

From EIDOS to MAGH. Living in a material world

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Abstract

“Together let us desire, conceive, and create the new structure of the future, which will embrace architecture and sculpture and painting in one unity and which will one day rise toward heaven from the hands of a million workers like the crystal symbol of a new faith.” Walter Gropius, Program of the State Bauhaus in Weimar (1919) ¹

“The Bauhaus had attempted to crystallize the still unformulated desires of a new man – the post-war German – who had not yet realized what he needed. This man had to construct a new way of life from the debris of a wrecked world – a way of life utterly different from that of pre-war times.” ²

Encapsulated within these ideas drawn from the Bauhaus one can identify two critical streams of thought; firstly a change in living and the production of the setting for living is required and secondly that that change will be primarily developed through experimentation and practice. Through a panoply of media and disciplinary knowledge the Bauhaus assembled an approach to rationally build a new platform to live or dwell in the world. Fundamental to this approach is the belief that it is possible to design new ways to live that are better or more suited to the needs of people and their bigger social, biological and material contexts. And a belief that researched and tested, orchestrated and designed change could bring about a better world.

These simplistic and naïve propositions are the premises I wish to engage with in this paper. Through a series of lenses and reflections I want to ask where do these two streams of thinking lead us today: what are our current circumstances regarding design and designed objects? How do we understand the role of making, consumption, human behaviour and

economics in changing the way we regard the contribution of our future dwelling spaces? What might it hold for us and what it should it hold for us?
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Introduction

In his recent book *The origins of human creativity*, E. O. Wilson observes that for human survival, it is imperative that we pursue a fusion of science and the humanities. As an imperative this very much echoes the Bauhaus ethos. But as Wilson observes the data base of scientific knowledge doubles every decade while the fundament of the humanities remains about 300,000 years old. Our reality, and our challenge, “is that we live in a world of Palaeolithic emotions, medieval institutions and God like technology”³.

The ideas I wish to present are a ‘Cut and Shut’, in the parlance of automotive prototyping, an assembly of emerging ideas and discoveries that I believe are prescient provocations for designers and for the conversation about the relevance of the Bauhaus today. I have structured the paper in three parts; firstly a reflection on some ideas emerging around the biological and cultural construction of our social context. Secondly, scientific ideas emerging around our biological relationship to the act of making and finally what might constitute a contemporary imperative to drive a focus for design vision.

Part 1

Eidos. Function brought forth through form

Within the Bauhaus the idea of the Formmeister, or ‘master of form’ is a critical one in relation to the pursuit of excellence and the knowledge the practioner gains through making and experimentation. We can laugh today at this Greco-Roman idea that form and beauty are a way to reveal truth; the truth of form. We are now entering an era of process and systems and system theory. However, the social brain hypothesis developed by Robin Dunbar et al. points to the biological origin of this intellectual conceitⁿ. And this is the idea of material and cultural prostheses: The intellectual and emotional cost of

our social lives is very high but relationships are everything, and in fact our only evolved survival strategy is cooperation. The cognate constraints, the social cognitive load is very demanding. Our social groups are generally and meaningfully constrained to the Dunbar numbers for critical social groupings: 5, 15, 25, 50, 150. Our facility for imaginary friends helps maintain our real friendships in times of disconnection but also predisposes us to inventing friend-like entities ⁵. Distributed bonding allowed us to cover much greater territories than our hominid competitors 100,000 years ago. Dunbar et al. argue that the symbolic revolution and the explosion of art developed as social tools to help carry the cognitive load of separation and of greater group numbers. Primate brain size is directly connected to group size. Our brains are built for gossip as the mechanism to manage greater group sizes through forms of virtual grooming, aggrandizing or diminishing the reputations of others. In synchronised group activities music evolved first, followed by language ⁶. Language predates hand tools and may have provided the required operational syntax, the ceremonialising and ritualising of our social interactions and relationships ⁷. Music, kinship and religion were our first 'tools', amplifying our emotions and cognitive development. Human music is a group activity and so is primarily social. Singing synchronously releases more endorphins. The emotional intensity of music and religion are amplified by harnessing the senses, which are then underpinned with technologies like drums, incense, burners, dance halls and cathedral vaults. Through all of these cultural and social activities, form becomes the register for meaning and connection. Viewed this way, form and its execution become the threshold to the relational truth of an object or practice. And possibly the more precisely, appealingly or beautifully executed this register or container is the more aligned, evocative or 'truthful' it is. How will this new research impact on our consideration of form's significance?

Oikos. The function of the dwelling as a container

[Oikos: The root word of economy and ecology]

And so to the home as a material container to manage our key personal relationships. In *The empire of things*, Frank Trentmann argues that the psychological value of the home is that it is full of symbolic objects ⁸. Material culture creates a network of artefacts and is therefore a classic way of offloading the cost from the cognitive realm onto the material realm and to allow for amplification. Symbols and objects both act as containers for relationships and ideas as well as being central to the revolution in the organisation of the Neolithic home and the genesis of our own idea of the dwelling as a repository, more than just a shelter. A massive explosion in the use of, and experimentation in, container culture lies as the engine of the Neolithic farming revolution ⁹. Containers for preserved food, water management, live animals and for the dead. The home can be thought of as an external organ to maintain life, starting millions of years earlier, with the cooking of meat and vegetables to extract unnaturally high levels of nutrition to support our unusually large brains and all of the social activities that go with the required social organisation ¹⁰.

We are building the niche we live in. A key to our cooperative survival skills is our capacity to live in the imagination. We favour an extended mind, a social cognition both rational and relational – a distributed cognition starting with our ability to make ever more social arrangements. Lewis Mumford observes in *Technics and Human Development* that the first machines were social, not mechanical, evolving within Mesopotamian and Egyptian social organisation to extend or leverage their face to face networks out into a greatly increased social support network ¹¹. The emergence of gigantic urban centres with their ziggurats and pyramids come as much later expressions of these highly interconnected mechanistic social structures.

We can think of the home as a mnemonic device or memory theatre to support performances of identity, a cultural jig or organ of extended or externally embedded cognition to reduce our cognitive load. Henri Lefebvre tells us that space is produced, a scenographic act dominated ultimately by

relational needs – a relational theatre, a theatre of possession and the aesthetics of behaviour ¹².

Form is a verb. The role of design as providing a functional framework

Eugène-Emmanuel Viollet-le-Duc is credited with articulating the first coherent method for developing a design proposal for an architectural project, based on careful analysis of the user's or client's requirements and activities. ¹³ This step-by-step method for approaching the brief or program is set out in his *Histoire d'une maison* published in 1873. The founding premise is that the design of the project must be shaped by an engagement with the client's needs through rational investigation and not shaped entirely by fanciful imaginings on the part of the architect. Once a program has been determined and reviewed a plan can be prepared in response. By this means the building is designed from the inside out. That is, the volumes and arrangement have been driven by the articulation of a program. Structural and regulatory issues complete the formal arrangement.

Space is the figure. An evolving domestic program of relational theatre

French social etiquette and a preoccupation with cultural forms saw French architecture respond to and evolve around well-defined programs over a 700 year period, giving rise to complex and varied plan-forms and interior experiences. Modular clusters of rooms could be repeated in larger houses where accommodation for multiple parallel programs was required. In the early seventeenth century the 'appartement' arrived as a self-contained private accommodation module, whereby complex mini programs could be nested and repeated within a larger program.¹⁴ As French society found new forms of intellectual and social engagement, so new rooms and spaces appeared in response to developments in the art of conversation and the role of the hostess; the cabinet, the ruelle, the alcove [from the Spanish alcoba or alcova]. The size, separation and orientation or ordering of these rooms was dictated by the type of interaction desired, the group size and appropriate level of intimacy. The evolution of French fashionable society provided an

engine for the development of French architectural planning. The design of private houses became about the development of spatial sequences that supported, stimulated and inspired social interaction.

Virtù. A theatre of possession provides industrial production with a market

Today a typical German owns 10,000 objects ¹⁵. In the Seventeenth Century, silver and tableware were seen as signs of an emerging culture of domestic sociability and politeness. Comfort, cleanliness and convenience were the drivers of consumption in the Eighteenth Century, along with the idea of the freedom to choose. Possessions are now seen as props in ones own living theatre, to display character. They can be acquired as tools to allow for new behaviours. Everyday objects help people to construct a material order of emotions and feelings that form an ecology of relationships and expectations about the self and others – **an economy of memory** ¹⁶. As observed, the French evolution of a complex taxonomy of private and social activities, each with their own goods and props drove their exploration of domestic space, demanding new rooms and more consumption. Routines of domestic sociability; coffee and tea catch-ups and ceremonies also require a great amount of additional paraphernalia. Bruno Latour would argue, through the lens of Actor Network Theory, that these objects become actors in our lives ¹⁷. As previously noted, Henri Lefebvre asserts that space is produced, a scenographic act dominated ultimately by relational needs – a relational theatre. The home is an extended organism to live by .

This consumption could alternatively be said to equate to a kind of slavery where vanity and envy are the ministers of industry. But curiosity about objects encouraged conversational exchange and a civil sociability. What of the world do you bring into your home? Do you bring home the Louvre? Bedecked with objects the home becomes a temple, a sanctuary of the private self, a portal in our quest for personal transcendence. The art of dwelling becomes a dwelling in art ¹⁸.

The rise of the social/share/experience economy. Is there another way to distribute the cognitive load of relationships?

For its advocates the share economy promises to reduce the cost of goods and services to near zero, reduce the environmental impact of our contemporary lifestyle expectations, be flexible, generous, responsible, connected and experience focused. The share economy is not homogeneous¹⁹. There are many models of production and exchange, varying in profit margin, shareability and openness. Some extend to the notion of a time-bank, where everybody's time is equal and this becomes the platform for value exchange. Social capital focuses on doing good rather than doing well. Could any of these protocols reduce our attachment to things or increase our sense of empathy without the need to rely on objects as containers or batteries for relationships? What might be the role of any of these new technologies in the transformation of our tools and consequent prosthetic abilities in the ways that the magnetic compass, gunpowder and moveable type transformed the Renaissance?

Magh. [Proto-Indo-European root of both machine and magic meaning "to be able, to have power] Will the magic of making return to the home?

What happens in a zero margin economy when everything costs nothing? Do we have extreme productivity where millions of prosumers make their own material goods: an age of extreme abundance. Does this liberate us from a pecuniary focus to one of more on the arts for life and the quest for transcendence. Will the internet of things, the so called third industrial revolution result in the return of a collaborative commons? The third industrial revolution is seen as a horizontal dynamic, rather than a vertically integrated one. You don't need to own an entire industrial precinct and attached mining operation to power, make and distribute goods. Is the internet of things the soul-mate of the collaborative commons?²⁰

Will ownership mean less than access and will exchange value be replaced by shared value? The distributed share economy requires collaborative

organisation. Social capital plays a significant role in such a horizontal economy. It is the connection, not centralised capital that creates value. Digital technology has given us new tools for energy [PV], production [distributed 3D printing and the CNC revolution] and connectivity [the internet and the internet of things]. MOOCs replace the traditional Victorian factory model of the classroom. Consumers become producers. A proposition emerges of the IOT as a new commons, a third way between government and traditional capitalism. A fused local and global digitally networked commons. Digital connectivity has already further stimulated the ongoing presence of cooperatives world wide, with groups like the Samsø island energy collective and emerging operational trends occurring in French banking. ²¹

Part 2

Meta Hodos. Will new making create new thinking? The role of making and experimentation.

In *How things shape the mind*, Lambros Malafouris tells us that human mental capacities are not separate-able from their expression in action through the body and then artefacts – an inseparability of thought, action and material things ²². Material Engagement Theory brings materiality, the world of things, firmly into the cognitive fold. It maps the cognitive landscape in which brains, bodies and things interact in the drama of human cognitive becoming. This is a scientific dismantling of the neurocentric view of the mind, drawing on an enactive, *distributed and extended cognition*; what is outside of the body may not be outside of the mind – the cognitive process modelled as a manifestation of the extended organism principle as developed by J. Scott Turner from the extended phenotype model proposed by Richard Dawkins in the 1980s.

Things are us! Things are to human intelligence as the eye is to sight: constitutive and yet invisible. The human brain is as much a cultural artefact as it is a biological entity. The human brain is subject to constant rewiring and reshaping. The brains of musicians indicate important structural and functional

changes and have an increased ability to learn new tasks and show enhanced motor and sensory learning capabilities ²³.

The traditional boundaries for cognition must be extended beyond the individual to include broader cognitive events, including interaction with people, artefacts, space and time. The cognitive process is delimited however by the functional relationships amongst the elements. In distributed cognition, space is not a passive background but a cognitive artefact. Spatial arrangements form an important part of the functional architecture of any distributed cognitive system. The mind and things are co-constituted in situated action ²⁴.

Synechés! Tools are us!

Tools are enactive cognitive prostheses. Humans can be defined as prosthetic beings. “Prostheses are the constitution of this body quà human” ²⁵. Cognition is a complex feed-back system between limbs, object, the visual subsystem and the acoustic subsystem. The intention no longer comes before the action. It is the action. The boundary between the mental and physical collapses into an extended intentional sphere, to think first through, then with, then about the material. Form is not imposed from the outside. It is rather brought forth from interaction with the physical world and materiality, a synechés – a continuity. A stick held in the hand of a blind man is a pathway not a boundary – the stick is a transformative interface – the brain-artefact interface. As a refreshing analogy for the plasticity of the human mind – the blind man’s stick turns touch into sight, exploiting the reconfigurable nature of the human mind. The stick extends the body schema ²⁶.

From the earliest markings in the Blombos cave don’t ask what the marks mean but ask what does the activity of marking do for the mind ²⁷. The very process of externalisation – enactive projections – an unfolding creative process – to make visible the situated affordances – freeing up and restructuring the available cognitive resources, a working memory, a creative

ecology of recursiveness and meta-cognition, the crafting and exploration of human perception. Marking is sense making. They are intentions in action, part of the actual gesture in time and space – the index of an open process.

Making is thinking, an exploration rather than just externalisation of the preconceived, an act of collaboration between human and material agency; a hylonoetic ontology [Greek hyle – matter, nous – mind], thinking through and with matter²⁸. The hallmark of human cognitive evolution is meta-plasticity and our tools confer intelligence – a co-constituted trajectory of evolution – a complex intersection of many actors.

The prototype: protos: first. Tupto: to strike. Extended cognition as method

Innovation in practice requires both technological change and cultural change. Industrial design has evolved a culture of technological research and development synthesised into a propositional design process, the prototype, which is then presented to the users or the public for testing and feedback. This process gives industrial designers the unique opportunity to experiment with radical design, fabrication and programmatic options and integrate these into a program designed to change or test public perception and expectation. It optimises the value of any investment into research and development. Research and development is by its nature expensive and the structure of our production practices are not always well suited to absorbing this cost.²⁹ Understanding the dynamics and potential for optimisation in a culture of innovation is essential if one wants to learn and benefit from it, while controlling the costs and risks. The Bauhaus introduced a rigorous schema to situate research and experimentation at the centre of its making culture. This synthesis of experimentation and framing of the end user's needs within a cultural context and a technical context of emerging production techniques developed by the Bauhaus found its way into the emerging and dynamic industrial landscape of North America, sometimes brought directly by members of the Bauhaus diaspora. This completed the circle of influence as

earlier rational American designs had greatly influenced radical European design thinking.

Thus, partly influenced by the Bauhaus, a culture of the full-scale prototype and technology demonstrator displayed for public assessment evolved rapidly in North America in the car industry in the 1930s. It also had origins in the adoption of the research, testing and rapid prototyping practices developed by the US aviation industry, principally in response to military demands, and then fused this with the cultural practices of the global fashion industry of that era³⁰. This system of innovative practice allowed the car industry to transform technological opportunities and innovation into an orchestration of changed public perception and expectation. This resulted in a reconfiguring of the car industry's very role from that of a reactive product producer to that of a proactive product producer. What was missing from this approach now was the Bauhaus's desire to also critique the outcomes of innovation from the perspective of the emerging world and cultural context that they were supporting.

Part 3. What are the challenges today that require a design response and a design vision?

How would the Bauhaus see their role as reflective innovators now?

We are almost halfway through the period referred to as 'the critical decade' (Hughes and Steffen, 2013), being the time in which our decisions and actions on climate change will determine the success or failure of a post-carbonaceous transition to avoid severe implications for global society. This is not just a technological issue (though that is the way that it is often cast) any more than it is solely a social, economic or governance challenge; addressing climate change requires fundamentally different systems, structures and practices in all those areas combined. It is now generally agreed by climate scientists that an 80% reduction in our carbon footprint will be required to maintain planetary liveability. The response to climate change will also have to embrace both mitigation and

adaptation as a simultaneous objective; the impact of the atmospheric carbon and heat already in the global system means that the climate is changing and will continue to do so for a long time regardless of the pace of de-carbonisation ³¹.

Unlike the condition of Modernity that emerged, at the dawn of the twentieth century, both within and embracing of a *Tabula Rasa* starting condition, famously embraced by Le Corbusier in his scheme to demolish all of central Paris, we now see a more localised, acupuncture-like set of interventions as most effective, accommodating the power of history rather than pretending we can erase it by demolition.

“At the strategic level it is increasingly recognised that the focus for action in this decade will be *cities*. More than half the world’s population now reside in cities and the contribution to global greenhouse gas production from cities is estimated at 75%, even though they occupy only around 2% of the global land area (Satterthwaite and Dodman 2009; UNEP 2011; Hajer and Dassen 2015). Nearly half of the world’s cities are considered to suffer from the direct effects of changing climate (UNEP 2011). The critical challenge for cities in this period of climate transformation is that they are complex adaptive systems with significant embedded dependencies built-in over the years of their construction.” ³²

“The tight and embedded interconnections between the critical systems of provision of the city and patterns of living (including consumption) means that trying to re-engineer the city one sub-system at a time is bound to fail (because new, often unpredicted, problems are likely to arise in another sub-system). Ultimately, the transformation of cities requires a (rapid) transition from one *set* of socio-cultural-technological-physical systems to another set. The embedded (inter)relationships of these systems suggests that transitioning to a resilient non-carbonaceous city involves a *whole-system re-conceptualisation* – a creative re-imagining of the future

city (Ryan 2013a). This is in every sense of the word, a *design challenge* – a process that can be considered to have three components. First, envisaging new systems that could support a thriving, culturally satisfying and productive, urban future, supported by renewable energy. Second, selecting systems from the above that could increase social and physical resilience even as the climate changes. Third, negotiating processes of transition towards those future systems with relevant citizens and other stakeholdersⁱ. Finally, it has to be expected that no process of creative design, engagement and modelling of future possibilities will be able to achieve more than to suggest plausible new possibilities that *could work*. Given the complexities of socio-cultural-technical-(bio)physical interactions in urban life and the urgency for change-making, potentially the only real hope for successful transformation will emerge from *widespread experimentation* – testing plausible transformed futures *in the real, messy, living world.*”³³

And this condition, I believe, sees the Bauhaus model of vision and experimentation as one that is still vitally relevant to us as designers today.

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