussions and examples in this book also range from the ancient history of the spoked wheel to vernacular architecture and settlement patterns in different parts of the world, as well as architecture dating from different colonial periods, in both the American Southwest and Southeast Asia. While, as with my other earlier researches, there are too many individuals and institutions involved to name here who made it possible for me to work in so many places and cultures, the scope of this book owes as much if not more to those personal experiences in teaching and researching architecture in many of the actual regions described in the following chapters as it does to the relevant studies by others that I have drawn upon in support of my own observations.

Lastly, an interdisciplinary project of this kind requires at least enough knowledge of science and its methods to afford insights into the way its practitioners think and work, and to appreciate the value of that work. In addition to those many authorities I have cited in the book, I am especially indebted for those insights to the late British cybernetician Gordon Pask. While I am no professional scientist or philosopher myself, as both my tutor and mentor during my final year as an architecture student in London when I was writing my thesis on self-organizing cities, and in the following first few years of my academic career when I was researching environmental psychology among other disciplines, Gordon encouraged me to explore what the new sciences had to offer. My subsequent studies, which involved my own experiments in computer-aided instruction (CAI) simulating architect–client dialogues at

MIT during 1973–74, were generously supported by Nicholas Negroponte and his Architecture Machine Group – the forerunner of the Media Lab – with whom I spent a semester as Visiting Scholar, also at Gordon's instigation.[1] In addition to what I gained from Gordon's own seminal researches in cybernetics and learning theory, the experience of working with these ideas and techniques opened up a whole world of scientific and philosophical debate on the conscious and unconscious aspects of human cognition and communication, without which this book would truly not have been conceivable.

Introduction

For all the countless studies and measures promoting sustainable development and design, or the many related projects around the globe, little progress has been made in reducing the world's dependency on fossil fuels and averting catastrophic climate change.[1] We know what needs to be done, while the dire consequences of not changing course have been clearly spelt out to us in the mountain of scientific reports and other researches on the subject – now substantiated by the growing frequency and ferocity of extreme weather events.[2] Yet we continue to flounder on, apparently incapable of confronting the harsh realities of a way of life that can lead only to disaster.

This book takes a fresh look at the root causes of that dependency and their origins from the joint perspectives of embodied minds and extended cognition. It traces those roots to the coevolution of *Homo sapiens* and technology, from the first use of tools as extensions of the human body to the motorized urban culture sweeping the globe, the environmental effects of which are fast changing the planet itself.[3] Refuting popular concepts of the self and free will as autonomous realms of being, it proposes a new theory of the 'extended self' as a complex and diffuse product of that coevolution, comprising both social and material elements, including built habitations and artifacts in general.

Given the nature and complexity of the subject matter, in researching this book it has been taken from the outset that no single discipline or school of thought, whether it be within the humanities or any of the sciences, would yield the requisite insights and answers to the range of issues and problems in question, all of which are related to each other in complicated ways. That consideration alone has presented manifold challenges in completing a work of this kind. Despite a growing acceptance of the need for interdisciplinary approaches to complex subjects, with notable exceptions – some of which are cited in the following chapters – the vast majority of academic research remains the province of specialists and specialized disciplines and methodologies, as embedded in university structures and programs everywhere, together with their associated jargons.[4] All too often, territorial imperatives and obedience to a particular discipline and paradigm trump objectivity and critical thought. As a result, it is generally the chosen discipline and approach that determine the questions that need to be resolved, rather than the other way around.[5]

As explained in this book, the habit of classifying things, including forms of information, is a universal human trait, as reflected in taxonomies of every sort, by which we seek to impose some kind of order on life. Unfortunately for us, the world we actually live in is a great deal more complex and opaque than most disciplines and research methods allow for, as we constantly discover and rediscover through the yawning gaps in our knowledge of it. Even the most fruitful schools of thought have their blind spots, having usually developed along specific lines of inquiry. Among the prominent approaches documented in the following chapters, for example, there is a well established interest in applying phenomenological methods and concepts to issues of place-identity and other environmental topics, not only among new generations of philosophers themselves, but also among architectural theorists.[6] However, regardless of the valuable insights phenomenology provides into human experience and the existential role of the human body, it remains intentionally focused on describing the world as directly experienced in the here and now – phenomenology in itself has little to offer that might explain how we got to be the way we are, or what there might have been in our past to influence present perceptions.

Likewise, while evolutionary theory promises to fill those gaps, it too is hobbled in its own manner by neo-Darwinian concepts of natural selection that provide little help in understanding the modern condition, and how we came to shape the world in our own image to the extent that the phrase 'natural environment' has little meaning anymore; not the least outcome being the urbanization of half the global population, along with possibly irreversible changes to the climate and biosphere. Following Bernard Stiegler,[7] the philosopher of human technics whose work is discussed at length in this book, and Timothy Taylor,[8] an archaeologist who arrived at much the same conclusion from his own studies, it is argued that the discovery and use of tools and other devices by *Homo sapiens* and our hominid predecessors to modify their environment in favor of their survival not only marks the beginning of the long trek of human evolution and cultural development, but actually defines us *as* human.[9] It follows that either the concepts of natural selection and inherited traits need revising to accommodate such factors, or some other, broader theory of evolution is required that can better integrate both natural and artificial phenomena – issues that are further discussed in this book in the sections on emergent and autopoietic or self-producing systems in Chapters 5 and 7.[10]

However, notwithstanding the originality of both Stiegler's and Taylor's work in expounding the coevolution of humans and technology, both stop short of clarifying the cognitive processes involved in technological assimilation and diffusion. In turn, though Richard Dawkins' inspired concept of the 'meme' as a cultural equivalent of the biological gene proffers a fertile approach to cultural evolution,[11] it also has been hampered by confusions of meaning and a general failure by its proponents to clarify what precisely constitutes a meme and how memes actually 'travel' between people, spreading their contents as they do.

Similarly, the very idea of a human self is a highly controversial subject with its own history of debates, raising the most problematic philosophical and scientific questions concerning the human mind, its nature and location and how it works.

In search of answers to those questions, the book explores some of the most recent theories and discoveries in the neurosciences regarding the symbiotic relations between mind and body – findings that strongly support both Maurice Merleau-Ponty's and Michael Polanyi's thoughts on the subject,[12] while also challenging lingering traces of Cartesian dualism elsewhere.[13] Significantly, related discoveries also confirm both philosophers' theories that embodied cognition reaches outwards beyond the physical boundaries of the human body to take in spaces and objects and even other people's thoughts within the personal domain.

Moreover, while the extended self is impacted by the bodily experience of inhabited spaces, it is not limited by those spatial dimensions but only by the technologies that enable people to absorb a more extensive social and cultural realm – technologies, as recounted in the final chapter, that now include the Internet and virtual selves. Conceived here as a continuous loop beginning and ending with the mind–body synthesis, the extended self reaches outward to embrace a complex world of many kinds of experiences involving both interpersonal and cultural transfusions, but which nevertheless depends upon that same mind–body synthesis to make sense of everything. All of which has major implications for understanding the nature of the self as the outcome of an interaction between many different elements, including the material environment, rather than the independent spiritual or mental entity of much religion and popular mythology.

However, while the various different theories and schools of thought referred to above may be found wanting in this or that respect, this by no means implies any lack of relevance. On the contrary, the approach adopted throughout the present volume has been to incorporate the most useful ideas on offer, whether from recent or earlier studies, while discarding any less helpful or erroneous points and positing new concepts as necessary. Based as the approach is, therefore, on many different fields of research and varied sources, the arguments deployed may seem at times to resemble a jigsaw puzzle rather than a strictly linear progression from one logical proposition to another. Nevertheless, a few key principles will assist readers in putting the whole picture together. Among these, the principle of *combinativity* and the cognitive skills that underlie it run throughout the book, bridging different scales of thought and classification systems in biology and architecture, together with related concepts of species and types. The same linking idea of combinativity is equally pertinent to assemblage theory and the theories of innovation and design covered in the later chapters.

Likewise, in keeping with the relational approach adopted by many of the leading thinkers cited here, an emphasis on both *process* and the *interactions* between different elements, whether they are organic or non-organic, biological or cultural, is generally favored over detailed examination of the elements themselves, with some exceptions for selected architectural and technological case studies. All three principles are key to understanding how types of buildings and other artifacts evolve and propagate through human populations. The jigsaw-like methodology of the research is itself therefore an analogue for the principles of combinativity and interaction underlying much of what follows.

Beyond these general principles, the related concepts of 'self-producing types' and 'technical memes and assemblages' proposed in the second half of the book proffer viable modes of cognitive extension and reproduction, answering many of the outstanding theoretical questions and problems described in the first half, as outlined above. Rather than relying on viral metaphors, as has been fashionable, more concrete evidence for the way memes are propagated and may become entrenched in people's minds is also available in the growing literature on 'tribal thinking' and its psychological and social variants – climate change denial being just one expression of the common resistance to any information that challenges preconceptions or customary ways of life. Contrary to popular beliefs in free will, the conclusion is that, barring external invasions and other upheavals, human societies and their members are inherently *conservative* and that internal change and innovation proceed in mostly incremental steps, often despite collective and individual resistance.

The theory of the extended self that is expounded in this book therefore has dual aspects of a bright and darker character. On the one hand, the extension or 'exteriorization' of human capacities by technical means and artifice as it is described here is largely responsible for all the wondrous achievements of human creativity and culture, of which architecture of both the vernacular and professional kind is among the most visible and enduring. Those achievements in turn depend upon the unique human ability to interpret and record what we do by various technical methods and thereby pass them on to future generations to build upon, in what are effectively culture's own evolutionary procedures, the precise nature of which are a major focus of this book.

On the other hand, it is now frighteningly clear that those same extraordinary gifts of extension into and control over the natural environment, in which architecture and urbanization again play major roles, have taken us to the point where they are threatening to destroy that environment and the civilization responsible for its deterioration along with it.[14] The final outcome of the present global conflict with nature remains uncertain. However, just as it is common knowledge that the first essential step toward curing an addiction is to recognize it, so is it necessary to search for and to comprehend as best we can the reasons for humanity's stubborn adherence to a technological culture that, if left unchecked, endangers the survival of our species, together with that of countless others on the planet.[15]