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What does ontological design do? And does it do enough?

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Abstract: This paper proposes to address the questions of 'What is ontological design?' and 'What does ontological design do?' In the first instance, I will summarise how we can define ontological designing, its philosophical origins, and how it can be used as a theoretical tool in design practice. The second half raises the question, 'Does ontological design do enough?' and proposes a way to expand the theory and its impact on how we understand design, objects, and the world in general. To do so, I suggest an approach through Bergson's method of intuition and his model of memory and Malabou's theory on epigenesis. Through this reflection, I intend to expand the limits of ontological designing and suggest a theoretical development which expands the notion of what design is and its agency.

Keywords: Ontological Design, Bergson, Philosophy, Epigenesis

1. What is ontological design?

Depending on the field, the word ontology may present different meanings. In philosophy, it is understood as a branch of metaphysics. While metaphysics deals with the general nature of reality, ontology is a more narrow field of the study of being. The distinction proposed by Quine is that ontology is concerned with questions of *what entities exist*, a kind of 'inventory' of the Universe, while metaphysics seeks to explain of those entities *what they are*, i.e. their fundamental nature (Varzi, 2001, p.407; Quine, 1948; Broad, 1923, p.242). Heidegger, whose philosophy has been foundational to ontological designing, proposed a further distinction – the 'ontic' and the 'ontological'. The 'ontic' is the concrete facts of being, while 'ontological' is a deeper structure of being (Heidegger, 2001, H 5-15). It is easy to see how the term 'ontology' can be confusing and its use over-complicated. To simplify, I use it here as the study of a particular way of existence, of being in the world.

The term 'world' has other complexities. What do we mean by 'world'? Is it a location? Is it encompassing all of the Universe? Or a particular worldview? – an understanding of how reality is or should be. Following Heidegger, 'worlding' presents a sort of aggregate of things that exist in relation to each other. We can define a world by its ontic perspective or through a more ontological understanding which may include immaterial entities, e.g. a world of mathematicians, a world of

jazz, etc. 'Worlding' is more profound than the concept of worldview; it is not merely how we understand the world, but a particular way of being-in-the-world. This ontological understanding can include social, cultural and subjective aspects (Heidegger, 2001, 59). Heidegger proposes a history of being characterised by specific epochs, each constituting a 'worlding'. In 'The History of Beyng', these epochs can be categorised as:

'*Physis*' – For the pre-socratic greeks, being, or 'physis', meant nature. The nature of things was to emerge into existence, linger and eventually disappear, a movement of revealing and concealing. This concept is still found in, e.g., emotions or moods, which come and go.

'*Poiêsis*' – The epoch of classical Greece, being emerges from 'bringing things out of'. *Poiêsis* can be found in the nature of crops, through harvesting or in the nature of raw materials as they are transformed by craftsmanship or artistry; it is a kind of nurturing in order to bring out the best in something.

'Power' – Characteristic of the Roman world where the nature of things no longer emerges or is brought out, but where form is imposed on matter, imposing an order onto things. E.g. the Roman brick formed out of mud which then is made into roads, bridges, aqueducts, cities, and so on.

'Creation' – For the Christian world, it is God that imposes his will on all forms and order onto the world. The world becomes closed and pre-determined. Things are what they are because God determines them.

'Subjects and Objects' – Modernity begins around the 16th century and shifts the creative powers to the individual. It is the modern subject that gives meaning to things in the world, subjecting the world to human will. These efforts are seen in, e.g., the explorers of new worlds or in the novel discoveries of science.

'The Technological Understanding of Being' – For Heidegger, the contemporary condition of being is technological. Everything is connected and exchangeable and all meaningful distinctions dissolve except for 'efficiency' or 'optimisation'. The world of technology raises several concerns and dangers; I will return to these further in the text. (Heidegger, 2015)[1]

Heidegger's history of being reflects ways of engaging with and being in the world.

The second term, 'design', is generally understood as the planning, drawing, and specifications of a specific object. In other words, it is the plan of how to make something – a building, a chair, a system, etc. From the Latin '*designare', 'design'* can also be translated as 'drawing', 'conception', and 'project'. Although it is both a noun, it is most significant as a verb, an action to draw out something, to conceive, and to project something into the world. Thus, the term 'ontological designing' can be understood as **a way of projecting things into the world**, which consequently, reflects a particular way of being-in-the-world.

According to Willis:

> "Ontological Designing implies a radically different understanding of design as practice and objects than those generally available; it also implies different ways of understanding how we, as modern subjects 'are' and how we come to be who/what we are in the modern world." (Willis, 2006, p.70)

[1] See also the documentary 'Being in the World' directed by Tao Ruspoli, particularly mins 48-54

2. What can Ontological Designing Do?

Fry (2020) proposes that ontological designing "recognises the agency of design" and is a "political practice of design." What does this mean for design to recognise its agency and, in doing so, be a political practice?

Heidegger says we are born into a particular world, with a specific culture and in it, objects have a presence – we are born into a world of things (Fry, 2020). Our being-in-the-world is inseparable from the objects in the world. Each world presents social, cultural, technological, and behavioural differences in how we engage with its objects. Therefore, the understanding of world is always plural and differential.

According to Heidegger, what distinguishes humans from other creatures is the capacity for understanding their own being – "the understanding of being belongs only to human beings" (Willis, 2006, p.71). This is essential to Heidegger's concept of '*Dasein'*, which refers to the experience of being particular to humans. This encompasses the intra-relationships between ourselves and other entities we encounter, including objects. The prefix 'intra-' is distinct from 'inter-' in that the latter refers to something 'between' while 'intra-' emphasises something 'within' – it is not only a relationship between humans and objects or humans and the world, but humans and objects *within* the world. It is a participatory relation.

These intra-relationships are not only of physical attributes but also the underlining structure of things. Not to be confused with a dualist interpretation of reality in terms of body/spirit, these structures can be understood as performative or epistemological. Willis refers to the hermeneutic circle – we are born into a world and a way of being-in-the-world; this is characterised by how we experience things phenomenologically; this experience is interpretative and subjective. It is not a complete circle but rather an iterative process, moving from the ontological to the phenomenal to the interpretative in a continuous movement. Willis says:

> "Humans' access to 'what is' can never be direct and unmediated, but is always interpretative. But interpretation is not restricted to rational, conscious, purposeful activities of naming and classifying. It also includes (and for Heidegger prioritises) everyday interpretative dealings with the world, such as using things which have the essential character of 'in-order-to' and 'readiness-to-hand'". (Willis, 2006, p.71)

This interpretation relates to Heidegger's notion of 'thinging of things', found in his later writings – 'The Origin of the Work of Art', 'The Thing', or 'Building Dwelling Thinking'. In the first instance, 'thinging' can be understood as a kind of affordance. Gibson understood affordances as a perception of the possibility of action on an object.

> "The affordances of the environment are what it offers animals, what it provides or furnishes. […]
>
> If an object that rests on the ground has a surface that is self sufficiently rigid, level, flat, and extended, and if this surface is raised approximately at the height of the knees of the human biped, then it affords sitting-on. […]
>
> Moreover the objects of the environment afford activities like manipulation and tool using." (Gibson, 1977, p.67-71)

Willis notes the "essential character of 'in-order-to' and 'readiness-to-hand'". For Gibson affordances are neither subjective nor objective attributes of an object:

> "An affordance is not what we call a "subjective" quality of a thing. But neither is it what we call an "objective" property […]. An affordance cuts across the dichotomy

> of subjective-objective and helps us to understand its inadequacy." (Gibson, 1977, p.67-71)

He also notes how humans intervene in their environment and how, in turn, the environment affects us:

> "[Humans] made more available what benefits and less pressing what injures. […] This is not a new environment, an artificial environment, distinct from the natural environment, but the same old environment modified by [humans]. It is a mistake to separate the natural from the artificial as if there were two environments. […] It is also a mistake to separate the cultural environment from the natural environment, as if there were a world of mental products distinct from the world of material products. There is only one world , however diverse, and all animals live in it, although we humans have altered it to suit ourselves. […] We all fit into the substructures of the environment in our various ways for we were all, in fact, formed by them. We were created by the world we live in." (Gibson, 1977, p.67-71; 1979, p.127-137)

Thus, the hermeneutic circle can be understood through two types of knowledge – 'know-it' and 'know-how'. We know things about the world and its objects, e.g. size, colour, texture, etc., and we can know what affordances things may have, i.e. how we use them, the possibilities of action on an object. However, Heidegger seems to go beyond the perception of affordances as possible actions. In the example of the jug, he says:

> "In the gift of water, in the gift of wine, sky and earth dwell. But the gift of the outpouring is what makes the jug a jug. In the jugness of the jug, sky and earth dwell." (Heidegger, 2015, p.78)

His poetic language may be misleading; however, the message is simple. The Italian chef Gabriele Bonci (2022) makes a curious statement: "Eating is an agricultural act." He refers to something similar to Heidegger. When a jug is full of wine, it gathers more than the liquid; it also gathers the sun, the water, the earth where the vines grew, the hands that picked the grapes, the machines that pressed them, the barrels where the wine rested, all these processes until the moment comes for the wine to 'gifted' to our experience (Willis, 2006, p.78). The design of a jug becomes a form of memory, but not in the historico-chronological sense; it is an active memory which intra-connects us with the world; it becomes in itself a way of being-in-the-world, or, from Bergson, an intuition.

When according to Fry, "ontological designing recognises the insufficiency of design practices to take account what design does" and, therefore, "is political," (Willis, 2006, p.75) which means that it is a reaction against a capitalist techno-efficient worldview where design is merely a means towards optimising and standardising an efficient form, and where things become monetised.

The danger of technology is the potential to dilute the need for skill. We become increasingly comfortable letting go of agency over the things that impact our lives; we care about how it performs. 'Know-it', in the form of data, becomes primary; 'know-how' becomes of secondary importance and even neglected. But technology in itself is not bad; the issue is how we use it and how it might distance ourselves from a deeper understanding of things and the world we live in. More central to the issue is what can be characterised as an implicit form of knowledge, 'knowing-what-is', or knowing the thing-in-itself – a more intuitive knowledge. What is wine? Or, what is a jug? These questions go beyond the physical and performative aspects of the objects and suggest a knowing of what is 'gathered'. Wine, food, a jug, are agricultural acts. These 'acts' are worlds gathered, a multiplicity within things. They are 'acts' because, through these objects, their design and production, we extend ourselves into the world. This is the agency of design.

Does Ontological Designing Do Enough?

Through design and its objects, we extend ourselves into the world, creating our environment, which inevitably affects us in return. However, an essential aspect of the world we must consider is its continuous change. Our extension is both spatial and temporal. In psychology, the concept of temporal extension refers to subjective time or the psychological distance between an object and the present moment (Ortuño, 2019). Temporal self-extension, is the extent to which we are conscious of our personal past; it refers to the "degree to which the current self ("who I am") is experienced either as temporally extended or bounded (Grabowski & Broemer, 2015; Zimbardo, 1999). Spatial extension is characterised by discreteness; we can count things in space, grasp and interact with them, it is the mode of action on things and why objects can afford possible actions. The temporal is qualitative and can only be experienced. Heidegger's notion of 'gathering' suggests a form of embodied memory in things, a way of understanding what something is, but also its meaning, which is extended in time.

Bergson had emphasised this distinction between the spatial and the temporal, particularly in his philosophy of time which he coins *durée* (duration). Duration is precisely the heterogeneous and qualitative multiplicities of the world. For Bergson, the intellect, which deals in abstractions, can only provide a partial view of the world – e.g. take the notion of time, which has been abstracted into hours, minutes, and seconds; these divisions are not the lived experience in time. Similarly, we tend to view history as a succession of periods – Heidegger's 'History of Beyng' falls into this tendency, as if we moved from one epoch into another through a clear boundary – which, for Heidegger, is cultural – abolishing one understanding of the world and substituting it with another at the turn of a page. However, we still find the notion of '*Physis'* in the emerging of emotions; or we find '*Poiêsis'* in quality craftsmanship. These world understandings are not mutually exclusive and can even be complementary. There is no reason to think that something created through technology cannot evidence some form of '*Poiêsis',* e.g. cinema. Our intellect tends to compartmentalise the world into discrete things so we can understand them. However, it is not the case that we substitute one understanding for another; we merely participate in the changing character of reality by expanding our understandings of the world, which intra-penetrate, forming richer and more complex worlds. Bergson is distinct from phenomenology; while for the latter, consciousness is of something, i.e. we are conscious of the jug and its multiple atributes, affordances and 'gatherings', for Bergson, consciousness is something, and we are active participants in it. The human is intrinsically part of the jug and its gatherings; the relationship cannot be reduced to mere observation or point of view. Hill, regarding Bergson's notions of change and consciousness, says:

> "Change is far more radical than the intellect acknowledges. The self is nothing but change; it consists of a continuous flow of duration. To conceive of the self as a succession of discontinuous states is to pulverise consciousness into a powder of equivalent moments that are readily reducible to number" (Hill in Ardoin, Gontarski, Mattison (eds.), 2013, p.301).

Bergson proposes a particular method – intuition. Not to be mistaken for a feeling or an unconscious suggestion but as a profound form of knowing. He identifies two distinct types of knowledge – relative and absolute. The first is spatial and subservient to practical ends; the other is characterised by a temporal nature, qualitative and in a continuous movement. He says:

> "The first implies that we move round the object; the second that we enter into it. The first depends on the point of view at which we are placed and on the symbols by which we express ourselves. The second neither depends on a point of view nor relies on any symbol. The first kind of knowledge may be said to stop at the

> relative; the second, in those cases where it is possible, to attain the absolute" (Bergson, 1912, p.2).

Bergson's theory of memory can expand the notion of 'gathering' into a genuinely active memory that participates in the present and the making of the future. He models memory as an inverted cone:

> "If I represent by a cone SAB, the totality of the recollections accumulated in my memory, the base AB, situated in the past, remains motionless, while the summit S, which indicates at all times my present, moves forward unceasingly, and unceasingly also touches the moving plane P of my actual representation of the universe. At S, the image of the body is concentrated, and, since it belongs to plane P, this image does but receive and restore actions emanating from all the images of which the plane is composed"(Bergson, 1991, p.152).

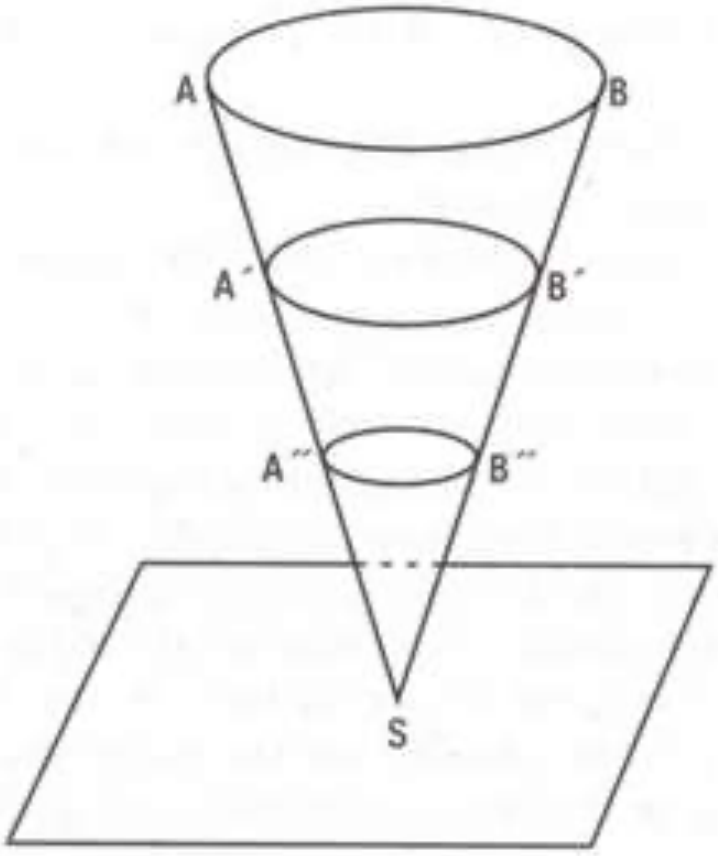

Fig.1 – Bergson's cone of memory (Bergson 1991, p.152)

For Bergson, memory is "coextensive with consciousness" (Bergson, 1991, p.151). To be conscious of memory, it must descend from 'pure memory' (AB) to the point of action in the present (S). In other words, it is from the present that we appeal to memory. Memories become 'active', affecting the present, some revealing themselves while others remain virtual. For Bergson, the concept of virtual is as much a part of reality as the actual. While the actual is extended in space, and we can perceive it directly, the virtual remains behind perception. In the example of the jug, the actual are all the attributes that we can perceive directly – material, colour, smell, taste, etc.; the virtual are the embodied memories of the making of the jug, or the making of the wine, and any other images that it carries. We can appeal to these memory-images from the present, effectively actualising these memories. An object is not only what we afford but also what we add, in a constant flux. Through this virtuality, we effectively extend into the world, and the world intra-penetrates our very being. Bergson says:

> "[T]he mind travels unceasingly over the interval comprised between its two extreme limits, the plane of action and the plane of dream. […] but the action is not able to become real unless it succeeds in encasing itself in the actual situation, that is to say, in that particular assemblage of circumstances which is due to the particular position of the body in time and space. […] The activity of the mind goes far beyond the mass of accumulated memories, as this mass of memories itself is infinitely more than the sensations and movements of the present hour; but these sensations and these movements condition what we may term our attention to life, and that is why everything depends on their cohesion in the normal work of the mind, as in a pyramid which should stand upon its apex" (Bergson, 1991, p172-173).

Things are made of actual and virtual images. Bergson's notion of image is not of a snapshot or a collection of images; these images are fluid – there is a distinction between image and representation. At times, these images may solidify into a vivid perception, but they can just as easily dissolve into the fog of consciousness. Bergson says:

> "Matter, in our view, is an aggregate of 'images'. And by 'images' we mean a certain existence which is more than that which the idealist calls a representation, but less than that which the realist calls a thing – an existence placed halfway between the 'thing' and the 'representation'" (Bergson, 1991, p.9-10).

The above is only a summary of Bergson's model of memory; however, it expands our understanding of the intra-relationships between humans and the world(s) we dwell in. Through his notion of intuition, we can become conscious of the mobility and extensiveness of the deeper structures of things and ourselves. The architect and theorist Michael Bell says:

> "Bergsonian intuition allows for the discrete limits of the body and of form while simultaneously allowing a covalency of other more fluid limits and systems" (Bell (2004).

Bergson's philosophy suggests a high degree of indeterminacy which seems to remove the ground from our feet and produce a constant anxiety about the world. Mainly because we seek stable grounds – stable institutions, values, traditions, etc.; we endeavour to create a societal structure which can endure not only for our time but for all times and all people – change is continuously resisted. However, indeterminacy is the very fabric and nature of reality; it is the plasticity, openness, a production without a foreseen resolution. "Plasticity means developing across time so that time, rather than space, becomes the organising principle" (Bell (2004).

Epigenesis - Towards Epigenetic Designing

The concept of topology is critical, both in the sense of intra-relatedness of parts and from the Greek *tópos*, meaning "place" but also "surface". In Bergson's model of memory, he mentions "the moving plane P of my actual representation of the universe" (Bergson, 1991, p.152). This is the plane upon which point (S), our active present, encounters objects in the world, and where the appeal to memory takes place. The question is, how can this understanding of memory be productive in design? I want to suggest that ontological designing can be expanded upon through complementary theories. On the one hand, Bergson's intuition and memory, and on the other, Malabou's reading of 'Epigenesis'.

Consider the following analogy. When we encounter an animal that has the ability to use tools, we do not attribute this to a kind of 'design knowledge' but as an evolutionary development. Humans have developed the capability to improve their tools so they perform better and do specific things. We think of this development as design; we rarely consider any evolutionary or biological motivations.

'Epigenesis' contrasts theories of preformation. Instead of thinking of an embryo as a fully constituted being that slowly grows and reveals itself, epigenesis understands embryonic development through complex transformations. 'Epigenetics' is a branch of molecular biology that studies how interactions with the environment can cause changes to how genes work, "the relation between genotype and phenotype" (Malabou, 2021, p.119).[2]

Malabou contrasts the biological definition of epigenesis with its use in philosophy. First, Kant, in §27 of the *Critique of Pure Reason*, refers to a "system of the *epigenesis* of pure reason" (Kant, 1998, 265, B167). Malabou says,

> "[Kant] contrasts epigenesis with "a kind of preformation-system of pure reason," which assumes the existence of a "pre-established harmony" between our cognitive structures and their objects and defines categories as innate "subjective predispositions." […] Kant claims that the relation of the categories to objects develops through self-differentiation, as do embryos. Epigenesis, […] becomes the privileged biological figure of the spontaneity of understanding: There is then a transcendental formation of the elements of thinking – a pure epigenesis" (Malabou, 2021, p.118-119).

Second, Ricœur, understands epigenesis as an interpretative or hermeneutical structure. In *The Conflicts of Interpretation*, Ricœur says "Epigenesis is not Genesis," and asks, "Is meaning in genesis or in epigenesis? [Does it lie] in the return … or in the rectification of the old by the new?" (Malabou, 2021, p.120; Ricœur, 1974, p.146-47). According to Malabou:

> "Genesis always brings the new back to the old, while epigenesis marks the meeting point between the old and the new, the space where they reciprocally interfere and transform one another – the embryo of a specific temporality" (Malabou, 2021, p.120).

She characterises epigenesis as "above" or "over" genesis. This "above" is not something that takes over; instead, it is the "surface effect." She provides a geological analogy of the epicentre and its relation to the hypocentre. The latter is the underground source of an earthquake, while the epicentre is its projection on the surface – it is the event (Malabou, 2021, p.120).

[2] Genotype is the genetic constitution of an organism while the phenotype are the observable traits of an organism which are determined from both its genetic make-up and the environment. See, National Human Genome Research Institute, URL<https://www.genome.gov/genetics-glossary/Phenotype> (Accessed 7 April 2023)

"Epigenesis, therefore, is temporal as well as spatial, for it is also a process of bringing to fruition a fusion of times" (Malabou, 2021, p.121) We can see the relation with Bergson's memory, i.e. the surface as the "representation of the universe" and point (S), the active present, as the epicentre, the cone is the underground. While Bergson's theory opens the horizon of the past, giving it an ontological status, Malabou's epigenesis expands this horizon towards the opposite direction, into the future.

> "Epigenetic reading defines itself as a prospecting tension towards the future. […] finding the precise point of contact between various times in a text, of exhibiting a surface that is not preprogrammed – a surface contact from which a form has to emerge, in other words, a synapse.
>
> Biological epigenesis includes a dual dimension of memory and progression, since the embryo gradually becomes more complex through the addition of new parts that complete preexisting parts. The epigenetic economy and the hermeneutic economy thus occur here, as both combine repetition and exploration, recapitulation and invention. It might be objected that all genesis also involves this dual dimension, but in the case of epigenesis these dimensions are one: They fuse at the point of their shared impact, the synaptic point" (Malabou, 2021, p.122).[3]

Miller provides an elegant definition of epigenesis:

> "Theories of epigenesis are theories not of preformation but of taking form and transformation. They are theories of coming-into-being, of the mutability of structure and organisations, attesting to the inscription of contingency and temporality in being and calling attention to the various processes through which forms emerge, endure, and are modified over time. Such processes include both interaction with the environment and the capacity of the living being for self-determination" (Miller, in Malabou, 2021, p.110).

Whether theory precedes practice or comes after is debatable. It seems to me, which may be controversial, that ontological designing does not present a new theory but evidences a way of designing that has been forgotten. The technological world has diluted the relationship between the mind that imagines a better way, the objects it produces, and the hands that use them to facilitate life. What Willis calls a hermeneutic circle seems to me an evolutionary process. Some things are essential to be remembered, and ontological design (re)frames and (re)centres the relationship between humans and things. However, I think the theory can be expanded upon, so it may do more.

'Epigenetic designing' can be understood as a way of knowing that encompasses all aspects of things and the intra-relationships that are implicit in them – past, present, and future. It goes beyond the understanding that "design designs us"; it understands design as 'becoming'. It is the same distinction of consciousness, which for phenomenology is 'consciousness of something', and for Bergson for whom 'consciousness is something'. It is an understanding of design as the surface effect of our own becoming, opening the horizons in all directions and making the past and the future active in its production. In simpler words, we can replace the slogan "design designs us" with a more meaningful understanding which reflects the continuous becoming of the world and all things in it (including ourselves): Design is what we are.

[3] Synapse is the point of contact between neurons, the point where information is transferred.

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