

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