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Ontological Designing

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This paper seeks to elaborate a powerful idea, that of ontological designing. First, it implies a radically different understanding of design as practice and object than those generally available, and second it 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. As a naming ontological designing appears in the work of a few designer-theorists, in particular Tony Fry and the collaborative pair Fernando Flores and Terry Winograd,[1] These, in their turn, have built on the foundation of the work of twentieth century philosophers Martin Heidegger and Hans-Georg Gadamer.[2] This attempt to seek out the meaning of ontological designing will be undertaken mainly by selectively going back to their primary source - Heidegger.[3]

First, a preliminary definition of ontological designing will be put in place. This will be worked over by considering Heidegger on 'the ontology of equipment' as well as his concepts of 'worlding' and 'thinging' all of which are crucial to the idea of ontological designing. Then the 'hermeneutic circle' is added as another fundamental ingredient. The paper ends by considering parallels and differences between ontological designing and other theories of design.

To begin simply, ontological designing is a way of characterising the relation between human beings and lifeworlds. As a theory its claims are:

- that design is something far more pervasive and profound than is generally recognised by designers, cultural theorists, philosophers or lay persons;
- that designing is fundamental to being human - we design, that is to say, we deliberate, plan and scheme in ways which prefigure our actions and makings - in turn we are designed by our designing and by that which we have designed (i.e., through our interactions with the structural and material specificities of our environments);
- That this adds up to a double movement - we design our world, while our world acts back on us and designs us.

Why is this not just another way of saying 'we are conditioned by our environment' or 'we are shaped by the cultures into which we are born'? To see why not, we have to focus on the ontology of ontological designing.

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[1] This rather clumsy designation of Fry, Flores & Winograd as 'designer-theorists' is attempting to convey that the *theorisation* of design is integral to their work as designers; they are neither academics taking up design as a subject of inquiry nor are they practioners 'taking time out' to reflect on practice. Their domains of application of ontological design are very different - ranging from computer science and artificial intelligence (Winograd) to organisational management (Flores, who held posts as Minister of Economics and Finance in Salvador Allende's government in Chile) to ecodesign as applied to architectural, industrial and urban design (Fry). Their dispositional inclinations towards a theorisation of design that can transform practice means that their fusing of ontology and design is no accident.

[2] The works to be referred to which use the idea of ontological designing are Terry Winograd and Fernando Flores, *Understanding Computers and Cognition: A New Foundation for Design*, Norwood (New Jersey): Ablex Publishing Corporation, 1986 and Tony Fry, *Remakings: Ecology, Design, Philosophy*, Sydney: Envirobook, 1994. There is another practice-context to add for Fry, which is his founding in 1991and ongoing Directorship of the EcoDesign Foundation, a non-profit organisation based in Sydney, Australia, which is dedicated to developing and proliferating the knowledges and application of ecologically directed ontological designing.

[3] Having contextualised Fry, Flores & Winograd, I now need to do the same for myself. I have collaborated with Tony Fry over the past seven years in the work of the EcoDesign Foundation of which I am Assistant Director. Ontological Designing is an idea that myself and others closely involved in EDF have lived and worked with over several years, developing enough of a shared understanding for its meaning to be self-evident. If you like, we have opened ourselves to ontological designing, allowing it to design our thinking and to design with it. The motivation of this essay is to widen this circle of understanding, to bring the idea to others, as well as to more formally bring to presence for myself that which gets covered over in the day to day working with ontological designing.

Ontological designing then is (i) a hermeneutics of design concerned with the *nature* and of the *agency* of design, which understands design as a subject-decentred practice, acknowledging that things as well as people design, and following on from this, (ii) an argument for particular ways of going about design activity, especially in the contemporary context of ecological unsustainability. This leads to a further implication: the theory of ontological designing carries with it a politics.

Ontology, the ontic and the ontological

Ontology means "of or belonging to the understanding of being." Put extremely simply, ontic refers to what is; ontology refers to enquiry of what is, while ontological refers to the condition or behaviour of what is. The question of being has been central for the whole ontological tradition of philosophy - my attempt to define it briefly here is to do violence to this tradition.

'Being' as a noun is not common in everyday language nowadays and many first-time readers of Heidegger are initially baffled by it, suspecting that it names some kind of mysterious essence. Nothing could be further from Heidegger's intentions. 'Being' is not to be conceived of as yet another entity - a supra-entity - such as Spirit or God, but as the conditions of possibility of all Being. In fact for Heidegger the notion of essences lying 'behind' or 'underneath' beings was one of the problems with the Western metaphysical tradition.

A term used by Heidegger, 'Being-in-the-world' (Dasein), sometimes translated as 'being-here', requires further elaboration. Put over-simply, 'Dasein' stands for 'human being', but only for something particular about human beings, which is the capacity for understanding. Dasein is distinctive among all other beings in that 'Being is an issue for it'.[4] This is a constitutive feature of its being, the understanding of being belongs only to human beings.[5]

The ontology of equipment

For Heidegger being-in-the-world is grounded, situated, always already caught up with the concerns of the world and with doing. This is a different explanation of the processes of human understanding to that of the Western metaphysical rationalist tradition, which would define the essential nature of a piece of equipment, such as a hammer (Heidegger's example) through a description of function and/or observable properties such as mass, material, weight. This is how science brings something into presence. 'Bringing into presence' refers to the human activity of giving meaning to 'what is'. This occurs primarily through language, which is a hermeneutic (interpretative) activity. The claim here is that human 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. This is more than simply a way of describing practical activity.[6] Tony Fry takes up the implications in an ontological account of the industrial craft tradition, specifically, precision machine work:

> 'A worker who knowingly, critically read and wrote the text of production, besides the interpretation of information, the judgement of eye and the guidance of critical touch, was also implicated in a more intuitive reading of a wide range of machine process data, which involved a range of senses, like the reflection of light on the cutting surface of metal being turned, the colour of the sworf (waste) produced

[4] Martin Heidegger, *Being and Time* (trans. John Macquarrie & Edward Robinson) Oxford: Basil Blackwell, 1962, p. 32

[5] Hofstadter, one of Heidegger's translators puts it this way: 'human behaviour is mediated by the understanding-of-being. If ontological means "of or belonging to the understanding of being", then the human Dasein is by its very constitution an ontological being. This does not mean that the human being has an explicit concept of being, which he then applies in every encounter with beings; it means rather that before all ontology as explicit discipline of thinking, the human Dasein always already encounters beings in terms of a pre-ontological, pre-conceptual, non-conceptual grasp of their being. Ontology as a scientific discipline is then nothing but the unfolding, in the light proper to thought and therefore in conceptual form, of this pre-conceptual understanding-of-being'. Albert Hofstadter, Translator's introduction to Martin Heidegger, *The Basic Problems of Phenomenology*, Bloomington: Indiana University Press, rev. ed. 1982, pp xxiii He goes on to say that Dasein doesn't 'have' understanding 'as a property'. 'The Dasein *is* its understanding …. The Dasein is ontological in this peculiar way: it *is* its ontology, it *exists* its understanding-of-being within its life-comportments." p. xxiv.

[6] Heidegger's phenomenology refuses a theory/practice distinction - rather philosophical theorising is a type of practice and practical activity has its own theoretical understandings - 'action has its own kind of sight'. *Being and Time*, p. 99.

> by the heat of the cutting, the smell of cutting oil as the temperature of metal changes, the sound of the cut or, to move from a lathe to a universal grinder, the colour and size of a fan of sparks - and so with each machine tool there was a bringing of work to life.'[7]

Following Heidegger he describes this as a kind of knowing in which 'what is known is lodged in the practical performative act, as it is expressed by the hand as exercised skill, it thus does not correspond with knowledge as we understand it as reflection or description'.[8] Here is ontological designing - based upon a circularity, in which knowledge comes to be inscribed by being with the 'designing-being' of a tool , this in turn modifying (designing) the being of the tool user. This extends the understanding of design beyond that which would normally be thought of, i.e., the mental prefiguration of what is to be made and the pattern or template that guides making. These *are* aspects, but there is also: the designing effect of the properties of the raw material to be worked upon which will require, for example, certain temperatures to be applied; the way in which the machine tool designs the work process as a set of actions, skills and knowledges. Then, once the fabricated object leaves the factory, there is the way in which it will design the actions of its users, according to the inherent delimitations of how it can be used - here we can think of equipment, appliances and other functional objects as having 'horizons of use', similar to Gadamer's notion of interpretation as 'an interaction between the horizon provided by the text and the horizon that the interpreter brings to it'.[9] Interpretation is inseparable from the ontological designing process.[10]

Equipment and technology provide the most easily graspable examples of ontological designing, but its power comes from extending beyond these contexts (or more accurately, an ontological thinking together of the material and the immaterial). However this carries risks, particularly once the material character of equipment is left behind to consider the ontological designing of the non-material, for example, of systems of organisation or methods of thinking (or 'habits of mind', to express this in more 'ontologically sympathetic' terms). The risk is a loss of specificity in which ontological designing could be seen as equivalent to 'environmental determinism', carrying no more agency than 'influence' (as in 'the influence of environment upon individuals', where neither what constitutes environment nor what kind of action 'influence' is, are ever spelt out). Yet to make a material/non-material distinction for ontological designing is partly to miss the point - because in most situations both are present - thus the designing effects of an administrative system are inseparable from its materialised environment of forms, filing cabinets, work stations and work hierarchies, flows of paperwork and electronic information.

Language and the hermeneutic circle

We have already encountered the hermeneutic circle - in the example of using a machine tool wherein knowledge comes to be inscribed by being with the 'designing-being' of the tool, this in turn modifying the being of the tool user. To complete this circle is a third step is added - *interpretation* - in which the 'designed being' of the user acts back upon the tool or the material being worked on, with the effect of modifying or improving the process. This ushers in the possibility of learning and of change. In general terms the hermeneutic circle is a way of explaining a structural condition of being-in-the-world. It operates in all kinds of situations, from everyday coping to more formal acts of interpretation such as historical enquiry or the reading of literary texts, which is where it first surfaced as a philosophical concern. As we have seen, Heidegger gives primacy to the significance of Dasein's pre-ontological understanding of things - the understandings that come from being-with-things and with others rather than from introspection or from conscious acts of interpretation. Yet the commonsense model, inherited from traditional philosophy, is that interpretation comes before understanding, that it is the *means* toward understanding. Heidegger reverses this: 'Any interpretation which is to contribute to

[7] Tony Fry, 'Green Hands Against Dead Knowledge' *Remakings*, 1994, p. 93.
[8] Fry, *Remakings*, p .94
[9] Winograd & Flores, *op cit* p.28.
[10] A link could also be made here to Don Ihde's phenomenological investigation of technology. The question of technology and control is usually wrongly put he argues - i.e., it is usually posed as 'does technology control us?' and 'can we control technology?' Using a tool shop example like Fry's he goes on to explain '… insofar as the tool-human context is constituted as a relation while the user 'controls' the chisel, it is the lathe and its turning of the furniture leg or banister piece that provides the context for the lathe-user's movements. To enter any human-technology relation is already both to 'control' and to 'be controlled'. Once the notion of technology in the ensemble is raised, particularly insofar as technologies are embedded in cultural complexes, the question of 'control' becomes even more senseless' Don Ihde, *Technology and the Lifeworld: From Garden to Earth*, Bloomington: Indiana University Press, 1990, p. 140. This statement opens up the much larger question of the nature of technology (a task for another time). For the moment, a qualification can be added that the statement is particular to certain understandings of aspects of certain technologies rather than to technology per se.

understanding, must already have understood what is to be interpreted'.[11] He lays out the hermeneutic circle as a trap, a 'vicious circle', which is to say, it is impossible to approach the act of interpretation with absolutely no prior knowledge of what is to be investigated. Pre-understandings are always present, and furthermore the interpreter can never absolutely and totally lay all these out in order to put them to one side, as it were, because the interpreter *is* the totality of his/her understandings.[12] But this is only a vicious circle, a pointless bouncing back and forth, if understanding and interpretation are seen as the same. However understanding and interpretation are of different orders, they circle around one another, the exchanges between them bringing the possibility of development.[13]

Interpretation happens in innumerable ordinary everyday situations, such as when something breaks down and the user has to examine it in order to fix it. This produces an understanding of how the thing works, which is not the same as knowing how to use it, and furthermore the understanding gained will very likely modify the way in which it is used in future (how it's held, how much pressure is applied, etc); nevertheless the interpretation didn't start from ground zero, from a position of absolute objectivity, it came out of an everyday involvement which carried with it a particular understanding of the functioning of the thing, but the breakdown opened up a space for interpretation, an opportunity towards disclosure of the thing itself.

It is useful to think of the hermeneutic circle in three moves, taking the example of language. While we cannot think outside of language, this does not mean we are totally programmed: (i) we are born into and come to be human in language; (ii) we appropriate it, modify it, perhaps put words together in ways that they have not been combined before, encounter new situations which require new words; (iii) thus in appropriating language we also change it, and language-as-changed in turn acts back on us as language users.[14]

Worldhood and worlding

The hermeneutic circle makes more sense when put alongside Heidegger's concepts of worldhood and worlding.

Worldhood is laid out in *Being and Time* as a fundamental characteristic of Dasein. Equipmentality, discussed above is one instance. For Heidegger Dasein is 'thrown' into a world, but more than that, there is no condition prior to thrown-ness, the human being is human only by virtue of existing in a worlded condition, that is to say, the human being dwells amongst entities which become present as entities only through engaged dealings-with, including the inescapable mediation of language. World is not equivalent to 'planet earth' nor to 'all that exists, whether known or not by human beings' (the term 'ontic' fits more closely with this latter idea); instead world, or rather, worlds, are always circumscribed, situated, and multiple. But this does not mean worlds are entirely individualised, purely subjectivised spaces of perceptual dwelling.[15] Worldhood is much stronger than the more commonplace notion of 'world view', which retains the Cartesian divide between observer and observed, 'view' suggesting a consciously self-selected vantage point.[16] Conceptually, worldhood provides the setting for understanding the operation of ontological designing - which can here be renamed as worlding. Worlding is not the same as background, milieu or environment, nor is it another way of simply asserting environmental determinism. This is because worlding assumes and accepts the circularity of Being and the workings of the

[11] *Being and Time* p. 194 .

[12] As Brice R. Wachterhauer in his discussion of Heidegger's contribution to hermeneutics puts it 'we are always already with things and others in a world we have not chosen and from which we cannot in any kind of radical way … cut ourselves off' and 'we grasp reality from this or that historically mediated perspective' and all understanding operates within this hermeneutic circle.' Brice R. Wachterhauer, 'Introduction: History and Language in Understanding' in *Hermeneutics and Modern Philosophy* Albany (NY): SUNY Press, 1986, p. 27.

[13] According to Heidegger:'The projecting of the understanding has its own possibility - that of developing itself. This development of understanding we call "interpretation". In it the understanding appropriates understandingly that which is understood by it. In interpretation, understanding does not become something different. It becomes itself. … Interpretation … is … the working-out of possibilities projected in understanding.' *Being and Time*, p 188 -9

[14] The hermeneutic circle operates at a more fundamental level in that it is an ontological feature of Dasein. Heidegger again: 'The circle in understanding belongs to the structure of sense, and the latter phenomenon is rooted in the existential make-up of Dasein - that is, in the understanding which interprets. A being for which, as being-in-the-world, its being is itself an issue, has, ontologically, a circular structure' *Being and Time*, p. 19

[15] While 'world may stand for the public we-world, or one's own closest (domestic environment)' or 'any realm which encompasses a multiplicity of entities (such as) the world of a mathematician', the concept of worldhood in general overarches all such instances. *Being and Time*, p. 93 (H 64-65)

[16] For a more nuanced discussion of world view see Heidegger 'The concept of philosophy: Philosophy and world views' in *The Basic Problems of Phenomenology* (trans Albert Hofstadter), Bloomington: Indiana University Press, 1988, pp 4-11.

hermeneutic circle, which could never be reduced to a one way movement of 'environment determining human subject' or vice versa, in fact the idea of worlding refuses 'human' and 'world/environment' as separate or self-contained entities. Ontological designing is a way of naming particular situated instances of worlding. Recalling that Dasein means 'being-in-the-world', and that being-in-the-world is inevitably circular, (i.e., that there is nothing outside of this circle) means that worldhood and worlding refer to an absolute condition that applies at whatever level we would wish to consider anything at all - all of this gives a sense of why the question of being is so complex.

From worlding to thinging

The worlding of equipment in *Being and Time* could be restated as equipment's ontological designing of the user of equipment. In the later Heidegger, this gets displaced by a different sense of worlding - the 'thinging of the thing' in the essays 'The Thing' and ' Building Dwelling Thinking' in *Poetry, Language, Thought*.[17]

In *Building Dwelling Thinking* Heidegger rethinks building as an activity of founding and joining spaces, as 'closer to the nature of spaces' in a more fundamental way than geometry and mathematics.[18] But if we pervade buildings, they also pervade us - entrances, corridors, stairs, lifts, large rooms, small rooms - all design our modes of spatial occupation and our movements through spaces, allowing some, not allowing others. While we as humans design buildings, they also design us. In fact designing can be thought of as an ontological feature of building - this is not to make the obvious point that buildings are designed in the sense that they are pre-figured by plans, but that they are *designed to design* by the specific ways in which they incorporate dwelling. This is more fundamental than the conscious intentions of the designer of the building, because *dwelling* is the meta-designing of all building.

The thinging of things has little to do with awareness, consciousness, or the state of mind of either the maker or the user of things. Ontological designing happens whether the perceiving subject (who is the subject of, as in subjected to, the designed) is aware of it or not. This changes how change can be thought about and thus how change is attempted to be made to happen. Commonsense understandings of, for instance, social change, rest on the assumption of changing behaviour through appeals to reason, of presenting people with arguments as to why they should do things differently; the fact that this rarely works is then explained away either as a failure of effective communication, by inherent conservatism or by human weakness.

Once ontological designing is allowed to perform its unconcealment, once the idea is appropriated - i.e., that things have the capacity to 'thing', a different kind of designing becomes possible. Designing with a knowledge of the thinging of things will be qualitatively different from any kind of designing which does not know this. Thus a move can be made from ontological designing as the naming of something to ontological design as practice. This too makes ontological designing available as a practice towards social change.

From worlding and thinging to ontological designing

Designing no matter which aspect or at what stage, is always more than conscious decisionism - e.g., the designs produced by designers come from their worlding as designers, the objects or systems that come from these designings in turn become parts of worlds and thus enter into worlding, this in the ways in which as things they thing. To have this ontological understanding of design inevitably means undertaking any kind of designing activity with a very different kind of disposition. An ontological understanding of design brings to light the multiple, complex and ongoing wordling of design.[19]

[17] Martin Heidegger, *Poetry Language Thought* (trans. Albert Hofstadter), New York: Harper & Rowe, 1971. The seven essays in this collection were written in various versions at various times between 1935 and 1954. 'Building Dwelling Thinking' and 'The Thing' were first written as lectures in 1951-52.

[18] *Building Dwelling Thinking*, p. 158.

[19] Once grasped, this also implies an ethics, but this must be an ethics also though in ontological terms, an ethics not lodged in conscious rational subjects, but inscribed and materialised into the structures of worlding through the thinging of things. Ethical concerns, particularly in terms of Heidegger's 'care structure' are taken up in several of the essays in Tony Fry's *Remakings* which argue for the creation of the inscribed object that cares or sustains, i.e., materialisation of ethics as an ontological world remaking.

It is because the thinging of things now occurs entirely within the ambit of the designed and designing technological milieu that ontological designing as a condition of being simply cannot be avoided. To attempt to delineate a field of operation of ontological designing is to face the impossibility of defining the world. But because 'design' is still generally associated with a narrow range of activity, some preliminary distinctions are needed. Ontological designing as a condition of being could be seen as inhabiting 3 continuous inter-connected regions:
(1) as it applies to conventionally considered designed things - e.g., buildings, manufactured objects
(2) extending on from this there is the ontological designing of material and immaterial infrastructure, of e.g. management systems, of information technologies, of communication systems, and then there is,
(3) the ontological designing of systems of thought, of habits of mind.

To traverse these 3 concentric circles which are connected by the bisections of concrete everyday situations which perform their gathering, is to take a journey from the general condition of worlding (especially language as worlding) to ontological design as an example of worlding in action, back to the worlding of habits of language. Another way of saying this, is that whichever of the three one may focus on at a particular moment, the other two are always also present, even if only in the background for the moment.

Putting the emphasis on the 'design' of ontological designing also takes matters in another direction. Design for Flores and Winograd is not understood 'in the narrow sense of a specific methodology for creating artifacts'[20] and for Fry it is not circumscribed by its professional domains (the design disciplines - architectural, graphic, industrial, etc). Fry says, 'We are all designers. Designing is integral to every intentional act we take.'[21] We could note that this is a claim often made in populist texts[22] which posit design as a transcultural universal human activity. But such assertions always raise more questions than they answer. To the assertion 'we are all designers' Fry would quickly add the counter-balancing of the hermeneutic circle as 'and we are all designed'. This double formulation retains the pre-figurative action of design while putting in parenthesis the 'imaginative'. For the theory of ontological designing this latter move is necessary because popular concepts of imagination and the imaginative carry with them too many residual and unexamined Cartesian dualisms (mind/body, mental/physical, self/world) which a Heideggerian understanding seeks to undo. To assert 'we are all designed' does not mean universal uniformity for as Dasein ('being-here') 'we are' designed in the specificity of the *differences* of our lifeworlds; 'Being-designed' and 'being-here' (Dasein) thus are interconnected.

The prefiguring of design needs further exploration. Even for category (1) above, i.e. designed objects and structures, we are not just thinking about the way in which a sketch plan or blueprint prefigures a built form (or how a prototype prefigures a manufactured object). The prefiguring reaches both backwards and forwards from the sketch, the plan, the model or what is commonly (in limited everyday understandings of designing) called 'the design'. The prefiguring reaching backwards, which sounds contradictory, refers to all that designs the plan/model, such as pre-existing typeforms, aesthetic conventions, standards, safety codes, professional codes of practice, and so on. And the designing that leaps over the obvious intentional relation between plan and built form, is that which happens between user and built/manufactured object.[23]

Design could be thought of as embedding of intention (intention here understood as 'directing-itself-towards') - which is another way of stating the thinging of things. A knife is a designed thing that directs itself towards cutting. This is stronger than saying it has been designed to allow the user to cut with it - that formulation posits all intention with the human user and obliterates the being of the knife as 'cuttingness'. The knife as a designed object with a history also carries with it culturally specific embedded intentions - thus there are carving knives, butter knives, daggers, swords, etc. The 'we are designed' aspect in this example is the inseparability of cutting and knife - functions are so embedded in objects that it becomes impossible to prise them apart - except for moments of invention (which never occur in objectless vacuums anyway) the function and the object, or to put it

[20] Flores & Winograd *op cit*, p. 163.
[21] Fry, *op cit*, p. 10.
[22] For example Victor Papanek 'All men are designers. All that we do, almost all the time, is design, for design is basic to all human activity. The planning and patterning of any act towards a desired, forseeable end constitutes the design process ….. Design is the conscious effort to impose a meaningful order'. From *Design for the Real World* St Albans: Paladin, 1974, p. 17. Quoted in Tony Fry *Design History Australia* Sydney: Hale & Iremonger, 1988, p. 15.
[23] As Fry puts it:'Design goes before what is made and continues on after it has arrived. The implication is that the agency of design is not just the designer but also the designed. Design always goes on designing - unless destroyed, the design object always has an actual, or imminent, utility or sign function that either enables or delimits a relation with it. Design never starts at zero, for it always starts with an already designed object and comes from a particular environment.' Fry, *op cit*, p. 10.

another way the object and its intentions are discovered in the same moment. Our worlding, then, could be thought of as an induction into the intentions of things. And in our technological society more and more of the things of our world have a strongly intentional, more than this, an instrumental character, thus their designing (power) is stronger. This is true for both, but in different ways, single function objects (e.g. a lawnmower, a gadget) and complex multifunctional system-things such as computers, which rather than inducting us into a world of multiple creative possibilities (as software advertisers would have it), design us as users into their horizons of possibility - which by the very nature of horizons (in Gadamer's sense) always have a limit. In fact the proliferation of options within even a basic operating system or software application becomes a tyranny of enforced endless choice.

Once worlding and thinging are put together with the predominantly technologically constructed artificiality of contemporary lifeworlds, the embedded pervasiveness of design becomes very difficult avoid. Yet very few make such connections and thus come to understand the profound significance of design - perhaps least of all designers. Tony Fry makes this point often. He then brings these elements - worlding, thinging and designed technological artificiality to the contemporary conditions concluding that the symptoms which are named as ecological crisis (global climate change, ozone layer depletion, deforestation, declining biodiversity deteriorating air and water quality and so on) have arrived largely as the result of design. This in turn implies that the designing that lies behind these symptoms has to be sought-out, turned around, undone. One of these undoings he names as 'defuturing'. Environmental crisis has to be undesigned. This is stronger than 're-designed' requiring more fundamental actions than re-designing the mainstream ecodesign undertakes (redesigning for less polluting production processes, more energy efficient products, less waste,etc).[24] These solutions, which have gathered considerable corporate support during the 1990s, get nowhere near the deeply ontological character of design, they barely grasp 'the designing of design'; such strategies for change leave in place the ontology of particular products, systems, infrastructure, i.e., eco-redesign does not get to, or at, the nature of their worlding and thinging.

Ontological desiging's difference

Now, to conclude - some brief thoughts on how ontological designing differs from other available theorisations of design. A full exploration would require a distinction to be made between the more formal discourses on nature of design and the tacit understandings of design (designers' self understandings of what they do and what makes it distinct from other types of professional practice).

Is there a common core amongst the many definitions of design? Dictionary definitions according to Nigel Cross usually emphasise 'constructive forethought'.[25] Carl Mitcham makes a distinction between proceeding by intention and doing this with the addition of systematic modelling - which he sees as central to design. [26]

Probably the most widespread definition is that design is essentially about problem-solving. This derives from Herbert Simon, who sought to install the idea of a science of design different from science itself because design has to solve 'inherently ill-defined' problems, with science being concerned with how things are, while design is concerned with how they ought to be.[27] He believes all professional practice involves design, as in 'changing existing situations into preferred ones'.[28] Building on this, Donald Schön characterises design as 'knowing-in-action', describing the design process as an intuitive bringing of experience to problems, which nevertheless are themselves treated as unique. A starting point is chosen, maybe even arbitrarily, and as the practitioner proceeds s/he responds to what emerges from the evolving particularities of the design-situation. As the unexpected emerges (Schön calls this 'back talk') the practitioner has to reassess and modify, i.e., to 'reflect in action'. Schön finds designing activity across many professions - policy-making, psychotherapy, management, as well as the more expected ones of architecture and town-planning,

[24] Many such examples are outlined in E. von Weizsacker, A.B. Lovins & L. H. Lovins *Factor 4: Doubling Wealth, Halving Resource Use* St Leonards (NSW, Aust): 1997

[25] Nigel Cross, 'Discovering Design Ability' in *Discovering Design* op cit, p. 106.

[26] Carl Mitcham, 'Ethics into Design' in *Discovering Design* op cit, pp. 173-176

[27] Cross, *op cit*, p. 110.

[28] Simon quoted in Donald Schön *The Reflective Practitioner* New York: Basic Books, 1983, p. 46. This over simple distinction needs to have the emphasis on *how* rather than *is*, otherwise it might give the impression that Simon operated with a model of an idealised pure science of disinterested knowledge accumulation. Both he and Schon would have acknowledged the extent to which investigation of 'how things are' is shaped by interested agendas and is thus not unconnected with 'making things otherwise'.

Schon's theorisation of design process has some parallels with ontological designing. His emphasis on reflection-in-action and the significance of tacit knowledges that accumulate out of situated experiences are both very compatible with Heidegger's prioritisation of pre-ontological understanding - the knowledge that comes from situated worlded-ness. Schön asserts the inescapability of what he calls 'frames' of interpretation, but does not see this as a hopeless relativist trap once the conflicting frames operating in a given situation are brought into the foreground and reflected upon. While there are parallels with Gadamer's 'prejudice as pre-understanding'[29] Schön assumes that versions of pre-understandings can be laid out for examination, whereas a more developed hermeneutic phenomenology would question the viability of this epistemological ambition, precisely because the interpreter *is* his/her understanding.

Tony Fry makes the point that design is a meta-category comprised of three elements, each of which get called design, often to the exclusion of the other two, but all of which are connected. They are:

1. — the design object - the material or immaterial outcome of designing
2. — the design process - the system, organisation, conduct and activity of designing
3. — the design agency - the designer, design instruction in any medium or mode of expression and the designed object itself as it acts on its world.[30]

Most theorisations of design take one of these as their exclusive focus, either ignoring the others or viewing them through the 'design' of their concern. Thus Schön and Simon are exclusively concerned with design process as transportable technique, and the ends of their analysis are ultimately instrumental. The design object is the focus for design historians, their interest in process tends more towards organisational politics, design education and other social structures which bear upon the designed material culture of a particular era. Design agency is dealt with in many historical accounts as being equivalent to the influence of talented individual designers. But there has been almost no study of the agency of the designed object - its agency was simply assumed by modernist architect-designers, or the agency of the designed gets reduced to a generalised condition of milieu.[31] The three elements of design cannot be thought together meaningfully simply by bolting them together. There needs to be something which is fundamental to all three (this does not mean 'essence of design'). Thinking design ontologically provides this because it implies being-in-the world as a condition which is always already situated (the condition of worldhood), and thus a starting point for understanding modes of human being such as dwelling and purposeful activity (e.g., working or designing). Ontological designing also implies the operation of the hermeneutic circle, which provides the basis for thinking about how change happens within that which is always already situated. Therefore it doesn't matter where we look - at the design object, the design process, or design agency - there is never a beginning or end of design because situated worlded-ness is ever-present and is ever-animated by hermeneutic circling.

The ontological claim that 'design designs' (Fry's formulation) is a much stronger claim than 'design affects' or 'has an influence on'. It includes the designing of design processes, whereby outcomes are prefigured by the processes deployed and where-in the activation of particular design processes inscribe within designers particular ways of working. 'Design designs' also includes the designing effects of that which designers design (objects, spaces, systems, infrastructures). The significant point here is that all these designings are of the same order. That is, no distinction is being made about the nature or relative significance of determinations, neither object, process or agent is granted primacy. Which is to say that, for example, the designed object as much designs the actions of its user as the designer of the object designs what the object can do. Traditionally agency has be posited with the designer - the assumption being that the designer's intentions are embedded within the designed object which then causes the object's user to do things in certain ways. But the problem here is a flawed model of causality based on a linear temporality, in which it is assumed things can be traced back to origins further back in time - there is no particular need for this assumption when attempting to explain

[29] Gadamer characterises prejudice as *pre-understanding* which comes from assumptions implicit in the language of the language user. Prejudices are pre-judgements, they are an inescapable condition that 'constitute the initial directedness of our whole ability to experience. Prejudices are biases of our openness to the world'. Gadamer quoted in Winograd & Flores, *op cit*,pp. 32.

[30] Tony Fry, from *Lexicon* unpublished, EcoDesign Foundation, 1998.

[31] A non-precise populist idea of the agency of designed objects as environmental determinism can be found in John Heskett's account which stresses the transformation of lifeworlds delivered by industrial design, in which the instrument of transformation is mechanised industry - a 'flood of artefacts and mechanisms has poured out to satisfy the needs and desires of an ever-greater proportion of the world's population ….. (and) radically altered the qualitative nature of the life we live or aspire to live' Quoted by Buchanan, 'Rhetoric, Humanism and Design' in R. Buchanan & V. Margolin (eds) *Discovering Design* Chicago: University of Chicago Press, 1995, p. 47.

phenomenologically the designing that is going on in a particular situation. The fact that teams of designers worked on the configuration of the screen and keyboard I am now using cannot really help me to understand that my using this equipment is at the same time this equipment designing what I am doing. Once the comfortable fiction of an originary human agent evaporates, the inscriptive power of the designed is revealed and stands naked.

It can be a power that is positive or negative. Now be prepared for an onslaught of the negative as Tony Fry uncovers defuturing as design's dominant direction. But there'll be light at the end of the tunnel as he argues for redirective practices as the response to the imperative of sustainability, BUT, you will see that such practices need to understand and grasp of design as ontological.