THE FUTURE IS AN IMAGE

Unsustainability, Plasticity and the Design of Time

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For my partner Amery
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<tr>
<td>AND</td>
<td><em>And. Phenomenology of the End</em></td>
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<td>AOR</td>
<td><em>Acts of religion</em></td>
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<td>ATF</td>
<td><em>After the Future</em></td>
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<td>CPE</td>
<td><em>For a Critique of a New Political Economy</em></td>
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<td>CPR</td>
<td><em>Critique of Pure Reason</em></td>
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<td>CPJ</td>
<td><em>Critique of the Power of Judgment</em></td>
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<td>CWA</td>
<td><em>The Complete Works of Aristotle</em></td>
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<td>DTL</td>
<td><em>Radical Atheism: Derrida and the Time of Life</em></td>
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<td>ECN</td>
<td><em>The End of Cheap Nature</em></td>
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<td>FOH</td>
<td><em>The Future of Hegel</em></td>
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<td>IPCC</td>
<td><em>Intergovernmental Panel on Climate Change</em></td>
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<td>KPM</td>
<td><em>Kant and the Problem of Metaphysics</em></td>
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<td>MOP</td>
<td><em>Margins of Philosophy</em></td>
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<td>NDP</td>
<td><em>The Neuroplastic Dilemma</em></td>
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<td>ODC</td>
<td>oxforddictionaries.com</td>
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<td>OED</td>
<td><em>Online Etymology Dictionary</em></td>
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<td>PLH</td>
<td><em>Pierre Loves Horranges Lévinas-Sartre-Nancy</em></td>
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Introduction

THE IMAGE IN PLASTICITY

The Unsustainable Image

WE LIVE IN AN UNSUSTAINABLE WORLD. We have been reminded of this in recent years due to the current and projected future effects of human-induced climate change. Notwithstanding the widespread knowledge of the threat to human future, human patterns of unsustainable behaviour seem entrenched. One could be forgiven for assuming that this knowledge would lead to fundamental change in our ways of being and acting on all levels, from the workings of politics and economics to the structuring of academic disciplines and the practices of the professions. Instead, we find in general a stunned silence, pockets of denial, and occasional efforts at mitigation.

Design is at the heart of the problem, as it was design that opened the way toward the artificial world it is our burden to sustain, and it was the design of the machine that enabled the burden to grow vastly greater.

It is the discipline of visual communication that most directly deals with the image; but within this discipline, the role of the image has mostly been ignored. This is unfortunate: we ignore the image at our peril. As we will see, it is the image—in the form of imago—that is the link between our artificial world and the neural networks forming our cognition. Relative to the power the image holds over us, we design and use images recklessly. If it were to be our goal to reshape our relation to the world in a way commensurate with the threats we face, we would need to rework our relation to the image. Humans live in a multiplicity of worlds concocted from images; these have a great, but often invisible effect upon the one world, Earth, that matters.

Threatened with a condition of unsustainability—the increasing rate at which we speed toward the end of time—we must understand how we can
use the image to *design time.* This is not to suggest that we create an image of the future, but rather that we use the image to create future itself. For this, we must rely on the plasticity of the image, not simply in its aesthetic qualities but as an ontological phenomenon as well. Plasticity arises out of ontological difference, as image supplement or phantasm. (Malabou 2010, 77) By connecting the phantasm, in its most abstract sense, with the concrete image artifact placed squarely in the world, face-to-face with human bodies and brains, I will provide the beginnings of a discussion that can help shape the image disciplines and practices in ways that create future, not destroy it. As climate scientists have shown, entropy shadows us and the day is getting darker. It is time to make time.

**Artifact and Image**

It is the characteristically human behaviour of designing a world outside of ourselves that has designed us as a “successful,” and thus unsustainable species. Design is an ethological behaviour of the species *homo sapiens,* dependent upon a prior increase in the use of the hands with concomitant development of the neocortical area of the brain. At some point during this long process, lasting over two million years, the first tool was created; and with the tool, human consciousness. According to Bernard Stiegler, this happened in a moment of rupture, dividing an undifferentiated present into past, present and future. The gesture of raising an arm with rock in hand, then lowering it in anticipation of a strike capable of splitting another rock into a blade and the rock’s remains, brought with it the consciousness of future. Once hit, what remained—the primitive tool—contains the memory in rock of its making. An image of the past has been recorded, with human consciousness becoming the first unintended consequence of the making of tools, beginning the work of design. (*TTI* 158)

The tool is the memory of the next tool, in an iterative process of artifactual production. It begins with a process of making-sensible, a cognitive process of making a “look” out of the object at hand. The look—what I call *imago*—is created in the embodied process of a grappling with the object-becoming-artifact; it may also be created in an act of perception guided by memory. In the latter case, it is the *image-schema* (*KPM* 68–71) that provides for the possibility of transmission, as an ontological phenomenon that lives in the in-between space between the sensible object and materializing neural networks. The imago shimmers, and is fecund. It shimmers in the crossings it makes, from artifact to brain and from past to future. It shimmers in neural transience, as networks begin to form. It is fecund, as in its shimmering it may
be anything. It must be something or it will disappear. It will be recomposed as future, in artifactual production to come. Human conatus assures its promulgation, as the human perseveres in its being only as imago.

We use the artifact; we crave the imago. If we created artifacts as a beaver builds it dam, we would be as beavers, continuing to use these artifacts until they wore out or we felt an environmental pressure to change. Under the mediation of the imago however, passing fluidly between artifact and brain, atoms and neurons, a plasticity developed between our forming organ and the artifact it formed. Yet the living human brain is of a different order than that of the matter from which artifacts are made. It is this differential from which craving begins.

To crave introduces a different intensity of conatus than that of the beaver. Our human drive no longer simply operates between organism and environment. The organism has become a self, and the environment a world. The present bifurcates into past and future. The self, based on the past, imagines a world and a future. If, as Spinoza states, “each thing, as far as it lies in itself, strives to persevere in its being,” (Spinoza 1996, 75) the human being tries to achieve this in an imagined world, in a future to come. Human unsustainability is thus a structural condition. The image we have of the world always exceeds our present condition. To make up the difference we introduce new artifacts into the world, creating a new world-image which, once again, exceeds our condition. Unsustainability thus exists both as an experience of lack, and as material consequence of the abundance of artifacts we have produced as compensation. It is an ontological condition of human being. It is also an expression of entropy.

Negentropy
As we know from the second law of thermodynamics, entropy in the universe is always increasing. The universe, itself, is unsustainable. Nonetheless, as quantum physicist Erwin Schrödinger articulated in 1944, life is a temporary form of negative entropy, or negentropy, structures of complexity that, for a time, are able to resist entropic force. (Schrödinger 70-71) In our planetary ecosystem, plants metabolize photons received from the Sun as energy during the process of photosynthesis, thus manifesting a temporary negentropy. Animals then feed on and metabolize plants, in order to maintain negentropy during the course of their lives. Humans not only feed on both plants and animals, but in addition metabolize inorganic matter, resulting not only in negentropic biological structures (including neural networks and the images they form) but in designed artifactual structures as well.
Negentropy always leaves entropy in its wake, as Schrödinger remarked: “the essential thing in metabolism is that the organism succeeds in freeing itself from all the entropy it cannot help producing while alive.” (77) For a non-human animal, metabolism is always directly in service of the organism’s health and vitality, by securing itself in benevolent habitats, finding food to eat and in the use of energy to escape predators. In humans, however, much of our metabolism is involved in artifactual production, a more complex and less direct strategy to secure existence. We must metabolize the earth, often in dramatic ways, in order to produce artifacts as an intermediary step for the final goal of promoting our health, vitality and protection. This negentropic activity results in considerably more production of entropy.
Image and Entropy

Images are a more indirect form of human negentropy than are artifacts. Yet they gave us the past and the future, and with it a crucial tool to help us stay ahead of the game: the capacity to gauge our production of entropy. It’s a dangerous tool, a pharmacon, as images create worlds that captivate and waylay us, that come between us and the world itself. Yet images may also summon us: the image of our Earth as a precious and fragile whole isolated in black space, taken by the Apollo 17 crew in 1972, might have summoned not a few to the nascent disciplines of ecology and environmental science. Over the next four decades, as a result of the artifactual development of computer-assisted imaging techniques, we became able to model scenarios of our planet’s changing climate and demonstrate with increasing certainty the entropic effect we were having on the ecological systems that support us. A more recent image—a colossal and collective selfie—gives evidence of the vast perspectival territory our species now inhabits by proxy or prosthesis: taken in 2013 by the roving robotic spacecraft Cassini and relayed to NASA, the sublime rings of Saturn frame within vast black space a tiny bluish dot in empty space. No longer beckoning as an icon of human hope, our Earth simply exists, an illuminated rock of relative inconsequence, as Nietzsche imagined in 1873:

The Day the Earth Smiled. Earth from Saturn, taken on July 19, 2013 during the Cassini-Huygens mission. Courtesy NASA/JPL-Caltech/Space Science Institute
Once upon a time, in some out of the way corner of that universe which is dispersed into numberless twinkling solar systems, there was a star upon which clever beasts invented knowing. That was the most arrogant and mendacious minute of “world history,” but nevertheless, it was only a minute. After nature had drawn a few breaths, the star cooled and congealed, and the clever beasts had to die. One might invent such a fable, and yet he still would not have adequately illustrated how miserable, how shadowy and transient, how aimless and arbitrary the human intellect looks within nature.... Only its possessor and begetter takes it so solemnly—as though the world’s axis turned within it. But if we could communicate with the gnat, we would learn that he likewise flies through the air with the same solemnity, that he feels the flying centre of the universe within himself. (Nietzsche 114)

Whether magnificent, troubling or inconsequential, these images of our planet imply the entropy left in their wake. What thinking or action do they suggest? What dispositions are appropriate for how we approach our lives?

Philosophy and Design

Philosophy in-forms action as deliberation, interpretation and disposition. By bringing philosophy and design together, we create a field of interpretive action. Design is an expression of an iterative conatus: the need to act, and act again, in the face of both infinite possibility and imminent closure. One acts, informed by disposition. To act again, one’s previous actions are interpreted, informing our disposition. We may, through disposition or deliberation, decide to act again. To decide is to put into place a neural algorithm informing disposition, allowing it to act out under the affect of conative force. It is not necessary to decide, however; one’s previous actions and their effects will inform disposition, and thus future action.

It is interpretive action, a hermeneutics of design, that has the only chance of meeting our unsustainable world—the world we have created while tarrying in other worlds—with a commensurate response. We may become philosophers committed to action, or designers committed to reflection. If we refuse both, we are left with the barren world Adorno describes, where “[t]he introverted thought architect dwells behind the moon that is taken over by extroverted technicians.” (Adorno 2004, 3)
**Wicked Problems**

From within the disciplinary configuration of design, one of the more robust theories of a hermeneutics of design is to be found in Rittel and Webber’s elaboration of the “wicked problem.” (1973) The concept arose in the context of the failure, that became apparent by the late 1960s, of many large-scale, postwar modernist urban planning and design projects. Wicked problems, in contrast to “tame” ones, are those complex problems that, in the process of solving them, bring to light or cause further problems. Each problem, for which there is no definitive formulation, is unique and can be considered to be a symptom of another problem. In a wicked problem there is no opportunity to learn by trial and error, and every attempt counts significantly because there is no right to be wrong.

It is clear that there can be no methodology for the solving of wicked problems except for one based in interpretative action: do something; evaluate its successes and consequences; do something else, based on what has been learned; repeat. Even so, one has to know where to begin and in what direction to move, based on the good that one is trying to achieve. In the field of social planning, the authors remark, “[w]e do not even have a theory that tells us how to find out what might be considered a societally best state.” (168) This is a problem for philosophers, and has been since at least the time of Plato.

In a world and at a time that has disclosed that humans are unsustainable by design—that our self-designing has left a load of entropy in its wake that threatens our species’ existence—all design problems become wicked ones, impervious to instrumentalist solutions.

**“Anyone Designs”**

The most general definition of design was given by social scientist Herbert Simon at around the same time as the articulation of the wicked problem: “Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.” (Simon 67)

As general and possibly as banal as this definition of design might appear, it has the advantage of positioning design as a non-instrumentalist activity: it opens design to the field of preference. To prefer is to be open to what may be, not to what must. My preferred situation cannot be one in which I act against my own interests. I cannot be directed to prefer by another; by that I become a being dominated, without expressible preference, used instrumentally for the preferences of a dominating other.

Everyone is a designer in Simon’s sense, both the most abject drug addict
who has the wits about him to arrange for his next fix, and the hermeneutic
philosopher whose theoretical interpretations are meant to lead to greater
understanding. Simon’s definition also allows us to consider design as an etho-
logical behaviour in two senses of the term: as ethos, and thus as a charac-
teristic human cultural behaviour; and in its traditional zoological sense, as a
characteristically human animal behaviour. According to this definition, can
we not say that animals design? For example, doesn’t a spider “devise” its web
or a pack of wolves its kill in order to change an existing state—of hunger—
to a preferred one—of satiation? We can refute this view only by appealing
to either our exceptional cognitive capabilities as humans, or by pointing to
the capacities language gives us to distinguish states of “devising” from other
states that might be more appropriate for characterizing the cognitive capa-
bilities of the so-called “lower” animals, e.g., behaviours of seeking, attempt-
ing or randomly experimenting.

Finally, it also leads to the acknowledgement that we are all equal as
beings with a preference: we want to live in a world we prefer. If all were freely
able to design in Simon’s sense, the world would be the direct expression of
the multiplicity of human preferences. But of course, this is not the unequal
world we do live in: some individuals or groups are more able than others to
“devise courses of action,” in whatever way, that lead to a world where some
preferences dominate over others.

**Ontological Design**

A model of “ontological design” was introduced in the late 1990s by Tony
Fry, and articulated by a group of theorists associated with the journal
*Design Philosophy Papers*. In a 2006 issue, Anne-Marie Willis articulated the
concept of ontological designing, as a way of “characterizing the relation
between human beings and lifeworlds,” proposing:

…that design is something far more pervasive and profound than
is generally recognized 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); [and] that this adds up to a double movement—we
design our world, while our world acts back on us and designs us.
(Willis 2006)
Ontological design is a condition of design and designing; “redirective practice” is a form of ontological designing that has at its aim the countering of a human-made condition of “defuturing,” the productivist tendency to shorten the lifespan of the future while concealing it. Redirective practice seeks to reframe human being in the world for the purpose of creating more future. As a project, it is a deeply and self-avowedly political one: Fry invokes Kant’s idea of the Enlightenment in his proposal for a new epoch, “the Sustainment” as a political, cultural and ontological formation. In a Schmittian gesture, Fry has gone so far as proposing a “dictatorship of the Sustainment” as a political formation:

Sustainment cannot be taken to be a matter of choice, an option. Rather it is that which is most fundamental to relational being (including societal being) in general including the ground upon which politics rests. Effectively we, and our others, cannot be without a dictatorship of sustainment in its differences of form. Let us be absolutely clear, this is not a version of ecological fascism, rather, it is to posit sustainment as sovereign. This is not the rule of ‘nature’ but the rule of the ‘naturalized artificial,’ in general and localized forms, as the material ground of culture and exchange. (Fry 2007)

Although Fry and others associated with Design Philosophy Papers have embodied their theory with a range of ambitious practice-based engagements, their work as a whole remains, unfortunately, marginal to the profession of design. To understand why, I now turn to a review of the disciplinary structure of design.

**Design as discipline**

Between the consideration of ontological design, and design as a professionized discipline, lies the history of humanity. We arrived as homo sapiens already as designers and makers, and from the time of hunter-gatherers to this day, this has remained as a generalized social behaviour. (Fry 2012)

**Epistêmê and technê**

Once the rise of complex civilizations began with the specialization of crafts in Mesopotamia and elsewhere, social stratification and inequality increased. This continued during the rise of the Greek city-states, accompanied by an evolving philosophical discourse on categories of knowledge, viz., between
epistêmê and technê. Beginning with Aristotle, the distinction between these two terms becomes clear: epistêmê denoting scientific knowledge and technê denoting craft. (Parry 2008) Within this opposition, epistêmê is the privileged form of knowledge practiced for its own sake by the free man and philosopher, with technê practiced by craftsmen and slaves.

The Art-Design Rift

This framework of knowing and making—knowledge for its own sake versus knowledge of how-to—has remained in force in various forms to this day. However, the series of social, intellectual and technological shifts that occurred during the preamble to the Industrial Revolution inaugurated a rift between two different forms of technê. A new ecology of knowledge and practice develops between the fine arts, on the one hand, and design and craft on the other. Craft becomes increasingly marginalized. Some artists become designers of applied art, providing decorative qualities to the mass manufactured goods coming off the factory line. Others become fine artists, whose practice of making becomes ennobled by its lack of functionality and the artists’ pursuit of epistêmê. (Calvelli 2009)

This epistêmê is no longer that enjoyed by the free man and philosopher of ancient Greece. Rather, along with technê it is chained to the abstract law of capital—M-C-M’—creating a society of disciplinary specialists who are able to embody the law in productive ways. The discipline of design, in its capacity of making not only artifacts as such, but the images we consume with them, is now wedded to this abstract machine of which Marx famously remarked, “has created more massive and more colossal productive forces than have all preceding generations together.” (Marx 2000) Today’s environmental scientists have merely confirmed this with their emission and climate studies showing the same pattern.

Although it is easy to point to design as the harbinger of unsustainability, it is this “bad ecology” (Bateson 489) of epistêmê, technê and capital that is both originary and consequential.

Design and the Neuro-image

Product design is not only the first kind of design to emerge, in the creation of our first tools, it is also the first discipline of design to inaugurate the era of industrialism, as in the case of Josiah Wedgewood’s pottery factory. It might appear that the discipline of product design is the most unsustainable of design disciplines, but it is my thesis that it is the image—as a form of imago—which is both more consequential and trickier to tame.
Unfortunately, the image design disciplines—graphic design and visual communication, advertising, web design and the like—are least served by a critical theoretical infrastructure that would inform its practices. This is so even as the image is, perhaps, the most philosophically most complex of objects among the design disciplines, when considered as pure imago and thus, in Malabou’s terms, as the phantasm of ontological difference. (PLH 103)

Recent neuroscience may help clarify why the image presents intractable problems, and shed light on the dearth of critical discourse within the discipline. Images travel through cortical pathways differently than other kinds of perceptual data, likely due to the dominance of our sense of sight among the other senses. Upon receipt from the optic nerve, the perceptual signals undergo a dual, simultaneous processing through both the thalamo-amygdala and cortical pathways. The first processing is the quickest, as it travels through the evolutionarily oldest part of the brain and is meant to quickly judge a threat to the organism. In this process the perceptual material gains an initial emotional colouring, which recent neuroscientific research is finding to play a much greater role in our conscious thinking and acting than we thought. The data is also sent through the cortical pathway at a much slower rate, again colouring the material emotionally, but by reference to our prior experiences stored in memory. According to neuroscientist V. S. Ramachandran, the processing of visual input may still be used “for all kinds of behaviour, even through the person is completely unaware of what is going on.” (Barry 94)

This neuroscientific research must give us pause. Not only does it reveal the plasticity of our brain, capable of shaping and reshaping, but it is capable of doing this through unconscious means. The image is a hieroglyph, passing from artifact to brain through at least partially unconscious pathways, planted in our neural networks as a potential time bomb. (Curtis)

Image, Future and Plasticity

Acting on the Future
We have understood that the future is in question, in a way dissimilar to before. As our technological and artifactual capacities have developed, the consequences of our actions have become more intense, creating pressure on the ecosystems that we rely on. Our uniqueness as a form of life resides in our inseparability from the artificial world we have created around us. Yet these complex negentropic forms we create leave the potential for disaster in their wake.
We have developed sophisticated means to model the future which tell us we must change now, in fundamental ways, if we are to avoid the worst of consequences. Yet our efforts are meagre relative to the stake that is involved, and our results even more so. Great change is needed, but we more or less go on as before, seemingly oblivious to what the future holds. The image holds us in thrall, like a cocoon around our being. Each thread of this fantastic construction is a world we have imagined to be, and together they comprise a seemingly safe and secure habitat in which we may live. We live in worlds woven around other worlds, which exist in the one world to which we are all unknowingly subject—Earth, where we store all the entropy produced by the effects of our weaving. Our cocoon of images won’t protect us from our entropy. Neither can we be assured that a benevolent metamorphosis will follow.

Since the first pre-hominid tool production we have woven our images, in both cognitive and material forms. We created the image of past and future nested around a conscious present. We created types of futures, and left interpretable pasts in their wakes. How can we play with these images today? What post-pupal futures are possible? Are we part of that future or are we what is left behind in its wake? These are questions of human future, but of human finitude as well. Between them lies a vast area to explore philosophically, but also to act within by design.

**Design, Plasticity and World**

Philosophy opens up conceivable worlds. Design builds structures aiming at ends. The concept of plasticity will be key in navigating between the two.

In aesthetics—and therefore in design as I will be looking at it, in a disciplinary mode—plasticity is also a key concept: a sculpture is moulded into one shape amongst what might have been an infinity of others; a drawing of a face emerges into form from flittering strokes laid by artist on paper. In aesthetic history, the plastic arts are typically considered a category of the fine arts; however, for Kant:

The plastic arts, as the first kind of beautiful pictorial arts, include sculpture and architecture. The first is that which presents corporeal concepts of things as they could exist in nature (although, as a beautiful art, with regard to aesthetic purposiveness); the second is the art of presenting, with this intention but yet at the same time in an aesthetically purposive way, concepts of things that are possible only through art, and whose form has as its determining ground not nature but a voluntary end. In the latter a certain use of the artistic...
object is the main thing, to which, as a condition, the aesthetic ideas are restricted. (Kant CPJ 199)

In his consideration of the plastic arts, Kant uses “plastic” in the classical aesthetic sense of something being moulded in three dimensions for aesthetic purposes, with sculpture being the exemplary case. In the case of architecture, aesthetic purposiveness is also subject to a “voluntary end” and “a certain use.” This would suggest that plasticity in design extends much further beyond the aesthetic object: a building needs to be shaped plastically as does a sculpture, say through moulded concrete or with wood planks; but in addition, plasticity is also operative throughout the entire determinative context of human uses and ends. The object of plasticity is not simply a two- or three-dimensional form, although it may include this. Rather, design’s power of plasticity makes its mark in transforming social structures and human behaviours as the intended or unintended effects of its selected ends.

It is precisely in this arena—between the artifact and the world—that we find the power of plasticity. Facilitated by the neurological structures and processes of the human brain and the technological force of human brawn, the imago undergoes a multiplicity of fugal transmissions, migrating and metamorphosing in time and space. Landscapes are terraformed, skyscrapers erected, rockets shot into space. Media passes through fibre optic and neurological channels, language twisted into new forms, bodies contorted by dress, ornament and gesture. Beings are instructed.

**Tracing the Image**

Besides this, remember that the production of the images is as quick as thought. — Epicurus, “Letter to Herodotus”

**Image and Evolution**

The image begins, as we noted earlier, in the development of the proto-hominid technical object, through an originary grammatization of time into past, present and future. (Stiegler TTI) It is a work of bodily plasticity, with changes occurring between feet and hands, between thumbs and other fingers, between arm, brain and skull cavity—and between rock, brain and tool. In and as plasticity, artifact becomes image, thought and future. The changes made to countless rocks over this vast chunk of time inscribe themselves as new, neocortical living tissue and the genetic mutation that carries it along. The evolutionary process itself is thus grammatized into two forms: one shared with all biological creatures and operating on the gene; and one specific to
humans and taking place “by means other than life”—in the interaction between the human and the technical object—in what Stiegler terms epiphylogenetic evolution. *(140)*

There are some early grammatizations, however, which do not necessitate the production of a technical artifact. Body movements, rhythms, organized sounds and harmonies are grammatized, marking the emergence of symbolic behaviour. Facial musculature is grammatized in order to allow discrete sounds to be made, forming the basis of spoken language. It may be true, as Stiegler asserts, that toolmaking was responsible for the growth of the neocortex and thus of a properly “human” consciousness; nevertheless, tool-based epiphylogenesis would not account for an independent evolution of early symbolic behaviour.

For evolution to take place, a form of heredity is needed, a replicator that passes down new traits to succeeding generations. For classical evolutionary theory, it is the gene that is the replicator responsible for this. In epiphylogenesis, it is assumed that it is the technical object that takes on the role of replicator: one views a prior tool in order to discern how to make another one. What then is the replicator for early song and dance for example, or for language? In the 1970s, Richard Dawkins proposed the “meme” as a replicator, as a unit of cultural information that was stored in the mind, and that was replicated by being passed between mind and mind via imitative behaviours or via intermediary material artifacts. *(189–201)* Imitation, however, is a form of heredity that we share with other animals, so it doesn’t explain characteristically human behaviours. The sequence of bodily movements replicated through imitation might be a scene from the ballet Swan’s Lake; however, it might only be the rhythmic chewing of a tree trunk by a young beaver, in imitation of its parent, that will become part of the beaver’s dam.

*The Imago*

It is the imago that is the replicator for human-based, non-genetic, *viz.*, epiphylogenetic evolution. The imago is a metamorphic and migrating phantasm operating between rock-hard and neural-wet substrates. Its plasticity allows

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*Stiegler, in *Technics and Time 1*, takes some care in attempting to define epiphylogenesis as affiliated with, but other than evolution. *(135, 140–42)* When Stiegler was first forming his concept of epiphylogenesis, geneticists had not yet understood the workings of epigenetics, a form of hereditary replication based on the chemical marking of the gene from one generation to the next. Jablonka and Lamb, in their 2006 book *Evolution in Four Dimensions* have proposed four modes through which evolution can take place: genetic, epigenetic, imitation and symbolic. The theory of memetic evolution, based on the work of Dawkins, Dennett and Blackmore, can be understood to be a hybrid of Jablonka and Lamb’s imitative and symbolic evolutionary modes. The imago may be considered a replicator that also is situated between the imitative and symbolic modes.
for a migration between brain and artifact, and artifact and brain, setting the stage for either Stieglerian technics or for any other non-artifact-based symbolic activity, stimulating an evolution of shared symbolic worlds.

It is the imago that is transferred from the face of the artifact to neural networks in the brain, arising from early technical and gene-based neocortical development in the combined activity of doing and looking. At first, the imago primarily allowed us to make better tools, directly affecting our biological survival amongst animals better equipped for predation than us. Enabled by the slow genetic evolution of the brain that created the neocortex, as well as the epigenetic behaviours of toolmaking, the imago begins its proliferation in artifacts, gestures and sounds and in neural networks in the brain. Eventually, the imago usurped the gene’s stalwart and regulative primacy, as a new form of replicator whose natural habitat is the human brain. A process of
unnatural selection was thus enabled, producing symbolic and technical forms and forming the basis of human cultures. (Fry 2012, 76)

Co-evolution

Human beings evolve by means of a co-evolution between these two replicators, the gene and the imago. It is the latter which leads, in an epiphenomenal process; but until the point that some have theorized, when our biological substrate is abandoned, or when we become subject to overwhelming catastrophe whether man-made or not, it will be our genes, in the end, that determine our species viability for survival. Until then, we will need to negotiate carefully between the two replicators in our co-evolutionary adaptation. This isn’t simple or direct.

Well-being, for example, is the most fundamental form of cognitive effect for all species, as at its basis is the attempt by an organism to respond to threats against its being. Human well-being is experienced relative to two replicators and the ecosystems in which they are found. Imago-based well-being may be produced by watching a television show, attending a political rally or by something as simple as getting in the driver’s seat of a car. Biologically-based well-being may be experienced as waking up after a good night’s sleep perhaps, or by going for a walk in the woods on a beautiful day. In pursuit of an imago-based form of well-being, we have created the potential conditions for perilous forms of future threat to our biological well-being. The well-being of a nation, for example—a complex form of cognitive effect shared by a multiplicity of individuals—can and has taken precedence over the need to take action on the mitigation of climate change, even as we know that inaction will likely result in serious future threats. The future is a cogni-
tive construction and thus irrelevant to biologically-based based behaviours of threat avoidance.

Evolution happens non-teleologically: we become better adapted to an ecosystem through random operations of recombination and mutation in a given environment. In gene-based evolution, genetic variations are produced as offspring, with each (except in the case of identical twins) inheriting different recombinations of genetic material from their parents. In imago-based evolution, cognitive variations are produced as descendants, with each idea, artifact or symbolic gesture made up of different recombinations of original source material. In both cases of gene- and imago-based evolution, mutation can happen, introducing new forms into the ecosystem.

**Imago and preference**

Human consciousness and intentional action are byproducts of this process of recombination and mutation. Prior to conscious, intentional action, a process of unconscious pre-selection has taken place from among possible cognitive worlds. Recombinations and mutations of imagos form cognitive worlds—political ideologies, educational frameworks, or musical styles—which are selected through individual preference, based on prior cognitive worlds acquired from the time of our birth. Once acquired, a cognitive world will allow for the selection of further imagos and worlds based on compatibility with existing ones, as well as allowing for the continued exercise of preference.

Preference may be consciously assumed, but it is unconsciously directed based on the existence of individual variation. We can illuminate this by considering Jakob von Uexküll’s notion of *umwelt*, for which he uses the example of the tick. An *umwelt* is a given perceptual life-world of an animal. The tick’s *umwelt* is elemental: it only contains three “markers,” or carriers of significance:

1. The odor of butyric acid secreted through the skin glands of mammals;
2. The blood temperature of mammals, which is 37° F;
3. A non-hairy spot on the mammal’s skin.

In other words, in its limited *umwelt*, the tick follows its preference for light, for the smell of butyric acid, for a certain warmth and for bare skin. (49–50)

Each species of animal has a unique *umwelt*—except for us. According to von Uexküll, a singular *umwelt* exists for each individual human being. We are makers of *umwelten*, each with a different sets of markers. The preference of the tick is for its three markers; the preference of the human is based on the distribution of a multiplicity of markers that humans make for each other.
Through their existential activity, innumerable recombinations of imagoes are formed into a multiplicity of cognitive worlds.

Although there does not appear to be any stopping rule that would prevent the creation of additional worlds, there are limiting factors that shape cognitive worlds into particular forms. The first of these limits are biological, in that our cognitive worlds, locatable in the brain, are subject to the constraints of time and space. We might speculate and deduce concepts that exist outside of time and space, but there is a limit, as Kant proposed, that stations our conceptual work within the temporal and spatial world that we can know. Culture is also a profoundly limiting force, as it defines linguistic, symbolic and behavioral dispositions that are formed by preselected sets of imagoes. We are thrown into culture by the accident of our birth, and pick up our beliefs and dispositions based on the imagoes available within the larger cultural ecosystem. Disciplines are another related form, choosing certain ecosystems of ideas and methods of verification to establish worth among self-selected members. The process of individuation and construction of the ego further limit the construction of worlds, by choosing some for protected status to facilitate identity construction.

**Power and inequality**

Power is an overarching limitation of cognitive worlds, effected through the distribution of imagoes based on arkhē. The grounding assumption of this arkhē is that a disposition to act assumes, in another, a disposition to be acted upon, and justifies the belief that “a determinate superiority is exercised over an equally determinate inferiority.” (Rancière 2010, 30) This becomes a form of the naturalized artificial, where unequal distributions of power are taken as given for any specific cognitive world, and that assigns unequal values to different cognitive worlds according to an assumed criteria of value.

These unequal distributions of power within and between cognitive worlds are themselves justified through cognitive means, as Plato did in his assignation of classes in *The Republic*. The work of design and style, linguistic usage or taste are only a few of other multiplicity of ways in which power may by justified and naturalized through aesthetic means, within the larger framework Rancière calls the distribution of the sensible. (2004)

The effects of these forms of the naturalized artificial may be, and often are extreme, as can be seen when considering the collision of cognitive and cultural umweltten that took place, and continues to do so, between indigenous Americans and migrating Europeans. The slavery and oppression following first contact was the result of an arkhē based on the multiple cognitive worlds
European humans had lived within—biblical and messianic, military and technological, and economic, for example—and that led to an assumption of the inequality of rights held by a colonizing power over the colonized.

**Fracking the Imago**

**Refining the Image**

If the imago has so much power—if it can bring us to a cliff overlooking our own extinction—then what about the image? Does the bordering of the imago upon the artifact in the form of an image—a picture—accelerate us toward an end or cause a material friction that restrains it?

Images have been used in a multiplicity of forms, within a multiplicity of cultures, forming different ontological horizons. The materiality of the image extended life as presence when confronted with death, in the pure image in the form of corpse. Representations and markers of the dead were carriers of significance that grew cognitive worlds out of respect for the absent life. (Belting 2011) With the birth of writing, new and powerful imagos were set in bone or stone as signs, to communicate with divinities, set judgements into law and to commemorate imperial victories. In painted icons images brought to earthly existence the subtle body of a resurrected god, and a reminder of human weakness and redemption. Images proliferated and were exchanged, once becoming portable and virtual, celebrating both divine and earthly power as well as the beauty of the values of the nobility. The imago morphed and migrated within and between ontological epochs, displacing space under new conditions of visibility and reception, bonded onto and as various material substrates.

It was only under the law of capital, powered by the burning of fossil fuels and stimulated by the quickening rhythms of life, that the imago underwent the great transfiguration, metamorphosing from divinity to commodity and migrating under conditions of interminable mass reproduction. Gods, monarchs and aristocrats lost their aura under the sign of the commodity: the imago was attached to goods referring to other goods and still to others, in a materially fuelled race for immateriality. Released from its traditional supports that placed the imago in a determined time and space, the mirror-play of signifiers *dis-placed* identities under an influx of objects.

As images became mediatized, consciousness became commodified and proletarianized. (Stiegler 2010) Media factories transmogrified subjects into objects for the purpose of consuming other objects. Objects and already-ob-
jectified subjects were dematerialized into bits for the purpose of easy exchange. Biotic mass became the intermediary between the fossilized remains of past catastrophes and a machinic infrastructure producing future catastrophes to come. The imago lubricated all, using its metamorphic and migratory power to ease the transition from one catastrophe to another.

**Distribution Centres**

It was and is the skeleton M-C-M‘ that sucked the energy out of the Earth and directed its temporary spoils to some and not others. All human activity was directed toward the embodiment of this skeleton: some to frack the energy, others to transform it into consumable forms and still others to enact the collective auto-da-fé. A few wore the immaterial yet lucrative robes of e-capital, directing the process by the principle of profit and wealth.

The distribution was almost seamless. The imago stabilized all the cognitive worlds through repetitive, interminable and ubiquitous transformation. Change assured more of the same. Novelty was the rock one could stand on. People took ownership of their roles—as producer, consumer, destroyer—with conative force, and hoped for the best.

Few took stock when the real returned, this time with a vengeance.

**Recalling the Imago**

As linear, time is at once running out and infinitely deferred. As we eye the return of the real, time speeds up but re-places us to where we always were, in a state of increasing ontological exhaustion. We don’t need more time; we need a different kind of time, and for that we need to re-call the imago. The imago, if you remember, is the mother of time and space in the form of anticipation and memory. We inherit its plasticity, as the imago continues to enfold time and space, producing futures and moulding their shapes and borders. It is time to enact our comprehension of the imago’s journey over time and space, and plan for how the future will unfold.
Chapter 1

FUTURE HISTORY

The Future Before the Past

IN OUR ORIGINARY AUSTRALOPITHECINE MOMENT, the future begins as spacing. In the gap between raised arm and rock, following a gravity-laden gesture and momentary strike of rock against rock, something happens: a simple doing becomes a directed urge, becoming in turn a vectored anticipation—becomes future. The future is the afterimage of the past. The past follows the future from the examination of what is left behind, the remnants: two pieces of a rock that was once one, an edge sharp to the touch.

This description itself is a displacement from a remote future looking toward a past, toward a presumed moment when that future was created. We compress time into a moment: two million years of banging on rocks, secreting a million look-alike artifacts scattered across a continent (Leroi-Gourhan 92), and growing some additional cortical matter within proto-hominid skulls—when there emerged a neural luminescence—an imago—able to participate in an engagement of rock, hand, arm, eyes, future, past and present. The imago infects in multiple iterations from rock to retina to brain and from brain to muscle to rock as incessant repetition and constant play of presence and absence, in an attempt to establish this différance as a future with duration.

There appears during this time a singular rock through which an imago appears, in what appears to be a face shaped in cobble by human hands. It is, rather, a random geofact onto which an Australopithecine man or woman projects a face, and carries the rock in hand to a cave in Makapansgat, South Africa over 30 kilometres away. Two or three million years into the future, in the cranial folds of a palaeontologist returning to the same cave, a face is once again projected upon the same ironstone rock. It is said by Stiegler that
the moment of our first tool creation was a proto-mirror stage for our species \((TTI\ 155)\); if so, this small ironstone cobble is its first evidence: formed by matter, seen as face, and reflected from the past as much as the future.

This geofact and the future history of artifacts are enabled by two small but critical and adjacent zones of cranial matter devoted to the voluntary movement of both face and hands, a consequence of the long evolution of mammals up through the primates. We begin to walk upright, sacrificing the grasping abilities of our feet, and concentrating it in free hands and in a cognitively enabled face that we will use for toolmaking, gesturing and communicating. (Leroi-Gourhan 89)

There is evidence of only one other tool stereotype following the million years of Australopithecine pebble industry, and upon which we can reconstruct an imago: a hand axe produced for another million years that was shaped not through one stroke but many, and at a bias rather than perpendicularly. Significantly, it shows evidence of more foresight—the capacity to sustain an imago within the neural networks—and a greater deal of variation within the one stereotypic form. Nonetheless, to Leroi-Gourhan these hand axes, like all human tools, are secretions:

\[\text{[I]}\text{t is logical that the standards of natural organs should be applied to such artificial organs: They must exhibit constantly recurring forms, their nature must be fixed. The same rule in fact applies to all products of human industry in historic times: There exists a stereotype of the knife, the ax, the plough, or the aircraft that is not only the product of a coherent intelligence but is also integrated in a substance and a function. (91)}\]

Perhaps this isn’t confined to objects, but to whole industrial processes as well. Key processes typical of industrial mass production are evident in the Pleistocene era: the creation of a prototype and its reproduction over and over again. Innovate with a second prototype, introducing variations, more frequent models, and global distribution combined with local production. In pursuit of future, our conative urge reproduces the same, even as the cycles become shorter, from millions of years to only a season.

**Early Futures**

In the 2.8 million years since the making of the first tool, it is only in the last 100,000 years or so that we have evidence of humans conceiving of a
future—and this only after death. For most of our history, according to Robert Heilbroner, we restricted the future to a time following death; within the span of days we knew that another day would likely follow, but didn’t expect it to be much different. It is only a mere 250 years ago that we begin to apply our ancient knowledge to creating a future in this life, today. And we lost it. Millions of years of species’ foreplay, followed by industrial orgasm—and the future is spent. We know it now only through our anxiety over its potential loss. (Heilbroner 1995)

The history that Marxist economic historian Heilbroner sketches in his “exceedingly long, short book,” Visions of the Future, is a linear but not progressive one. It attempts to understand in the broadest possible way how humanity has thought of its future. His periodization has some resemblance to Marx’s modes of production. He begins in the “Distant Past,” around the time of homo sapien’s appearance, dividing it into two periods corresponding to Marx’s distinction between tribal society and ancient society. Feudal society, the third of Marx’s modes of production, isn’t considered as such by Heilbroner, as he considers the prevailing orientation to the future to be continuous up until what he calls “Yesterday,” Marx’s capitalism. Nonetheless, I will consider the period of feudalism and the run-up to capitalism in Europe with the help, among others, of Manuel De Landa’s A Thousand Years of Nonlinear History.

If we are to understand—and to intervene within—our increasingly unsustainable global society, we will need to map the conditions and trajectories that still drive it today. Although what follows will be structured in linear fashion, it is understood that the forces, effects and becomings that emerge at various times are variously present—as nonlinear happenings and events—in our world today. As William Faulkner once wrote, “…[t]he past isn’t dead. It’s not even past.”

Prehistorical Futures

Contrary to the Hobbesian myth, the lives of our hunter-gatherer ancestors were not that savage, nor “nasty, brutish and short.” Hunter-gatherer societies were also more equitable. Tribal society, according to Marshall Sahlins, was the original affluent society. Unlike in our world today, there was no poverty:

The members of primitive societies have few possessions, but they are not poor... Poverty is a social status. As such, it is an invention of civilization. (Sahlins, qtd. in Heilbroner 28)

Wildlife was in abundance, and humans were more than able to meet their
needs through their sophisticated hunting skills. Similar to our present, it was their very success that put our ancestors at risk. In their case, it was their success at hunting which depleted the stock and put the supply of game in jeopardy—eventually leading to human settlement in cities.

The sense of future of people during the time of hunter-gatherers would have developed from an understanding of the cycles of nature, such as the change of seasons, patterns of animal migration or the flowering of plants, as well as from their exposure to exceptional climatic events. The future might be hoped for, as in a season of plenty, but it wasn’t something that could be controlled. Religious participation was characterized by communal and totemic participation in what sociologist Robert Bellah described as a “moment of ritual when everything becomes now”; (qtd. in Heilbroner, 32) and the sense of afterlife most likely tended to be “a shady semi-existence in some vaguely designated place in the single world.” Heilbroner interprets this as:

a projection into the future of the conditions of the present. Nothing in the relics of vanished kinship or tribal societies, or in the testimony gathered from their present descendants implies the expectation of, or the wish for, another kind of life after death. (32)

At a certain point in the past we begin to bury the dead. Ritual burial suggests fear of the lack of a tomorrow, of a future to come. Often it does more than suggest; it scripts a passage to a future following death in fine detail, sending an imago to a place where life may continue as before. As was the case with our proto-hominid ancestors, it was an imago of the future embodied in artifacts. Picking over the bones today, we espy an imago of intent in a particular configuration of placement in the earth, perhaps accompanied by a few sea shells coloured with ochre, as was found in the Qafzeh Cave, situated near Nazareth, dated to 90,000 BCE. Although there are various grave sites that possibly go back as far as 300,000 years, this one is generally accepted as being one of the oldest. (Johanson 42-3)

…the site contained a series of hearths, several human graves, flint artifacts, animal bones, a collection of sea shells, lumps of red ochre, and an incised cortical flake. The marine shells were recovered from layers earlier than most of the graves except for one burial. The shells were collected and brought from the Mediterranean Sea shore some 35 km away…bear traces of having been strung, and a few had ochre stains on them. (Bar-Yosef Mayer, 307)
Dance, gesture, vocalization, even speech cannot be buried under the earth, nor the daily lives of these Paleolithic ancestors. No matter: each of these modes of symbolic communication arise as further grammatizations of our first artifactual encounters, secreted as paint on the cave walls of Lascaux, the shaping of Venus figurines from rock, or as a figurative etching on a spear tool. These are powerful imagos with which our ancestors had to contend, as they are for us when they hit the neural networks of our brains. “The true picture of the past flits by. The past can be seized only as an image which flashes up at the instant when it can be recognized and is never seen again.” (Benjamin, 2007, 255) This illumination is a trace of the rupture Stiegler recounts of the strike of rock upon rock that brought us out of the flow of time and into a future, a past and a present whose terms never sort themselves out, not even today. “To articulate the past historically,” Benjamin goes on to state,”means to seize hold of a memory as it flashes up at a moment of danger.” That danger flashes up for us today as our future, so we must therefore take hold of the imago as it captures us—and work with it, carving out from it the future ahead.

**Ancient Futures**

It was only once we enter the latter phase of the Distant Past that “the first complexly stratified societies of history” begin to emerge. What unites both the earlier and later periods of the Distant Past is its “view of the earthly future.” Although the future could be anticipated, such as the time of the hunt or reaping the harvest; or wished for, such as a victory over an adversary, …[t]he seers of primitive tribes and communities that occupy the overwhelming bulk of the Distant Past, and the oracle and priests who advised the rulers of its later kingdoms and empires, looked into the future to discern every aspect of the shape of things to come but one—the material prospects for the larger society to which they belonged. (Heilbroner 7)

**Becoming Geological**

For over 2 million years, rocks had a place in our future, from the first epiphylogenetic moment that created the future as such. Our capacities to get there were dependent upon the mineralization of our species, a process that began appearing in the history of life around 500 million years ago when bone began appearing in soft tissue organisms, which became the endoskeleton of our ancestors. (De Landa 26–27) Our becoming geological only intensified during our rock-smashing, tool-making era millennia ago.
A further intensification of this process began in the northwest corner of the Fertile Crescent at the site of Göbekli Tepe, which is currently in the process of being excavated. It is dated to 11,600 years ago, at the time of hunter-gatherer societies, millennia prior to the construction of the first cities and the establishment of agriculture. It is a large site, covering over 90,000 square kilometres, containing several circular “sanctuaries” as large as twenty metres in diameter. They are defined by a series of at least ten pillars connected by stone walls, and over which towers two T-shaped monoliths. The monoliths were made from hard limestone in heights ranging from four to seven metres high, weighing up to sixteen tons and moved from a quarry as far as 500 metres away. There are statues—some of which are representational, others abstract—that often take on animal forms. As there has been no discovery of domestic habitation, it is thought that the purpose of this site was ceremonial and was visited by communities throughout the region. (Schmidt 2010; National Geographic, 2011) Göbekli Tepe was thus the most significant achievement of the late Pleistocene-early Neolithic gatherer culture in several areas—first and foremost, as a monumental and complex megalithic tool, whose ancestry may be traced to the pebble culture of Africa and whose imago in-forms human collective endeavour since. It is no less an organizational and logistical achievement; a sophisticated articulation of a mythological-religious world view—and an intensification of the geological force of our species. All these areas of innovation would become manifest in the early city-states a few millennia later.

The mineralization of our species proceeds apace during the early area of human settlement. A massive exoskeleton emerges around 8000 BCE: the wall of Jericho. The town grew during the following millennia to over ten acres, consisting of mud and brick habitations resting on stone foundations. At the same time, the town Çatalhöyük was first becoming settled. It became a larger and more diverse population than Jericho, growing to over 10,000 inhabitants, who lived in structures—live-work spaces—that were built one on top of the other in mounds reaching twenty metres high. There are no central communal or administrative sites, which suggest that this was a non-hierarchical meshwork of extended families of craftsmen and traders. Obsidian, a mineral exuded from a nearby volcano was their primary commodity, from which the inhabitants made the first known mirrors. It is thought that this early settlement became an outsize trading post due to the challenges of otherwise distributing this mineral within a decentralized network of craftsmen and traders. (Balter 1998; Taylor 2012; “Neolithic”)

Göbekli Tepe and Çatalhöyük are both undergoing major excavations at
present. Excavation only began on the first in 1995; although the latter had been excavated beginning in the 1950s, major new efforts have been in process since 1993. (Stanford Archeology Center; Schmidt 2010) Together they are reshaping our knowledge of the transition between hunter-gatherer and city societies.

Meshworks and Strata

In *A Thousand Years of Nonlinear History*, De Landa introduces Deleuze and Guattari’s concepts of meshwork and strata in order to analyze the development of markets, cities and larger geographic and social networks and bureaucracies in Europe beginning in 1000 BCE, which we will explore shortly. As defined by De Landa:

> Hierarchies [De Landa’s preferred term for “strata”] are structures in which components have been sorted out into homogenous groups, then articulated together. Meshworks, on the other hand, articulate heterogenous components as such, without homogenizing. A bird’s territory is more meshwork than hierarchy, while the hypothetical pre-furnished corporate apartment…has more hierarchy than meshwork elements in it. (De Landa 1995, 20)

Hunter-gatherer societies are classic meshworks. Çatalhöyük, an early city of makers and traders, is also a form of meshwork. Early city-states such as in Mesopotamia Egypt and the Indus Valley—based on centralized irrigation and agriculture and a accumulation of surpluses—are hierarchies. Not only our notions of history, but the practices of urban planning and design, have been based on the dominance of these state-based, hierarchical frameworks. (Taylor 2012) This is reflected in the design and planning of the modern city, beginning with Baron Haussmann’s 19th century plan for Paris and continuing through Robert Moses’ schemes for New York.

The 1961 publication of Jane Jacobs’ first book, *The Death and Life of Great American Cities*, however, changed this approach to urban planning and design. Beginning in the 1970s, Jacobs’ close observations of the meshwork of neighbourhoods that make up the city as well as her citizen-led political advocacy for community-based planning had an enormous effect on our understanding of cities as well on as the disciplines of urban design and planning. Taylor bases his critique of state-based interpretations of human settlement on Jacobs’ work, in particular on her second book *The Economy of Cities*, using the settlement of Çatalhöyük as a case study. (Jacobs 1969)

In Jacobs’ view, agriculture was the invention of hunter-gatherers, which
gave rise to small settled villages. However, this does not lead to the result—for which there is no evidence—of agricultural villages leading to cities. This latter claim—that the claim that agricultural surpluses led to cities—in Taylor’s view, is a “supply-side model” of human civilization. Instead, it was cities such as Çatalhöyük that gave rise to agriculture. The existence of a major ceremonial node without evidence of permanent habitation, such as Göbekli Tepe, suggests strong social networks of bands of hunter-gatherers existing two millennia prior to settlement in cities. By the time Çatalhöyük was settled and grew, it had become a trading hub, possibly possessing a “monopoly of obsidian trade with the west of Anatolia, Cyprus and the Levant.” (Mellaart, qtd. in Taylor 422) Following Taylor and Jacobs before him, I will excerpt a passage from Mellaart that gives a sense of the diversity of production that was at work in Çatalhöyük:

In exchange for obsidian, the fine tabular flint of Syria was obtained and widely used for manufacture of daggers and other tools. Sea shells, especially dentalia, were imported in great quantities from the Mediterranean for the manufacture of beads, and stones of great variety were brought to the city for manufacture of stone luxury vessels, beads and pendants, polishers, grinding stones, pounders, mortars and querns, or to be used (like alabaster and marble, black and brown limestone) for the manufacture of small cult statues. Greenstone occurs on a ridge in the plain and it was used for fully polished adzes and axes, and for jewellery. Ochres and other paints came from the hills around the plain together with fossil shells, lignite, copper and iron ores, native copper, cinnabar and galena. (Mellaart, qtd. in Taylor 422)

It is not simply the quantities of types of goods being produced and traded that are significant, but the sophistication of the use of image both on surfaces and in spatial design. There are various depictions of animals with attention to mimetic qualities, (Girard 2009) painting and sculpture with complex narrative content, installations with animal parts such as horns incorporated into benches and pillars, houses elaborated with decoration and painting, as well as the first stamp seals with symbolic and decorative motifs. In addition, there is a large mural with a planar representation of the town and a representation of an exploding volcano—making it the first known painting on a constructed wall as well as the first depiction of an actual historic event.

Mellaart believes Çatalhöyük to be “worthy of a metropolis;” I would
also add one centred around the production of *imagos* through a multiplicity of kinds of artifacts. It is the first example of a creative community, evidenced by the stashes of obsidian buried in the floors of most houses and the obsidian dust likely used in the making of crafts. According to Ian Hodder, the archeologist supervising the excavation since 1993, each house appears to be self-sufficient with production occurring in each. There is “much evidence for long-distance trade and exchange,” with the obsidian likely coming from Cappadocia, 170 km away. (Hodder, qtd. in Taylor 425) It is here in Çatalhöyük that “city-ness,” according to Taylor and Jacobs, begins. Archaic patterns of trading agglomerated thousands of people together in dense settlements; as population pressures began to stress food availability, agriculture began to supplement hunting and gathering. Some inhabitants of cities moved to the hinterlands to farm, forming villages.

**Central Flows**

Over this period of time, cities grew and trade increased. These early cities, however, did not require a state structure. (Taylor 431) It took at least three millennia following the flowering of Çatalhöyük for state structures, as are characteristic of later Mesopotamia, to begin to form. The shift in governance between a city and state system takes place between 3000 and 2800 BCE, based on two criteria: a new prevalence of defensive city walls, and a change that late assyriologist Thorkild Jacobsen pointed out that occurs in Sumerian literature between earlier myths and later epics. The early myths feature cities as places of origin with gods as central characters, and with life as a rule peaceful; in contrast, the later Sumerian epics—the Epic of Gilgamesh being the first and classic example—focus on times when cities are fortified with walls and attacks are an ever-present concern. (Taylor 434) In addition, the myths describe administrative and military leadership structures forming in earlier Sumerian city networks only on an *ad hoc* basis, to deal with specific emergencies. Jacobsen argued that “there would have been “inherent tendencies” for office-holders to try and extend their authority beyond the duration of an emergency.” (Jacobsen, qtd. in Taylor 437) When sporadic conflicts became increasingly prolonged, a powerful leader, already appointed, might have assumed permanent control, giving rise to kingship. The defensive structures of city walls, the increased dependence on agriculture, the rise of centralized authority in the form of a king and the invention of writing create a “perfect storm” of conditions upon which the human condition of unsustainability is intensified.

Within the walls of the city, humans began to live in *a world within a world*,...
separated to an increasing degree from direct experience of the larger ecosystem they had lived within for the previous 150,000 years. (Fry 2012) The cities we built, from Çatalhöyük and Jericho to Athens are a product of a transfer of biotic energy into geologic walls. The embodied energy of the wall acts back upon us, translating its material structure to the neural networks of our brains. A new ecosystem emerges, within an exoskeletal shell, where new forms of social organization could be constructed and new imagos projected and received as they bounced off the city walls. One of these forms of imago was writing, emerging in the middle of the fourth millennium in the form of pictographs and used primarily for economic administration related to agriculture. By the end of the third millennium it had developed into a formal cuneiform script, and a “knowledge industry” of scribes emerged. A whole range of other specializations are documented in the “Titles and Professions List,” enforcing social stratification by articulating the relation between status and economic role within the hierarchical state. The use of the list for over 800 years as a model used for the instruction of new generations of scribes gives evidence of the emphasis placed on stratification. (Taylor, 436)

Urban centres are dynamic systems in a state of non-equilibrium that are subject to intense flows of matter-energy. From the beginning of tool production through the rise of the cities such as Çatalhöyük, we supplemented the biological energy necessary for survival with the embodied but extra-human matter-energy of tools. The thermodynamic potential of rock is shaped into use such that an individual may combine both biological and extra-human sources of energy in pursuit of life. As tool making and use evolve into more complex forms, the forms of embodied energy differ as well as their varied outputs. However, the energy embodied in these tools—and here I am referring to tools in an expanded sense, as could be seen, for example, in the varied functional and symbolic artifacts made and used in Çatalhöyük—are broadly distributed through the meshwork of trading and dense urban habitation. With the rise of the city-state and through dependence upon the agricultural cultivation of cereals, we increase our reliance on extra-human energy, which culminates with our reliance on the fossil fuels we consume today. (De Landa, 26–27; Adams 1975, 121) Hydraulic irrigation is a key factor, as Karl Wittfogel showed in the 1950s. Large and despotic states, “hydraulic societies,” emerge, based on the organized effort to control the flow of water—and bodies—as a means to gain social power, as happened in Mesopotamia, Egypt and China. (Wittfogel 1955, 1957; Adams 1975, 121)

Inequality increased and poverty appeared. These are not only the products, however, of relative want; the introduction of slaves due to mili-
tary victories and the appearance of an underclass meant that as many as a third of the population could be deprived of basic means of subsistence. (Heilbroner 29) Nonetheless, once the control of food production, water and bodies was achieved, “the rate of technological and cultural acceleration was much more rapid.” (Wittfogel 1955, 20) It is from within these social conditions that writing emerged.

Writing and Destiny

Writing first emerged in Sumeria in the middle of the fourth millennium, in the form of pictographs used as a form of record keeping, largely related to agriculture as a method of inventory, tribute and payment. By the middle of the third millennium pictographs had evolved into cuneiform characters, and by the end of the millennium to a full ideographic script. Its pictographic origins, however, continue to inform both Sumerian metaphysical beliefs and its early scientific practice. Evident in both is a persistent interest in the future. (Bottéro 1992)

The Sumerian worldview was centred on both the actions of the gods and those of the monarch. As “superhuman personages,” the gods “made the world function according to their designs, by deciding the destinies of all beings.” (Bottéro 1992, 32, italics in the original) The world—all things within it and all its becomings—was a form of writing, a “script of the gods.” (33) The semi-divine monarch would promulgate the gods’ work through his oral and written pronouncements.

The gods generally left humans alone, and the world appeared as normal. However, when they wanted to communicate with humans, they did so through an intentional act of “writing” specific events in the world, as an announcement of a destiny. This produced an omen, followed by a judgement, similar to the following: “If a horse mounts a cow, there will be a decline in the land.” (33) A past event—the omen, or protasis—becomes the basis for a future event—the judgement, or apodosis: prediction is made through a science of deductive divination. These divinatory judgements did not put in place an implacable fate, however: just as one could beseech a king for leniency or clemency, one could also engage in religious or everyday behaviours that might encourage the gods to change their minds.

Deductive divination was used from the early second millennium almost until the beginning of the Christian era, and forms the early basis and development of science. In over 30,000 oracles found in at least 100 cuneiform treatises, a close inspection is recorded of the seeming totality of the natural and human worlds, applicable to all the known disciplines at the time, and re-
cording the minutest detail. For example, the treatise on physiognomy “took into account all the individual aspects of the same face: was it abnormally long, or short; square or rounded; deformed and if so, in what way; red or pale, or another unusual colouring; spotted, and if so, with what type of markings, etc.” In the treatise of the head alone there were at least 160 of these acute observations. (32–35) These are, of course, mundane observations and they are connected to an apodosis that will likely appear strange to us. But they are connected, by a close observation in time and space of the way the world worked, even if it was informed by a cosmology not our own.

Bottéro’s work on Mesopotamia allows for a productive reading of Stiegler’s concept of epiphylogenetic development. The technology of pictographic writing—incribing the things of the world onto clay tablets—allowed for an increasingly attentive interaction with the empirical world and to speculation on the “universal” basis of things that forms the basis for science. A complex cultural imago develops from this which is able to articulate a relation between past and future, that systematizes the observation of phenomena into a panoply of intellectual disciplines, and that understands the composite thingness of both writing and world.

“No ideas but in things,” the American poet William Carlos Williams wrote in a poem, Paterson, dedicated to his city. In this, he followed closely to his literary ancestors in Sumer:

—Say it, no ideas but in things—
nothing but the blank faces of the houses
and cylindrical trees
bent, forked by preconception and accident—
split, furrowed, creased, mottled, stained—
secret—into the body of the light! (Williams 1992, 6–7)

Immaterial Destinies

That Mesopotamian civilization was marked by inequality is something that stands in harsh relief, when we contrast it with the meshwork of nomads and traders that preceded it in the cities of the Fertile Crescent. We noted how the technology of writing played its part, by etching into clay an imago of the future, characterized by rule and submission. Technology and its imago are motors of both conscious action and unconscious desire; the technology of writing is exceptional in its permanence, ubiquity and effects. The thing-itself, inscribed originally as pictographs into clay became cuneiformic supplement, as a totalizing inventory of the world constituted by the gods. As etched into
hardened earth, writing became a model for immortality; in its abstract linearity it became the gauge for normality and submission. Between the lines hovered the imago of thought and an induced subjectivity.

The wall, such as exists in Lascaux, was a place to interact with imago. The city wall constructed much later makes the imago our home. Then, inscribed on the surface of the portable writing tablet, we became imago, trans-figuring ourselves seamlessly and intentionally as gods inscribed on Earth. The Mesopotamians began inscribing pictographs, and a world emerged as the writing of the gods. The Greeks began with a phonetic series of linear inscriptions, and the world that emerged was based in abstract and rational thought. Ideas are formed, imagos all. Many are recorded in further material constructions, whether catapult or verse. The energetic processes of our brain fool us as to their immateriality, as they are so pervasively distributed within and among bodies, artifacts and world. Slaves disappear between the lines of rhapsodic text, logical argumentation and the moist breath of disputation and dialogues.

The gods remained. The earlier Sumerian cosmology revolved around a future in this world; by the time of Socrate’s death it had slipped into a well-articulated afterlife. We find in the Phaedo Socrate’s description of where he would be headed after drinking the hemlock:

[I]t is that which Homer mentioned when he said: “Far down where is the deepest pit below the earth ....,” and which he elsewhere, and many other poets, call Tartarus; into this chasm all the rivers flow together, and again flow out of it, and each river is affected by the nature of the land through which it flows....The third river issues between the first two, and close to its source it falls into a region burning with much fire and makes a lake larger than our sea, boiling with water and mud. From there it goes in a circle, foul and muddy, and winding on its way it comes, among other places, to the edge of the Acherusian lake but does not mingle with its waters; then, coiling many times underground it flows lower down into Tartarus.... When the dead arrive at the place to which each has been led by his guardian spirit, they are first judged as to whether they have led a good and pious life....Those who are deemed incurable because of the enormity of their crimes, having committed many great sacrileges or wicked and unlawful murders and other such wrongs-their fitting fate is to be hurled into Tartarus never to emerge from it. (Plato 1997, 95–96)

Socrates, it has been written, was no fan of writing. Like the poets Plato
has him exiling, he preferred tongue, larynx and dialectic instead. Nonetheless, he was educated and literate and would have acquired the imagos proper to an Athenian citizen. (Nails 2014) The Presocratic philosophical imago was laid upon a Homeric base; Plato then places the imago of Socrates on top, as philosopher, flâneur and citizen. The metaphysics Plato constructs through the Socratic dialogues is differentiated as such from the material form of the technology used to record it. The gods, and the afterlife they make possible, are inherited from writing’s invention; the body of Socrates humanizes it in the form of an abstract, inhuman reason.

_Arkhē and skholē_

_Arkhē_ we recall, names at once the commencement and the commandment. This name apparently coordinates two principles in one: the principle according to nature or history, there where things commence—physical, historical, or ontological principle—but also the principle according to the law, there where men and gods command, there where authority, social order are exercised, in this place from which order is given—nomological principle. (Derrida 1995, 9)

Systemic social inequality existed millennia prior to the philosophical age of the Greeks, emerging as an effect of the settlement of _homo sapiens_ in the city-states of the Fertile Crescent as a contingent state of affairs. It was justified by reference to the gods—who commence the writing of the world and _pre-dict_ its outcome—and to the monarch, whose written pronouncements command on the gods’ behalf. By the time of Aristotle, inequality had become archē, establishing social stratification as natural law. Aristotle finds “no difficulty in answering…on grounds both of reason and of fact” the question of whether “all slavery is a violation of nature”:

That some should rule and others be ruled is a thing, not only necessary but expedient; from the hour of their birth, some are marked out for subjection, some for rule. (Aristotle _CWA_, 4273)

The factual observation upon which Aristotle grounds his response to the question of slavery is uncontroversial: slavery was an historical given and the foundation upon which Greek society was based. The reason-able grounds, instead, reveal themselves as _auto-da-fé_ at an early moment of reason’s development. The reason-able excludes in order to constitute itself as sovereign _arkhē_ from whence it may judge the worthiness of men, women and world.
In doing so it marks itself with the stain of inequality, which it bequeaths to us to this day. All reason-able theories and statements are thus forever under suspicion for what they exclude.

Based again on the factual ground of its historical given—the Athenian city-state—Aristotle makes a “cut” in his theorization of it, producing “[t]he part of those who have no part” (Rancière 2010, 33): slaves, all women, and the banausoi, (Arendt 82) those “mechanics and labourers who are the servants of the community.” (CWA, 4353) He offers a vivid description of the types of occupations that would be subject to exclusion:

…the meanest in which the body is most maltreated, the most servile in which there is the greatest use of the body, and the most illiberal in which there is the least need of excellence. (4288–89)

Such exclusion is, again, reason-able. Being a citizen of Athens required a considerable portion of one’s time for research, debate and legislating. One also needed to be able to reflect without urgency in order that one may have the disposition to think and act wisely within the context of the Athenian city-state. It required of its citizens skholē, a form of temporality that was “freed from the urgencies of the world, [allowing for] a free and liberated relation to those urgencies and to the world.” (Bourdieu 1) On the other hand, it required of those with no-part to “live in the askholia, the hurry,” carrying the burden of time in the form of its perpetual shortness. (286)

Time is a construction, but not one that is generally experienced as such. For Bourdieu, it is created through the relationship between habitus—a “system of structured, structuring dispositions” (52)—and “the regularities of a natural and social cosmos.” (208) As disposition, it forms the measure of our practical activity—in a “well-filled” time we don’t experience time’s passing; only when our expectations of the social world are challenged do we get to glimpse time’s structuring power. This may be the case of one living in the pressure of the askholia (as most of us do today), or as one who is unemployed, powerlessly waiting for something to happen.

The theoria that the Greeks brought to the world in the temporality of the skholē creates both a break and its suture in the social experience of the future. From the time of the Australopithecus to today, future is present as habitus: we are immersed in the future as a practical activity of making-present. The reflexive Greek vision opens up a space to think time, to construct the future as project. This is a future, however, of distributed temporalities, of skholē and askholia, depending on your place. Those with the leisure to create future construct the structure within which the habitus of others is played out. The
“vulgar time” of the clockmakers—the measured, linear time of past, present and future—is planted as seed, to appear later in medieval European town squares. As Bourdieu suggests, “[w]e can break with this point of view by reconstructing the point of view of the acting agent, of practice as “temporalization,” thereby revealing that practice is not in time but makes time (human time, as opposed to biological or astronomical time). (206) Otherwise, the future of this future is an unsustainable one, in which the species *homo sapiens* itself will play “[t]he part of those who have no part.” (Rancière 2010, 33)

**Feudal Futures**

Whether we are Christians or atheists, in our universal schizophrenia, we need reasons to believe in this world. (Deleuze 1989, 166) Following millennia of oppressively stratified societies, it was Jesus Christ who chose to play the role of “[t]he part of those who have no part.” In this scenario, he found another part after death, in the zone of the imago. It is the imago that arose in the anticipation of rock hitting rock, and when the sensible was first redistributed into the parts of future, past and present. Under the yoke of *askholia*, those with no part chiselled stones of tribute that became the pyramids and ziggurats for their *skho-lastic* rulers. The future that had been released from rock in the first fracturing of time became the liberation from toil of a few, and the pressure of the *dead-line* of the many. Under these conditions the message of a time before time and a time after time became sweetmeat for those living under the thumb of a diminishing future and a collapsing present. In his short life, Christ had ascertained correctly that it was a question of time, an inequality of temporalities, and sought to restore the imago of time prior to the fracturing of time, the time of life everlasting.

Although Christianity, subsequent to the life and death of Christ, has had a mesmerizing and monumental effect on Western society, it still couldn’t fundamentally alter the distribution of temporalities and the sense of a future, which takes place only in the afterlife. It did have consequences on our notion of time and history, however: the former becomes more rigorously linear and the latter “universal,” subject to teleological force.

**Meshwork and Strata in Feudal Society**

During the 11th century in Europe, new innovations in technology emerged, such as the heavy plough, open-field system and triennial field rotation. These technologies allowed for a new intensification of agriculture and a rebuilding of the urban exoskeleton, following several centuries of stagnation following Rome’s collapse. (De Landa, 29) De Landa begins his 1000 year “nonlinear
history” of Europe with an analysis of what followed—the development of markets, cities and larger geographic and social networks and bureaucracies—employing the concepts of meshwork and strata. We encountered these terms earlier, when discussing the early forms of human settlement—Çatalhöyük’s meshwork and the hierarchy of Mesopotamia. Small village weekly markets such as arose in Europe at the beginning of the second millennium, whether propelled by barter or money, are meshworks: “self-organized structures that arise spontaneously out of the activities of many individuals, whose interests only partially overlap.” (31) Bureaucracies, such as have existed from the time of the Fertile Crescent are forms of strata (De Landa’s “hierarchies”) which arose for the purpose of extracting energy in the form of tribute, taxes and the like.

From the intensification of agriculture during this period arose networks of small village markets, based on barter or cash, connecting to a market in a larger town. These regional markets in towns eventually connected to larger towns in a pyramidal network of increasing complexity—a “hierarchy of meshworks”—at the apex of which typically resided the national capital. (This is referred to as a “Central Place” system, and is distinguished from the “Network Systems” of long-distance trading cities based on trade routes and ports.) (38–40) In the larger towns, populated by specialized shops, some of the more successful shopkeepers might move into wholesaling. At this point, the shopkeeper would move out of the low-profit market meshwork and begin “obeying the rules of trade at its upper levels.” (47) By trading in a variety of goods, he could manipulate prices in various ways, e.g., by withholding goods until a better price was achieved, or by working with other influential merchants to influence laws and establish practices as a means of gaining a degree of independence from market forces. In this way, oligarchies were founded based on mutual interests, such that prices could be protected or manipulated by the formation of regional and central governments. (31–49 De Landa names this phenomenon of the oligarchic wholesaler position within the hierarchy of meshworks, following Braudel, “anti-markets.” The Big Business of the Middle Ages had begun, and with it, an advance of inequality.

*Markets and Anti-markets*

Markets may also be considered as a communicative phenomena between two or more human organisms, as an exchange of information on goods and prices: the metabolic culmination of the process Marx described as labour: Labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabo-
lism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces which belong to his own body, his arms, legs, head and hands, in order to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external nature and changes it, and in this way he simultaneously changes his own nature.…It [the labor process] is the universal condition for the metabolic interaction [Stoffwechsel] between man and nature, the everlasting nature-imposed condition of human existence. (Marx, qtd. in Foster 1999, 380)

Anti-markets are another story: a form of parasitic metabolism overlaid onto a basic metabolic and mutually-benefitting framework. They are an example of eco-nomy seizing eco-logy. Oikos is the Greek for home or habitation. The suffix -logy signifies discourse, or as Heidegger explicated, “everything that is spoken or sayable.” (Heidegger, qtd. in Lopes 2005, 56) Ecology can thus be considered as open communication, or exchange, within one’s habitat. Nomos, as Carl Schmitt noted, is derived from the verb nemein, to take or to seize and has come to mean “law.” (Fry and Perolini 2012, n. 1) Anti-markets, or what we call capitalism today, are a form of eco-nomy, the seizure of habitat; while the form of markets characterized by autocatalytic meshworks are a form of eco-logy.

Yesterday’s Future

…[B]y far the greatest obstacle to the progress of science and to the undertaking of new tasks and provinces therein is found in this — that men despair and think things impossible. (Bacon 1620 [1863])

…[A] storm is blowing from Paradise, it has caught itself up in his wings and is so strong that the Angel can no longer close them. The storm drives him irresistibly into the future, to which his back is turned, while the rubble-heap before him grows sky-high. That which we call progress, is this storm. (Walter Benjamin 1940)

For a brief period of 250 years—for some, but not all, on the planet—a different vision of the future makes itself felt. Life on this side of death is viewed as having the capacity, over time, to improve in material ways. Science and its handmaiden, technology, are believed to have the power to create new knowledge and to harness that knowledge to create concrete improvements
in everyday life. This is the historical era Heilbroner calls “Yesterday.” The “economy”—a new concept signifying the management of material resources by a non-governmental sector based on scientific principles—is believed to have the capacity, over time, to increase the general welfare through advances in material prosperity. A new political will inaugurates the era in the direction of equality, first, with the democratic, and in the 20th century the communist revolutions.

**Notions of Progress**

Progress, a word “for which there is no equivalent either in prehistoric hunter-gatherer societies, or post-historic stratified societies,” (Heilbroner 43) is the best descriptor for this short era. There are three key ideas in the modern concept of progress:

1. a linear conception of time and the idea that history has a meaning, oriented toward the future;
2. the idea of the fundamental unity of humanity, all called to evolve in the same direction together; and
3. the idea that the world can and must be transformed, which implies that man asserts himself as sovereign master of nature. (De Benoist 7-8)

Although messianism may presuppose a meaning for history and is oriented toward the future, as is expressed in Isaiah—*There will be no more hunger or illness, and death will cease* (25:8)—it is only in the Christian era, following the unique event of Christ, that the prospect of a progressive and linear history of salvation makes itself felt. Augustine’s theological history *The City of God*, written the late Roman era, becomes a model for many much later “universal” histories to come. The history of the Middle Ages is too clouded by theological doctrine for an adequate modern notion of progress to emerge; credit for its modern usage is given to Francis Bacon, where the word is used frequently in his 1620 publication of *Novum Organum*. Over the 17th and 18th centuries the concept of progress takes on broader overtones through the influence of British empiricism as well as the French Enlightenment. Although religion continues to this day to exert its force, the secular belief in science supplanted its place in all but name. Science, like religion, sought to foresee a future, but one based on observation rather than inspiration. (Heilbroner 49)

The idea of the fundamental unity of humanity was an idea that took on increasing significance during this period, as evidenced by the work of Rousseau, Schiller and others. The historical scourge of inequality that affected archaic post-historic societies gained an ideological advantage with the hope
that “progress” would lead to its increasing amelioration. However, as Susan Buck-Morss points out in the opening to “Hegel and Haiti,” it did so with tragically ironic force, through export:

Freedom…was considered by Enlightenment thinkers as the highest and universal political value. Yet this political metaphor began to take root at precisely the time that the economic practice of slavery—the systematic, highly sophisticated capitalist enslavement of non-Europeans as a labor force in the colonies—was increasing quantitatively and intensifying qualitatively to the point that by the mid-eighteenth century it came to underwrite the entire economic system of the West, paradoxically facilitating the global spread of the very Enlightenment ideals that were in such fundamental contradiction to it. (Buck-Morss 2000)

As Hegel remarked in his 1831 Lectures on the Philosophy of History, “The History of the World travels from East to West…” Universal history settled in Europe for a time, then migrated to the Americas where, when it didn’t enslave, it displaced or killed its indigenous peoples, supplanting them with economic and cultural elites. Visions of progressive futures became stronger for a time, materialized spatially in technology, films and in great metropo-

Coal and complexity
Illustrating a geological model of nonlinear dynamics, De Landa discusses the process that takes place with rocks as they travel through the watershed from mountains, sorting into strata of pebbles along the way, to become sand by the time it reaches the sea. A homogeneity of pebble size results in the strata of larger rocks. An analogical process may be applied to the growth of cities, economies and classes. The long depression which happened in Europe after 1300 was a kind of sorting device, one that eliminated many of the smaller towns toward the bottom of the Central Place hierarchy, concentrating growth at the top. The so-named Age of Exploration would have facilitated this process, as the Network System of ports was territorialized by Central Plan mercantilist governments who created new planned cities to receive inexpensive goods from other parts of the world, concentrating capital stratifying classes. (De Landa 74)

With the increasing use of coal leading up to the late 18th and early 19th
centuries, new towns were created in a chaotic, meshwork fashion wherever ore could be found, forming dense concatenations of towns that became “weakly centralized” urban regions. The intensity and complexity of this process was unprecedented in human history, and it was far from a consistent process. Large-scale coal mining centres were fast-growing and concentrated monocultures, while other towns that grew more slowly were able to maintain traditional ties to craft and were able to develop sophisticated methods of market-oriented production in a diverse and differentiated mix. The anti-markets of capital accumulation tended to invest in the former such that they could benefit from economies of scale.

Heilbroner ascribes three significant developments that brought the Distant Past to the cusp of Yesterday: the emergence of science, capitalism and political will. Toward the end of the Distant Past, there are two signs of change that will play a significant role in the transition to Yesterday, neither of which is accounted for by him: the invention of the printing press in the mid-15th century, and later in the century the discovery of the “New World” and the colonization of its peoples. We will begin with the latter, as it will place the inequality of the epoch of the Distant Past in a greater relief. Eduardo Galeano, chronicled the fate of the southern portion in grisly detail in his book *Open Veins of Latin America: Five Centuries of the Pillage of a Continent*. He begins with a statement so disarmingly matter-of-fact that it is easy to miss its profound truth: “The epic of the Spaniards and Portuguese in America combined propagation of the Christian faith with usurpation and plunder of native wealth.” (14) What begins with one of the most notable events in geographic history portends the creation of a “way of organizing nature” (Moore *Wall Street*, 42) that eventuates in capitalism. “[G]old and silver were the keys used by the Renaissance to open the doors of paradise in heaven and of capitalist mercantilism on earth.” (14)

It took science and technology as well to operate the engine of capital accumulation. Heilbroner is correct in pointing out that technical invention has a history as long as human history, but he mistakes abstract thought as what enabled technics to become science. What enabled abstract thought, from a Stieglerian perspective, was the earlier invention of orthographic writing, which “makes possible for the *who* a particular type of access to itself through the mirror of a *what*”—in this case, allowing for the dissemination of new knowledge, the undermining of religious monopoly and the emergence of a new political will. These, combined with the effects of plunder from distant lands, vectored the Distant Past toward Yesterday, which Heilbroner estimates to have begun in 1750, lasting only a blink of an eye.
We are on the extreme promontory of the centuries! What is the use of looking behind at the moment when we must open the mysterious shutters of the impossible? Time and Space died yesterday. We are already living in the absolute, since we have already created eternal, omnipresent speed. (Marinetti 1909)

No future, no future
No future, no future
No future, no future
No future, no future
No future, no future
No future, no future
No future for you. (Sex Pistols 1977)

“The future is already here— it’s just not very evenly distributed.” (William Gibson 1999)

The 20th century was the apotheosis of the vision of the future. The century began with a bear’s embrace of a future of speed, violence and the new, expressed in Marinetti’s Futurist Manifesto—followed almost immediately by an appropriate conflagration, the First World War. (Berardi 2011, 14) It was a new kind of war, with new flying machines and weapons, new poisonous gasses and new recruits to breathe them in and to die for a glorious future to come. Before century’s midpoint in yet another futurist conflagration, two new terms had entered a spectral vocabulary: holocaust, and atomic bomb. If “future” is a human concept, struck into existence in a pre-human past, then we just found the means to eliminate it: not only for the millions who died in the holocaust, but for everyone. An equality that proved itself incapable of rallying within the societies of Yesterday promised equality in death for all in the world of Today. By century’s end, the news had reached us that if we were able to successfully evade the singular catastrophe of nuclear holocaust, we were left with society that would die a slow death, in any case, through chronic ecosystemic degradation.

The next chapter will more fully explore this “new” condition.
Chapter 2

UNSUSTAINABILITY

The Doxa of Sustainability

we recognize that we have a problem: we pollute the earth, foul our waters and our air and produce enough CO² to instigate planetary changes in climate that will threaten our societies. We seek, instead, sustain-ability. We need to find “sustainable solutions” so that we may continue to lead our lives in the manner we are accustomed to. We recycle our bags, separate out our compostable trash, buy organic food and fair trade coffee at Starbucks. We know the routine. Except, it’s not working.

The term “sustainable” first came to public attention in an environmental and social context in 1972, following the publication of the Club of Rome’s Limits to Growth report. Among their conclusions: given the existing trends of 1972 (population, food, pollution, et.al.) it “is possible to alter these growth trends and to establish a condition of ecological and economic stability that is sustainable far into the future.” (Meadows, et al., 24) In other words, pursuing unlimited growth was possible, desirable and even inevitable. Following the installation of the neoliberal economic regime by Reagan and Thatcher, the concept of “sustainable development,” was made well known through the 1987 “Brundtland Report,” Our Common Future. It defined as sustainable development as that “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” This definition remains the orthodoxy today. The report goes on to add: “The Commission’s overall assessment is that the international economy must speed up world growth while respecting the environmental constraints.” (Brundtland § 74) It thus called for “more rapid economic growth in both industrial and developing countries, freer market access for products
of developing countries, lower interest rates, greater technology transfer, and significantly larger capital flows, both concessional and commercial.” (§ 72)

There are quite a few unexamined assumptions in this articulation of sustainable development, as Tony Fry points out: it is an anthropocentric definition, not taking into account human reliance on a whole web of life. It also fails to consider the inequality of conditions in which people live across the globe. Its basic assumption is that high capital growth models are not a major part of the problem. Behind the seemingly benign phrasing lies a set of toxic assumptions.

“Sustainable development” is not, however, an oxymoron pure and simple. As part of Marx’s early ecological analysis of the “metabolic rift” between town and country, he brought attention to the sustainable development of agriculture that was becoming undermined in his time:

Even an entire society, a nation, or all simultaneously existing societies taken together, are not owners of the earth, they are simply its possessors, its beneficiaries, and have to bequeath it in an improved state to succeeding generations as boni patres familias [good heads of the household] (Marx, qtd. in Foster, “Metabolic Rift” 384)

In response to the vacuity of meaning of “sustainability,” design theorist Tony Fry introduced, in a gesture with Kantian echoes, the countervailing concept “sustainment.” Although it might suggest that it is a condition that could be finally attained, as theorized it suggests the opposite. It calls for an epochal shift towards a society in which “sustainment is sovereign.” (Fry 2007) Until such a time—and, especially, once this shift has been made—it is best to refer to our condition as unsustainable. We explore this below.

**Material Unsustainability**

If you get there before I do
Tell ‘em I’m a comin’ too
To see the things so wondrous true
At Love’s new Model City

*(Advertising jingle promoting the development of Love Canal)*

*Love Canal was originally a model housing development first proposed by William T. Love in the late 19th century that became known as one of the first major environmental disasters in the 1970s, due to the burial of 22,000 tons of toxic waste. It eventually led to the relocation of more than 800 families and the passage of the “Superfund” act by the US government to provide funding for future disasters.*
Give me Liberty. I’ve Already Got Death.  
*(Sign displayed by a Love Canal resident, 1978) (Beck 1979)*

When the term “sustainability” is used, in most cases it refers to the attempt to mitigate the material causes of environmental degradation, the most common being the amount of CO\textsuperscript{2} in the atmosphere, affecting long-term climatic conditions. Many causes are, instead, more local: this was the case with the town of Love Canal, which became uninhabitable by the late 1970s and a bell-weather for a litany of environmental disasters to come. (“Love Canal”) The extreme, environmentally degrading methods of extracting bitumen in the Alberta oil sands, covering an area of 140,200 square kilometres (“Facts and Statistics”), and the experimental technologies of fracking for oil and natural gas being used near water sources in numerous sites worldwide, give evidence that the time of environmental disasters is likely not a thing of the ignoble past.

**The IPCC**

The United Nations’ International Panel on Climate Change (IPCC) has released five Assessment Reports between 1990 and 2014. The language between the first report and the most recent one is startling similar, as the *The Guardian* reported: “Now more than 25 years after scientists started compiling that first report [published 3 years following the Brundtland report on “sustainable development], the latest IPCC report is similarly alarming—just with added impacts and greater certainty.” (Readfearn 2014) In the introduction to the *Summary for Policymakers, Climate Change 2014: Impacts, Adaptation, and Vulnerability*, it states:

> Impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability (very high confidence). Impacts of such climate-related extremes include alteration of ecosystems, disruption of food production and water supply, damage to infrastructure and settlements, morbidity and mortality, and consequences for mental health and human well-being. For countries at all levels of development, these impacts are consistent with a significant lack of preparedness for current climate variability in some sectors. (Field, et al. 7)

The “greater certainty” in the last report, published in 2007, referred
to the identification of the cause of climate change as predominantly human-produced. In the current report (2014), it was stated that the effects of increased CO$_2$ in the atmosphere are, in fact, presently affecting the climate. In addition, a series of charts estimate the effects of climate change to 2100 based on two scenarios: one presuming that our current levels of CO$_2$ emissions will remain the same with little or no mitigation, and the other presuming significant efforts at mitigation of emissions. It is now forecasted that—even with significant mitigation—temperature will continue to increase a minimum of 2 degrees centigrade, increasing the probability of severe climatic events; and that without mitigation, temperature increase will reach or exceed 6 degrees, exposing ourselves to unforeseeable and catastrophic risk. It is repeatedly noted in the report that effects will be greater for the poor and vulnerable, thus increasing the already high levels of local and global inequality. (Field)

It should be noted that all species are adapted to a particular range of climate conditions and will suffer extinction if these conditions are exceeded at a rate quicker than the species can adapt to. It remains to be seen whether national, international and global governance, as well as corporate interests, will respond adequately to the challenge being posed to our own species.

**The Naming of the Anthropocene**

In 2000, atmospheric scientist Paul Crutzen and biologist Eugene Stoermer proposed the naming of a new geological epoch, “Anthropocene,” to replace our current epoch, the Holocene, with the understanding that many key geological conditions and processes—such as erosion, urbanization, agriculture and global warming—have been dominated by human influence. (Crutzen and Stoermer 2000) This proposal is currently in the process of being debated by the International Commission on Stratigraphy, with a possible resolution by 2016. To be accepted, it must be justified scientifically by a marker that could be potentially recognized in the geological strata of the Earth in the distant future (with the assumption that current epistemological paradigms reign).

The beginning of this period is generally considered to have begun around 1800, at the time of the Industrial Revolution in Europe; though other dates, as early as the beginning of the Holocene or as late as the start of the nuclear age (due to evidence of radioactive dust in the geological strata since mid-20th century), have been proposed as well. (“Working Group on the ‘Anthropocene’”) This event of naming is both technical and controversial. It is technical in that it is a matter for the International Commission on
Stratigraphy to decide based disciplinary criteria. It is controversial in that geological epochs typically mark periods lasting millions or billions of years. The Holocene only began around 10,000 years ago.

The naming of the Anthropocene may be more useful as a philosophical marker that addresses the ancient question: What does it mean to be human, to be anthropos? It disinters Descartes’ corpse in order to exhibit the human subject become planetary object. It marks the descriptive announcement of anthropocentrism following a long legacy of its post-Copernican deconstructions. This latest of anthropic deconstructions might be its last. To be human is to be Earth, sinking into the geological strata. It is to be air and water, rising with cyclonic and atmospheric force. It is to be fire burning carbon with entropic inevitability. As Michel Serres writes:

Nature acted as a reference point for ancient law and for modern science because it had no subject: objectivity in the legal sense, as in the scientific sense, emanated from a space without man, which did not depend on us and on which we depended de jure and de facto. Yet henceforth it depends so much on us that it is shaking and that we too are worried by this deviation from expected equilibria. We are disturbing the Earth and making it quake! Now it has a subject once again. (Serres 1995, 86)

The Age of the Anthropocene is a marker of our finitude. Only in finitude do we find future, in measurable doses and strokes. There never was an open future, though it seemed so. The future was born as a pebble being made tool, in the anticipation of the arm’s stroke reaching its end in the hammered cut. The future ends as anthropos is made Earth. The name Anthropocene is the marker of our time. With it, we now have the choice to make time or take it away, extending our future or ending it.

The Sixth Planetary Extinction
Alongside the naming of “Human-induced Climate Change” and “The Anthropocene,” the naming of “The Sixth Planetary Extinction” might give us pause as, if true, it would be the first of the planetary-level extinctions to have a biotic, which is to say, a human cause. The fossil record attests to a wave of species extinctions in places corresponding to the nomadic wave of human migration out of Africa, likely due either to the overhunting of game or to the spread among species of immunological diseases upon first contact. A second wave of extinctions begins with settlement and the introduction of agriculture 10,000 years ago. Agriculture now dominates planetary life, contributing
since its inception to the depletion of both flora and fauna and giving rise to
the vast overpopulation of our species. (Eldredge 2001)

More significant has been the rise of cities, which removed us from
150,000 years of direct ecosystemic exposure, placing us in a world within
a world. When we removed ourselves to behind city walls our imagination
and technical abilities surely grew at a tremendous rate, but at the expense
of a loss of acuity to the signals provided by the ecosystem from which we
separated.

There have only been five previous extinctions over the planet’s 4.5 bil-
lion year history; mass extinctions happen over thousands, if not millions of
years. It is therefore difficult to gauge within our socio-cultural timeframe the
urgency of action that might be necessary to mitigate its effects. The twenty-
five years since the publication of the first IPCC report is a drop of water
in a vat of geological time, so perhaps the lack of significant action is under-
standable. The urge to fix the problem may be more a symptom of the tech-
no-ontological condition that gave rise to the problem in the first place. As
Krzysztof Ziarek has argued (2012), a more appropriate response might be a
change of thinking towards the meditative and away from the instrumentalist
frame of mind that gave rise to the problem in the first place. The choice
itself exemplifies the problem: how should we mediate, on the one hand, be-
tween a sense of urgency that might be necessary in face of catastrophe, and,
on the other, a desire to recover an authentic mode of being? Are we being
bamboozled into action by the speed and logic of industrial temporality or
being hypnotized by the effects of the shadows we project on our city walls?

Assuming that we agree that the documented material effects of hu-
man-caused climate change are real, we may choose to act either to mitigate
their effects or to deal with their underlying causes. A sense of urgency would
suggest immediate mitigation; a more meditative approach would attempt to
understand the problem thoroughly prior to acting. Given the global scope
of the problem and its potentially catastrophic effects, we are witnessing the
full range of approaches from a diversity of people and institutions, from
denial of the problem, to significant and concerted action, or to sustained
theoretical reflection.

**Economic Unsustainability**

Given that the findings presented by the IPCC show that the rise of greenhouse gas emissions begin in the latter half of the 18th century, we may
attempt to correlate the rise of emissions with historical conditions existing at that time or sometime earlier. The most obvious historical event that can be tied to the rise of emissions is the rise of industrialism, which increased the use of energy to power factories and increased production exponentially (as Marx remarked). This is not only a technological phenomenon based on James Watt’s development of the steam engine between 1763 and 1765, but also an economic phenomenon, given the amount of capital that was necessary to build factories and supply the raw materials and labour to produce goods.

It was also in the second half of the 18th century that the discipline of economics established itself. Although some of its tools were developed much earlier (e.g., double-entry bookkeeping in the 15th century) and various other economic techniques and theories had been in existence prior to the rise of industrialism, these existed in societies organized by tradition and command, led by popes and monarchs among others. According to Heilbroner, the emergence of “economics” as a discipline is dependent upon three conditions:

1. the increasing desire for and dependence upon unregulated markets upon which decisions of production and consumption may be based;
2. an increasing drive on the part of a mercantile class for the accumulation of capital;
3. and the appearance of a new private domain from which government was increasingly excluded. (50–54)

Thus, the modern discipline of economics creates pressure to organize resources according to the “laws” of supply and demand and to use these resources in the drive to accumulate capital for private, not social gain. The value for which resources are organized are abstract equivalencies, mediated by money and other pharmacological devices such as bank notes, credit and the like.

By the second half of the 17th century these necessary conditions existed in Europe. In France, a group of thinkers known as the Physiocrats came to prominence, who referred to themselves as économistes. One of the key Physiocrats, François Quesnay, who had been in service to Madame Pompadour as a medical doctor, began applying the scientific understanding he derived from medicine to the estate of France. In 1758 he published Tableau oeconomique, whose later title conveys its new approach: The Oeconomical Table: An Attempt Towards Ascertaining and Exhibiting the Source, Progress, and Employment of Riches, With Explanations by the Friend of Mankind, the Celebrated Marquis de Mira-
beau. It was also Quesnay from who is attributed one of the most recognizable
term in economics, laissez-faire, expressing the need to leave the market alone,
i.e., unregulated. (Strathern 83–89; “Quesnay, François.”)

Adam Smith was undoubtedly influenced by the Physiocrats, having spent
several years in France between the publication of his first book, The Theory of
Moral Sentiments, and his classic on economics, The Wealth of Nations. Although
he disagreed with some aspects of their work such as the centrality of agricul-
ture to economic life and their less empirical approach, his well-known phrase
“the invisible hand,” introduced in The Wealth of Nations, expresses a similar,
if not identical concept to laisser-faire. (Tribe) It is the concept expressed in
both these phrases which most hinder concerted action on climate change, as
this would entail governments or other public bodies (such as the UN’s IPCC)
interfering with the “invisible hand” of the market. If resistance to regulating
markets had not been a factor at the time of the publication of the Limits to
Growth report in the early 1970s and the Brundtland report in the late 1980s,
it is possible, if not likely that greenhouse gas emissions would not be at as
high a level are they currently are, and collectively as a society we would have
been in a better position to stave of the worst of present and future effects.

Media Influence on Economic Unsustainability
It is the economic influence on the media, in fact, which is one of the most
powerful forces in shaping public perception of climate change and the need,
or lack thereof, to act to reduce industrys’ effect on it. In this respect, it is
Rupert Murdoch who has been most influential. Manuel Castells, in his book
Communication Power, uses Murdoch as an example of what he calls a switcher
and a meta-programmer in his network model of communications. Networks
are composed of a collection of linked nodes, the Internet being the largest
and most paradigmatic example. A node consists of a program and a series
of switches that connect together the different nodes. In a communication
network, according to Castells, there are two possible roles: that of being a
programmer or a switcher. The former has the power to create content for
the system, the latter to create connections between the various nodes con-
taining content. (19-24) In a typical design scenario, for example, a client will
provide the content, or the program, while the designer, as a switcher, will
shape the content in various ways in order to extend its reach into various
other networks.

Murdoch is generally cited as the most powerful person in the media
sector, having created or bought many of the most powerful media outlets,
such as newspapers, television networks and websites. In his switcher role,
he is has the capacity to connect different networks within the system—such as financial, political and cultural networks while making power for each of them. He can bring large sources of money together with political influence, using one of his media outlets to create influence. Murdoch doesn’t necessarily create the content, however; he relies on each node (a political party, a newspaper and a financial organization) to determine their own programs. Castells uses the example of Murdoch’s support of Bush before and during the 2003 Iraq War through his ownership of Fox News. In 2008 he, instead, used his New York Post to support the election of Obama. As a switcher, he can keep his options open; as an individual agent, he has interests and goals—a program—that he can pursue as a meta-programmer through the influence of his switching. (Castells, 2009, 427–430) He has used his acquisition of the Wall Street Journal (as well as Fox News) to shape the debate on climate change, through a series of editorials that question either the validity of the IPCC’s results or by questioning the consensus of scientists who agree with their conclusions. He can bring in Fox News to stage “for-against” interviews, suggesting that climate change is a matter of opinion or “50-50” debate. The “invisible hand” of Adam Smith is actually the work of behind-the-scenes private individuals—“anti-market oligarchs” in roles of switchers and programmers—who are heavily invested in the status quo of unregulated industrial production.

The Metabolic Rift

The word “okologie” was first coined by Ernst Haekel in 1866, a year before the publication of Marx’s Capital, in reference to what Darwin had called “the economy of nature.” Although it is unknown whether Marx was familiar with Haekel’s neologism, he was clearly enthusiastic with Darwin’s work, and it is possible that his theory of labour as metabolism was developed in response to the naturalist’s work. Foster discusses in several books and articles Marx’s notion of “metabolic rift,” in consideration of him as the first ecologist. (Foster TMR 389) Specifically, he refers to Marx’s concern with the relation between town and country:

Large landed property reduces the agricultural population to an ever decreasing minimum and confronts it with an ever growing industrial population crammed together in large towns; in this way it produces conditions that provoke an irreparable rift in the interdependent
process of the social metabolism, a metabolism prescribed by the
natural laws of life itself. The result of this is a squandering of the
vitality of the soil, which is carried by trade far beyond the bounds of
a single country. (Marx, qtd. in *TMR*, 379)

It is this metabolic rift, according to Foster, which is responsible for the
ecological crisis of unsustainability; consequently, there will be no solution
to the crisis while the economic system of capitalism still dominates. Jason
Moore, a geographer and former student of Foster’s, disagrees. Although he
gives credit to Foster for his emphasis on Marx as an ecologist, he criticizes
him for converting Marx’s dialectical understanding of “society-in-nature”
into a dualist and Descartian conception of society and nature. (Moore 2014, 5)
Moore brings, I think, an important insight into the analysis of capitalism:
rather than emphasizing the catastrophic effects that capitalism has had and
will continue to have “on” the earth, he understands its development as a
“world system” evolving precisely from previous catastrophes—in particular,
through a series of natural and social crises beginning in the late feudal era
such as soil depletion, climate change, deforestation and massive fuel con-
sumption of mining centres. (2003)

We are not, according to Moore, faced with an irreparable metabolic
rift, but instead with at least the possibility of a metabolic shift. Capitalism,
for him, is “a way of organizing nature.” He asks: “Is ‘nature’ really best
considered as an external limit to capitalism? Or is capitalism, and its lim-
its, co-produced through shifting configurations of human and extra-human
nature?” (*ECN*, 1) As I understand Moore, this could mean that within the
configuration of human and non-human that we call capitalism, metabolic
relations could shift in ways that maintain the nomenclature “capitalism;” or
our metabolic relations could shift in ways that require new nomenclature.
The point is moot. Metabolic relations may shift in a way that leads to human
demise, in which case names will no longer be necessary; other, non-human
metabolic relations will continue. It will, nonetheless, require some degree of
anthropocentrism in order to find a metabolic relation to nature that allows a
future for us, through whatever rhetorical means we can adopt.

**Social Unsustainability**

We noted that the co-emergence of industrialism, economics and greenhouse
gas emissions signalled a shift in the way we have historically organized our
metabolic relations with nature in ways that threaten our future. Contemporary efforts, however, are mainly focused on reducing harmful emissions. It could appear that this logic is inescapable: remove the cause (excessive emissions) and the effect (climate change) will disappear. This is, in fact, what the most recent IPCC is recommending, with a caveat: due to past inaction, we are already “locked-in” to a certain degree of climate change, which has already begun. Their recommendations now advise government and industry that we must keep emissions low enough so that they stay within a two degree centigrade increase; beyond that, we risk instigating catastrophic levels of climate change. (Field)

This will require concerted global action. Governments will need to come to consensus on an integrated action plan; businesses will need to understand that it is in their best interest to self-regulate their industries and companies; investors and shareholders will need to risk lower returns on investments in order to plan for future economic stability; individual consumers and citizens will need to understand it is in their best interest to change behaviours entrenched by decades, if not centuries of social conditioning.

**Future Scenarios: A Thought Experiment**

Will all this be possible? Given that, according to a 2015 study by the Yale Project for Climate Change Communication, thirty-two percent of the citizens of one of the most populous and powerful countries in the world, the United States, do not believe that climate change is human-caused (Leiserowitz, et al.); and given also that global leaders have so far not been able to come to consensus on what actions and strategy they can commit to, the future does not look good. As a thought experiment, let us consider a range of scenarios as to how the future response to the problem of climate change might play out:

1. **The Rosy Scenario:** Given the latest and more dire-to-date IPCC report, international heads of state will agree on a mutual and immediate strategy to keep emissions within a 2 degree rise. Individual governments will expeditiously enact regulations on industry and on their citizens to comply with international agreements. Businesses will faithfully abide by the new laws, and consumers and citizens will change their behaviours in this common international effort.

2. **The Business-as-usual Scenario #1:** Heads of state will meet as planned. Recognizing the potential severity of the problem, they will hash out some agreements, leave some things vague, and make promises to work with their individual governments to enact changes. There
are considerable controversies on the domestic level, with a range of responses from government-based solutions to private-based initiatives. Businesses respond in ways to conform with new regulations as best they can while protecting theirs and their shareholders’ financial interests. Individual consumers and citizens try to change their behaviours as best they can.

3. *The Business-as-usual Scenario #2*: Little or no significant progress is made on the international level in agreements or on strategies to combat climate change. Governments, businesses, consumers and citizens act as before, with few significant responses to the problem.

What kind of futures might we expect given these three different scenarios?

1. *The Rosy Scenario*: Climate continues to change, both as an effect of prior actions and due to the time it takes to implement such massive changes. However, world surface temperatures are kept within a two degree average. There continue to be some catastrophic events and effects. In more prosperous countries, insurance rates go up and economies take a hit in the short- to medium-term. In poor countries and those in more severe climates, changes are harsher and resources more limited. Given the time it takes for the climate to stabilize, there is more social turmoil in these societies, and as a consequence more refugees. Global inequality increases.

2. *The Business-as-usual Scenario #1*: Climate changes continue, becoming more severe as time goes on. There are increasing catastrophic events with consequences for infrastructure. Mitigation costs become greater. Increasingly, there are significant disruptions in food production, in businesses and in national economies. Prosperous countries do the best they can, investing in new technologies to help mitigate effects. Climate continues to worsen, however, with unknown timeframes for improvement. Geoengineering is increasingly the only option to reduce emissions and mitigate the effects of climate change, with effects that are sometimes catastrophic, possibly on a global level. Private industry flourishes, with greater benefits for those at the top. Some governments become more authoritarian and regulative, others more laissez-faire. Domestic inequality grows. In poor countries and those geographically exposed, there are increasing catastrophic events, more devastation and social unrest. Mass migrations increase, especially from island nations and coastlines. Political and economic
elites are better protected, others suffer greater hardship and domestic inequality increases. Globally, inequality also increases, with richer countries increasingly exploiting poorer ones. Civil wars as well as international wars increase.

3. The Business-as-usual Scenario #2: With the understanding that things will continue to get worse and human future is threatened, there is an increasingly heavy reliance on technology, particularly in the area of bio-engineering. Both governments and businesses rise to the occasion. There is increasing experimentation on animals and humans in order to make changes in the genetic code to increase survivability. Massive geo-engineering investments are made and implemented expeditiously, creating some mitigation and numerous accidental catastrophes. There is a significant investment in engineering and architecture in order to produce protected artificial habitats. Militaries are on the forefront of many of these changes, which they have opportunity to test through increasing breakout of wars. Technology drives the economy with new and increasing cycles of boom and bust. Governments lose significant social power as corporations gain influence. The function of government becomes primarily to organize the military and emergency services. Some countries, like the United States and China, gain even greater influence and power, supported by technology and their militaries. Each nation does what it can to create its best advantage. The US military, the most powerful in the world, aggressively protects the sovereignty of its 300 million citizens. The poor are culled through calculated inaction or through internecine wars. Nuclear holocaust is avoided but the global population is reduced by 50 to 75 percent, in order to sustain a genetically changed, prosthetically enhanced population. Nonetheless, there remains an efficiently managed underclass of wage slaves, servants and the poor, vastly increasing social and economic inequality.

Climate Change, Inequality and Cosmopolitanism

We have explored the correlation between the rise of economics, industrialism and greenhouse gas emissions, all of which began their rise in the second half of the 18th century. We know through the research of climate scientists that the two-century rise in greenhouse gasses emitted through processes of industrialization is responsible for changes in climate we see today and into the foreseeable future. We have also seen the relationship between the rise in economics as a discipline, with its emphasis on unregulated markets and the
drive to increase capital as factors influencing the growth of industrialism. Can we, with any degree of confidence, reach back many millennia—to the shift from the nomadic, hunter-gatherer “way of organizing nature” (Moore Wall Street) to that of settled and stratified agriculturally-based “societies—in order to show the connection between inequality and unsustainability?

We see a pattern that emerges with an intensification of agriculture, giving rise to large accumulations and concentrations of wealth, and which kickstarts the rise of greenhouse gasses that threaten us today. Steven Shapiro describes this as the “potentially deadly inequality climate-change cycle,” citing six elements that shape it:

1. low wage workers who produce goods and for people wealthier than themselves to consume;
2. inexpensive fossil fuels that cause greenhouse gasses that allow the workers to produce the goods;
3. the use of natural resources at amounts that threaten exhaustion;
4. the hauling of the goods over long distances, also dependent on fossil fuels;
5. corporate marketing that has the effect of concentrating financial and resource capital; and
6. the materialist values that fuel consumption enabled by low-wage workers. (Shapiro 2011)

Climate change is a “creeping national security crisis,” in the words of United States President Obama that will force the military to “respond to refugee flows, natural disasters, and conflicts over water and food.” (Ahmed 2014) Existing patterns of global domination will only reinforce or aggravate conditions of inequality in a future shaped by climate instability. Most of the population in the wealthy countries of the world will remain oblivious to this process and its effects. Ulrich Beck suggests this is because people gauge their well-being in relation to the nations in which they live, which provide a context of understanding and a political framework for understanding social differentiation. We will need to develop a “cosmopolitan” perspective, in his view, in order to begin to understand how to ameliorate the consequences of global climate change. (Beck, 2010) That is, to the extent that it is possible.

**Future and Finitude**

This short analysis of inequality and its relationship to our current condition of material unsustainability in the form of human-caused climate change is
unsustaining, for a few reasons. It has opened up a great area of uncertainty about how to proceed. We saw from Heilbronner’s analysis that Yesterday, the industrial era, was unique in several ways. It was a very short time in human history, yet intense. Its vision of the future was progressive, its rate of technological growth extraordinary, and the shift in world views that took place dramatically diverged from previous millennia. We now look from the other side of these shifts, and wonder what the future will bring.

As a technological problem of the industrial era, it should be possible to begin to solve it. We roll up our sleeves and get to work, with the goal of implementing a better future, starting today. Our vision of the future, however, has taken a hit. There is no future. There is “no future.” Change no longer comes from having a vision of the future, but rather is an effect of our stagnation in face of the past. Eight thousand years of living inside cities of stone and a century of driving in chariots of steel conspire to settle us in our old ways, our visions merely projected upon the inner layers of our shells. Time unravels now in slow motion, as we pretend to await political, economic and social change, until such a time as there is no time. We are interrupted in our stupor by commercial breaks, pop-up ads and climate catastrophes. We await our rations and pay our tribute at Costco.
Chapter 3

DESIGNING TIME

Unsustainability and Time

Homo sapiens has had a long run, and there are no certainties that the species will either cease to exist in the near future or continue to thrive in centuries or millennia to come. We are a contingency: if an asteroid hadn’t struck the earth 65 million years ago, human life—its mind and body, its art and technology, its wisdom and its violence—would likely not have appeared in the Universe at all. A similar totalizing extinction could happen again, whether by natural causes or auto-inflicted through nuclear war. Instead, we evolved out of Earth’s history and have thrived, to the point of stretching its capacity to sustain us. Human intelligence has become cognizant of this, and of the fragility of the ecologies which support us. Many have called for action, whether through a sense of personal or collective altruism, an implacable conatus or a considered judgement regarding the conditions of one’s daily life and the lives of one’s children. Each of these motivations for acting in face of unsustainability has a common basis in the desire for future.

In light of this, my aim in this undertaking is to enable the designing of future. This is not to say that time is not yet under design—humans have always been designing future, whether through a vaguely sensed but ever-present forth-coming found in the present, or in the form of an explicitly future-oriented project. (Bourdieu 2000, 142) Yet, in our current epoch of unsustainability, the design of future has become an urgent über-project.

Needing Time

This urgency rubs against the time of skholē, if not also against the kind of future we aim to design. Nonetheless, if our thinking, writing, making and
doing do not lead to a stabilization or lowering of greenhouse gasses in the atmosphere, climatic conditions will become increasingly inhospitable for the survival of our species, to the point of risking extinction. The skholē we assume is ours today may become an increasing askholia in face of an imminent and catastrophic future tomorrow.

The arkhē of civilizational unsustainablity resides in this bifurcation of temporalities, in a governing model that separated out a class of citizens who ruled, living the temporality of skholē, from “those who [had] no-part:” (Rancière 2010, 33) the women, slaves and tradesmen who lived the temporality of askholia. It was this division that inaugurated the establishment of a social structure whose unfoldment led to our contemporary doorstep: a resource-intensive and consumerist “first world” exploiting human and natural resources at the expense of the rest of the global population, to the point of requiring global action.

We must, therefore, understand how to negotiate between the temporality of skholē, the quality of time necessary for living a life worth living, allowing us the ability to reflect, organize and act in a skhol-astic manner; and the temporality of askholia, under dead-line, in the sheer and urgent necessity of making more time against the time of extinction. This negotiation of temporalities is a key characteristic of what I call the design disposition to time.

**Time and Temporality**

It is straightforward to understand how we seek to affect others in our lives in the present and immediate future. It is non-doxic to assume that we seek to affect unknown others in the distant future. To understand the extent to which this may be so, imagine your life now, and ask yourself if you would be engaging in the same things—activities, projects, career, life plans—if you knew that, following your death by natural causes, an asteroid would collide with the earth, destroying all life. How might this scenario affect the current way you live your life? Perhaps you might decide not to procreate. If you are working on a project such as the cure for cancer, you might find less reason for continuing to do so. If you are a composer or a painter, it would be harder to expend any effort that wouldn’t directly lead to an audience or spectator within your lifetime. Samuel Scheffler, who proposes this counter-factual thought exercise in his book *Death and the Afterlife*, means to suggest that much of what we value in our life is dependent on people unknown to us, existing in a future following our death. (24)

There are many, we might think, whose lives wouldn’t be led much differently—either because it is already bound by the limits of more-or-less imme-
Immediate imposed responsibilities or temporal satisfactions, or through a religious belief in an afterlife. The rock-solid existentialist or the true believer might not waver from their day-to-day patterns or spiritual practices (which reveals a paradoxical similarity). However, one could easily imagine a breakdown in the social order due to the coming to the close of the long-term temporality that the future provides. The process of creating value in our lives seeks to establish them not only for us today, but for others, in a future without us. (Nagel, 2014)

Prostheticity and Transgenerational Temporality

“There is time only because memory is ‘artificial,’” states Stiegler. (TT1 172) Human temporality works in the space between the who, “which anticipates, desires, has agency, thinks, and understands;” and the what, its prosthesis. (TT2 6–7) Time begins, concretely, in the Pleiocene with Australopithecus who ruptures an undifferentiated present into past, present and future through the making of the first tool. Since that moment, we have been engaged in a continual construction process of future-creating activities through ongoing acts of designing, leaving behind in the form of artifacts the past, in the form of embedded and externalized memory. Properly speaking, then, it is not future we seek, but a form of temporality that reaches between past and future. Thus, if we are to design future, we need to design it as a transgenerational futurity: a temporality that is grounded in the pre-given as much as it reaches toward the not-yet.

How could it be otherwise? We are thrown into a world not of our own making, and that exists prior to us. This is the world, the only world that shapes us. What we value arises out of an engagement with this world that precedes us, and that we seek to extend into a world that will affect others. The temporal world that we bring into being through the transmission of values may have a longer or shorter duration based upon the temporality of the world to which we have been exposed—through chance, experience and education. We seek to affect those to come, in the immediate as well as the distant future.

Psychotechnologies of Time

In the modern period—what Heilbroner understands as the last 250 years and Berardi as the twentieth century—future was the privileged form of temporality, energized by the immense productive forces unleashed through industrial capitalism. Emerging on the other side of the “era of the future,”
however, we are left either with an anorexic temporality, deprived of the sus-
tenance of the past; a hyper-askholia that rushes to keep up with its own pres-
ent; or with the threat of no temporality at all, a future of no future. If we
are to redesign temporality as authentically transgenerational, we will need
to understand how industrial temporality was constituted and what are its
effects. Stiegler’s emphasis on looking at time as an effect of our technical
“prostheses” allows him to describe with particular acuity the effects of in-
dustrialism on time:

[I]ndustrial civilization rests on an ever more intense development
of the process of permanent innovation. It results in a divorce, if
not between culture and technics, at least between the rhythms of
cultural evolution and the rhythms of technical evolution. Technics
evolves more quickly than culture….It is as if time has leapt outside
itself… (TTI 15)

Although pre-industrial temporality began its mutation into industrial
temporality with the powering-on of the first steam- and coal-powered fac-
tory line, the latter became even more extreme beginning in the late-19th
century with the influence of time-based media—first with cinema, then with
the first radio broadcasts, leading to the saturation of mass audiences with
the glow of television in the early 1950s. All these psychotechnologies, espe-
cially the latter, made deep inscriptions within our temporality that continue
through today. The imperative of a hypnosis of consumption underlying the
advertising basis of most television and other forms of media fuels an even
more pervasive re-temporization in which, according to Stiegler, “consumers…
are henceforth deprived of memory and knowledge by the service industries
and their apparatuses.” (CPE 35)

Psychotechnology of television
It is impossible to underestimate the effect of television on the human, pros-
thetically-enabled psyche. It begins with light, specifically in the difference
between reflected and radiated light. It must be assumed that since humans
discovered how to make fire more than a million years ago, they settled
around it with others warming themselves and gazing into the radiated light
of the flames. Sitting around the fire would have contributed to the building
of social bonds and to communication of all types, including the relating of
stories. This individual and social practice of staring into radiated light—the
only other source of which was the sun, too intense to gaze into—remained
unbroken until the invention of the light bulb in the late 19th century.
Our eyes and brain became accustomed to the unchallenged ubiquity of reflected light for fifty years—until the introduction of the radiated light of the television set. The entertainers, storytellers—and corporate sponsors—that permeated its screen were delivered to an audience made captive by over a million years of watching the glow of radiated light. In the case of television, however, they could deliver content through the light—it didn’t matter of what kind—as long as the flame kept flickering.

Walking down a residential street at nighttime today, one can still experience the pure flickering of the light emanating from windows, and one can surmise its effect on our sense of temporality. The rhythm of the editing—the product of production time—produces us as product in turn. The imago has made its long trek—from the telling of the first stories and from the meditations, dreams and fantasies arising from sustained gazing into phantasmic flames—to manufacture the neural networks of screen viewers today. This transmutation begins—often enough, and with untold millions of eyeballs—with the turning on of the television set in the morning, creating a “false day” that exchanges any and all forms of temporality with an industrially produced “real time,” (TT2 124) rendered industrially “through the omnipotence of the new programmatology producing space-light-time’s weave of rhythm.” (188) If we are to seek to create a transgenerational temporality, we must take back our time. To accomplish this, we first need to understand the human as prosthetic at her core. We arrive as homo sapiens already as supplement and cyborg via epiphylogenesis, an “pursuit of life by means other than life.” (TT1 17) Technics precedes and arises as consciousness and culture.

The Matrixial Sphere
The intimacy of the human connection to technology begins in what Bracha Ettinger calls the matrixial sphere, in the womb prior to birth. The pre-infant is not an ego or subject but pre-subjective, a transject, existing in corporal co-being with the mother. (Ettinger 2012, 13) Following birth, the infant’s relation to the mother’s breast is as a proto-prosthesis, making way not only for eventual self-feeding upon weaning, but to a relation with the prosthetic world of technology and the world of other others, outside of the matrixial, transjective sphere. The we, in other words, precedes the I as well as the they. The we of infant/mother forms the basis of our individuation.

Stiegler understands this process following birth in terms of Donald Winnicott’s theory of the transitional object, which “enables and conditions the relation between mother and child,” constituting the mother as this mother in her way of being, and the child as her child. (Stiegler 2013, 1) The transitional
space does not exist (as breast, teddy bear or toy), but instead opens up a space that is neither external nor internal to mother or child but that consists between the mother and child:

What holds and is upheld as this link through which these two beings become incommensurable and infinite for one another, is what, by allowing a place for that which is infinite, consists precisely to the immeasurable extent that it does not exist—because the only things that exist are finite things. (2)

**Transitional Object as Pharmakon**

This transitional object is, for Stiegler, the first pharmakon:

...because it is both an external object on which the mother and child are dependent...and in relation to which they are thus heteronomous; and an object that, not existing but consisting, provides (through this very consistence) sovereignty to both mother and child: their serenity, their trust in life, their feeling that life is worth living, their autonomy. (2–3)

As pharmakon, it will become the basis not only for all objects in our life, technological or otherwise, but will also be the place from which we can infinitize ourselves in our relationships to the finite world. As with the “good mother/bad mother” scenario, it may also be that upon which we stumble, which we pursue at all costs, to no benefit or for harm to ourselves. This relation to the pharmakon as transitional object is that which is behind what Simondon called the “phase difference of the individual in relation to their pre-individual milieu,” (30) which he also called “individuation” and Winnicott “creativity.” We are, thus, not individuals and subjects first, but transjects always already in a process of individuation. This process is asymptotic and infinitizing. It is when we short-circuit this process that we become individuals, transforming our desires into drives.

**Individuation, Transindividuation and Time**

As Aristotle noted, “man is a political animal.” (CWA 4268) Individuation does not stop at the individual, as the individual is only human to the extent she belongs to a social group. Individuation when it reaches the social level is not a mass collective; instead, it is a multiplicity, a framework of transindividuation. Both the group and the individual within are seeking their pathways; and it is this search that “constitutes human time.” This does not mean that
the individual takes her time from the group, but instead that the time of the individual takes place within the group “which is itself conditioned by the time of the I of which it is composed.” (Stiegler 2008, 3)

As prosthetic beings, time is outside ourselves, ekstatic, in the what. When Stiegler says it is “as if time has leapt outside itself” (TT1 15) this is because, first, time is always ekstatic, but second, because—when it returns as objective industrial technologies turbocharged by coal and oil and expressed in the light-time of televusional radiation—industrial time appears as the unapproachable extension of what we always already were. Culture had a chance in the pre-industrial age to accommodate the pace of innovation; industrial innovation overlays the illusion of its incommensurability in the form of perpetual urgency:

Urgency is a certain temporal mode of being. Urgency occurs when the immediate future is violently introduced into the present as the undetermined but immanent possibility of an accidental, unforeseen event. It can result in speaking or acting without reflection. Contemporary technics, characterized as a system for producing and managing speed, and dominated by analogic and numeric technologies controlling this management, gives shape to a generalized temporality so as to control real time. (TT2 138)

If we want real time to return, we will need to substitute for industrial, hyper-askholiac temporality an individuating, transindividuating and skhol-astic temporality that, amidst urgency, we can care for together.

**Approaching Time with Skhol-asticity**

*Skhol-asticity* gives us the time that we may use freely in facing future. It is not the time of *skholē*, it cannot be: the time of *skholē* is the time of inequality. Instead, we need a time in common, an uncommonly common time: a time that allows us reflection-in-action, a plastic time. This is the time of *skhol-asticity*.

We will be exploring Catherine Malabou’s concept of plasticity in depth further on. I would like, however, to elucidate some meanings of the term as it applies to time by reference to a similar word, “elastic.” The Online Etymology Dictionary shows the following entry for *plastic*:

1630s, “capable of shaping or moulding,” from Latin *plasticus*, from Greek *plastikos* “able to be moulded, pertaining to moulding, fit for moulding,” also in reference to the arts, from *plastos* “moulded, formed,” verbal adjective from *plassein* “to mould” (see *plasma*).
Plastic explosive (n.) attested from 1894. Mid-17th century (originally describing a gas in the sense ‘expanding spontaneously to fill the available space’): from modern Latin elasticus, from Greek elastikos ‘propulsive,’ from elaunein ‘to drive.’ (“Plastic,” OED)

Malabou’s operative definition focuses on the the capacity to be moulded and to hold a form once moulded, as well as its potential to explode. These usages are surely relevant to us as we attempt to mould a future, although the emphasis on moulding would be more appropriate to moulding a particular kind of future rather than to the project of creating or extending future itself. However, as we see in the entry, the origin of plastic is not only from the Greek plastikos, but as well from elastikos, “‘propulsive,’ from elaunein, ‘to drive.’” (OED) This is a helpful, if not essential, addition to Malabou’s definition if we are to propel time, to drive it forward. It exposes both a common experience of time as a drive to move forward, but also a violence ready to explode if we were to drive it forward to quickly and without the fore-thought necessary to make it a sustainable future. Skholē is necessary for that, if we were to have the leisure. The design disposition to time is one of skhol-asticity.

Doxai of Time

Time happens. It is something we think about when don’t have enough of it or we have too much: when we are busy or bored. Apart from that, we take it for granted that time passes and will continue to pass until the day we die. If I am not thinking about time, it would appear that I am “in the present”; if I reflect on the past, that I am reflecting in the present; if I am anticipating the future, that my anticipation is in the present. When I experience my well-being, that would seem an experience in the present.

The problem that arises in our normal experience of time is that human beings don’t live in the present, for a variety of reasons. As we’ve discussed repeatedly, we live in a fractured time of human making. The past and the future are always active in our experience of the present. We retain the material traces of our past in everything that constitutes the artificial world that is our horizon, which in turn gives support for particular expressions of anticipation. We’ve also noted the effects of industrial media on our experience of temporality.

Temporality is also a problem of human well-being. We evolved as biological creatures for eons prior to becoming primates, let alone becoming homo sapiens. As creatures, we experience well-being based on such criteria
as safety, satiety, comfort, etc. Our sense of creaturely well-being is compromised by threats from other organisms, by privation, discomfort and the like. As prosthetically-enabled humans, however, we have created a world within a world of our own making, and which establish different conditions for the experience of well-being. Our well-being is dependent on a much wider set of potential choices that become strongly individualized. This is the basis for Jakob Von Uexküll’s assertion that all animals of the same species have the same umwelt, but each individual human being has her own umwelt.

These two senses of well-being, the biological and the human, can come into conflict. Although there are many beneficial environmental influences in the human world, there are some that are not. We remain unaware of many, if not most of these influences, as prosthetically-enabled human well-being generally trumps biological well-being in our everyday life. Thus the human penchant for all kinds of self-destructive behaviours.

In a non-human biological world, survival is dependant upon evolutionary adaptive behaviours (like collecting acorns for the winter) along with instinctual awareness and monitoring of present-focused well-being or lack of it. In a human world of fractured time, it is necessary to negotiate the complexity of past experiences and future anticipations, and to do so in an environment that is constantly affected by a plethora of prosthetically-enabled presentations of phenomena, in order to gauge their possible positive or negative effects on both prosthetically-enabled and biological well-being. This is why the doxa of time referred to above is never sufficient.

Mesopotamian Time
There is, however, what we may call the transcendental doxa of time that may be both cross-cultural and historically consistent, a baseline conception that is evident in some of the oldest written texts. It is simply this: time as pure sequence, of the one-after-another. As Angel Rajadell writes in a 2010 paper, “Mesopotamian Idea of Time through Modern Eyes,”

We can establish that the essential structure of the sequence of time, that is, the pure one after, before or at the same time as another, is in the Mesopotamian idea of time as valid as in modern conceptions. (216)

To illustrate, he uses verses from the Atra-Hasis epic:

[The gods] were digging watercourses,
[The waterways of the gods, the] life of the land.
[The Igigi dug the Ti]gris river,
[And the Euphrates there]after (216)
We can clearly discern a sequence of events in these verses: the gods created the Tigris river, and then created the Euphrates. This is a baseline example from which, however, Mesopotamian temporality diverges from our modern forms. This can be seen most clearly in the Sumerian King List, which, of all documents, we might expect to be closest to our modern sense of linear temporality. Instead, we find that the further backwards in time a king reigned, the greater the time span they reigned. For instance, in the first Bronze Age, ca. 3000 BCE and earlier, it lists three kings of the antediluvian era who reigns lasted between 23,800 and 43,200 years; the reigns become progressively shorter such that, after the Flood in the second Bronze Age, the kings reigned in the range of “only” 1200 to 140 years. (221)

Modern Times
We might be predisposed to think that modern temporality has regularized our sense of the passing of time, but as Adorno noted, “Modernity is a qualitative, not a chronological category.” (qtd. in Osborne 1995, 9) Modernity is the time of the Now, a concept that took centuries to develop, beginning with the use of the word modernus in the 5th century, which signified the “recent” times following the collapse of the Roman Empire. It took another ten centuries for the concept of a “new age” to emerge, along with the descriptive terminology of “renaissance” and “reformation” for the yet unnamed historical periods. In the sixteenth century a term neue Zeit (“new time) began to be used to refer chronologically to both periods that followed the Middle Ages. It should be kept in mind that the term “new” had a sharper connotation, as for Christians, the “new” was a matter of God’s creation. This set the stage for the “Quarrel of the Ancients and Moderns,” an event which exemplifies a turning point in the disposition to the past in the context of the early 17th century Enlightenment. It is then that an abstract and open time of the future comes into play, even if it was still based on the construction of linear Christian temporality, though minus the necessity of eternity following its end. (9–11)

Around the time of the Industrial and French revolutions, the term “neueste Zeit” came into use as a term suggesting an epochal break with prior historical periods. According to Osborne, terms such as “revolution”, “progress”, “development”, “crisis”, “Zeitgeist”, “epoch” and “history” acquire “temporal determinations never present before.” (11) Rather than time being the transcendental stage through which history happens, time itself becomes historical. This is the temporality bequeathed to late-19th century moderns such as Baudelaire, that is expressed in concepts such as Neuzeit and modernité. (12)
This brings us up to the time of modernity and Modernism, and the century of the future as specified by Berardi, i.e., beginning in 1909 with the publication of the Futurist Manifesto and ending with the 1977 proclamation of “No Future” by the Sex Pistols. (2011) The doxa of time was to be of your time—in the present. To be assured of this, however, it would be better to be ahead of your time, whose role it was the avant-garde’s to lead us in this direction. Its consequence was two-fold: the sovereignty of the present over past and future, and the supersession of the avant-garde by industrial media in the control of forms of temporality. Under the thumb—the doxa—of industrial temporality, the work necessary to bring the future to being is more often than not considered a waste of time.

The Deconstruction of Time

Because something is happening here
But you don’t know what it is
Do you, Mister Jones? (Ballad Of A Thin Man, Bob Dylan, 1965)

Consider the following idiosyncratic and personally selected concatenation of events, pulled from the density of a heterogeneous temporality:

1967: Jacques Derrida publishes his first two key works, Of Grammatology and Writing and Difference.


1976: Of Grammatology is first published in English translation.

1977: The Sex Pistols releases the single God Save the Queen, with the repetitive refrain of “No Future.”

1978: Writing and Difference is first published in English translation.

These events point to a phenomenon of the passage of time, to its sequentiality. They exist on a timeline, a linear unfoldment of historical processes. They also concatenate in a multiplicity of ways for historically-articulated subjects, creating a certain gravity of temporality upon which meanings may be inscribed, positions may be indicated, vectors may be articulated. Something is happening here…

We pass through time not knowing what it is, only that it passes. We are
also entrapped in time in the most perniciously ideological way. Time is a
transcendental apparatus that has us in its grip, a catchment from which any
and all ideological operations are performed. We are always already hailed
by time, prior to being hailed by any Althusserian ISA. The deconstruction
of time lends itself to time, like any event that happened within the histori-
cal period represented above, as something that may hail us from within the
transcendental apparatus of time. While held in its grip, what operation does
it perform upon us?

The Now and the Trace

It is in “Ousia and Grammē” that Derrida elucidates the deconstruction of
time. He does so by examining Heidegger’s critique of Hegel’s concept of
time, one that is based, Heidegger contends, on Aristotle’s “vulgar concept of
time.” Derrida shows this concept of time to be more complex than Heide-
gger gives him credit for. Through his articulation of Aristotle’s argument,
Derrida articulates his concept of differance:

Aristotle begins by proposing a conundrum, an aporia…. It is opened
and closed on this dead end: time is that which “is not,” or which “is
barely, and scarcely”. Now how is it to be thought that time is what is
not? By giving in to the obvious, that time is, that time has as its essence,
the nun,…our word “now”…The now is given simultaneously as that
which is no longer and as that which is not yet. It is what it is not,
and is not what it is. “In one sense it has been and is no longer, and
in another sense, it will be and is not yet”. Thereby time is composed
of nonbeings. Now, that which bears within it a certain no-thing, that
which accommodates nonbeingness, cannot participate in presence,
in substance, in beingness itself (ousia). (MOP, 39–40)

It is in response to this aporia that Derrida conceives the trace. The trace
is the synthesizing of time; it is always already multiple. At the moment the
now comes to be, it passes. It is, at once, “that which is no longer” and “that
which is not yet.” The present itself is not: it is never present in itself, but it
is not therefore simply absence. It is the existent interval that, by separating,
remains. As such, the trace is the spatialization of time: what remains outside
the passage of time can only be spatial. It is also the temporization of space,
since the trace can only be read as its own inscription, once the future has
become past. This spatialization of time and the temporizing of space is what
Derrida calls spacing. (DTL, 17–18)

The “concepts” of the trace, spacing and differance operate throughout
Derrida’s work. They both describe a condition and perform an operation. As we can see in the above example, it is not a question of coming from the outside but of understanding an operation, a constitutive condition of how something exists. It begins with/in time, because without it there would be nothing. Time deconstructs itself. By understanding this auto-deconstruction of time, we may find an opening of value for our project.

Radical Finitude

_The horror! The horror!_ — Joseph Conrad, _Heart of Darkness_

With the deconstruction of time, we are left with a stark vision of the world, what Martin Hägglund describes as a vision of “radical finitude.” (DTL, 47) By emphasizing this quality of Derrida’s thinking—understanding clearly and accepting our exposure to a finite world—I think we are in a better place from which to act in face of unsustainability. I will therefore be relying on Hägglund’s book, _Radical Atheism: Derrida and the Time of Life_, in what follows. (DTL)

Hägglund calls the spacing of time in Derrida, following Kant, an “ultra-transcendental condition.” For Kant, time and space are the two transcendental conditions for our cognizance of anything and everything in the world. However, Kant proposed that it is possible to use reason to know, through deduction, elements of the transcendental that we cannot know otherwise. Instead, for Derrida nothing can be exempt from the spacing of time. It is the condition “for everything that can be cognized and experienced, but also for everything that can be thought and desired.” (10) Unlike Kant’s transcendental aesthetic, the trace that Derrida articulates as an ultratranscendental condition forces us to think a “constitutive finitude that is absolutely without exception.” (19)

Autoimmunity

In a radically finite world, death is a “mortal germ:” it comes not from outside a life that exists prior to death, but exists in an economy of life/death, functioning as a form of autoimmunity. (48) Autoimmunity, of course, is a biological concept. Immune systems protect the identity of an organism by fighting off harmful “others” that would compromise, or even kill it. Autoimmunity, as Derrida explains it, “consists for a living organism, as is well known and in short, of protecting itself against its self-protection by destroying its own immune system. (AOR, 80) Derrida describes it as a condition of time, that allows for the very possibility of an event:
Without autoimmunity, with absolute immunity, nothing would ever happen or arrive; we would no longer wait, await, or expect, no longer expect one another, or expect any event. (qtd. in *DTL*, 30–31)

In order to be, we are thus exposed, must expose ourselves to the *tracing of time*: to a desire to survive in time, exposed both to life and to death, and to an unconditional future that is always *not yet*, and therefore *other*. This tracing, in Hägglund’s interpretation, is “the minimal protection of life, but it also attacks life from the first inception, since it breaches the integrity of any moment and makes everything susceptible to annihilation.” (9) *To not be* is the worst that can happen. *To be* is the only thing to desire, for without that there is nothing, absolute zero. I do not desire the worst, but by desiring to be, I open myself to death. And in my death I will lose the world, which is everything and for everybody—as Derrida suggests, in his essay, “No Apocalypse, Not Now,” written during the Reagan-era nuclear build-up:

I live this anticipation of my own death in anguish, terror, despair, as a catastrophe that I have no reason not to equate with the annihilation of humanity as a whole: this catastrophe occurs with every individual death. There is no common measure adequate to persuade me that a personal mourning is less serious than a nuclear war. (qtd. in *DTL*, 47)

There are many ways to mourn. One can wail, or grieve silently. One may experience in mourning one’s own dying taking up one’s days; or one may not be aware of it affecting one’s life at all, storing it in parts of the brain that leave us unaware, while living out its effects. What, if anything, changes when we anticipate the possible annihilation of humanity as a whole, in slow motion as it were, through the effects of climate change? All of us have been touched by the news of human-caused global warming—and we mourn, in whatever way. We mourn, as if it were ourselves whose future was to come to an end. We may express our grief in the form of environmental activism, diligent geophysical study, or through a range of socio- or psycho-pathologies. We may not express at all, remaining indifferent—that is one way of managing this extraordinary opportunity we all now have of encountering our radical finitude. We all, always, exist in a radically finite world, because this is a world of time. Time passes. Everything passes. Thus remains the only possibility to be.

Condemned to death through life, we are also condemned to desire the future. To desire to be is a desire for there to be future, since future is surviv-
al. Thus, in face of finitude, we design. We spatialize our temporal survival through design. Designing is the tracing of time, marking time by making and inscribing. By designing we make time, in time, making way for time. We design time so that there may be time.

**Designing in Time**

What does it mean to design future under conditions of radical finitude? We have seen that:

— It is time that hails us before all else;
— What we take to be present is a trace of time’s passing and its to come;
— To be is the first and only choice, as without this there is nothing;
— To be is to desire future, as we can only be within the tracing of time; and
— Our affirmation to be exposes us to our destruction.

In order to begin to understand what design means in this context, and to begin to think of the design of time under these conditions, let us recall Herbert Simon’s broad definition of design, discussed in the Introduction:

> Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. (Simon 111)

Breaking apart this definition, we can infer that anyone can design as long as:

— They aim at outcomes;
— That the outcomes they aim for are a matter of preference; and
— These outcomes are achieved by an activity of devising.

If our preference is to design future, and given the consequences of the deconstruction of time, the definition would read:

> Everyone designs future who devises courses of action aimed at changing a future of no future into a future that has a future.

The future is a desired outcome. It could be said that it is outcome itself: out comes the future, from the present and the past. In affirming being over non-being, we affirm existing in time. We cannot affirm to be in the present: as Aristotle stated, the now is not. Derrida has shown us, instead, that what we take to be present is a trace of what has passed and what is to come.
Although the future may be an outcome, it can’t, by itself, be a preference, as it follows as a consequence from the affirmation to be. It can, however, be considered a preference from the very standpoint of the affirmation to be. The act of suicide shows us that existence is a choice. Although suicides may be caused by many different factors—including schizophrenia, in which we might question whether it is an act of free will—the existence of suicide notes exhibiting a process of decision making and the taking of responsibility—even in cases of young children—show us that to be is fundamentally a preference; it is the fundamental preference. (Freuchen and Grøholt 2013) Since, then, my preferred aim is to be in order to have a future, in order to design I must devise course(s) to achieve that future. Where does the devising come in?

Oxforddictionaries.com define “devise” as: “Plan or invent (a complex procedure, system, or mechanism) by careful thought…” (2014) “To plan” or “to invent” are close to everyday conception of design, as in the example “designing a contraption.” Yet the definition is further elaborated by the condition of it being achieved by means of “careful thought,” which we might assume to be the use of reason or analysis, rather than through intuition or hunches. However, the etymology is instructive:

Middle English: the verb from Old French deviser, from Latin divis- ‘divided’, from the verb dividere (this sense being reflected in the original English sense of the verb); the noun is a variant of device (in the early sense ‘will, desire’). (ODC)

“To divide,” as in “the original English sense of the verb,” both supports and challenges our contemporary use of devise. It can be argued that it is about making a distinction. It might be in the form of a logical or analytical distinction; it could just as easily mean making a graphic distinction, for example, by drawing a line. More to the point, it is about the cut that makes time, différance and the trace. We may also view devising/dividing as grammatization, beginning from the first cut that grammamatizes time in producing the tool, to the further grammatizations that produce meaningful vocalizations, writing, and increasingly complex technical devices—this latter term “device” also being an etymological variant.

It can be argued, then, that devising is what we do to survive, in our affirmation to be. Given the tracing of time, this to be means to continue to be, to survive in a future. Just like a spider with its web, we must devise to survive. There is nothing carved in stone to tell us how this is done: it could be through a (silk) line creating a distinction, a wall creating a barrier, some rocks creating a tool—all prostheses creating a cut in time. Through this cut, by means of this
arché-designing of time, we make also make a cut into survival: we face our finitude, in order that we may have future. How we live, in this sense, is technical.

A designer, however, is not an “everyone who designs,” but a singularity existing in time and space and faced with survival. The future is to come, unconditionally. Yet it is an unknown future. We are compelled to decide in order to design, yet we are left in a position of undecidability. In face of the undecidable, how are we to enact the cut?

**Designing Just-So**

In the undecidable and at the moment of a decision that has no common ground with any other, we have to reinvent invention or conceive of another “pragmatics.” (Derrida, 1984, 23)

Facing our finitude and the future to come, compelled to make a decision in face of the undecidable, what is called for—the same as always but with more urgency—is to redesign design. Designing is always redesigning. Design decisions shape what is in order to be what is apt. We are compelled to design for time, for a future, and to design what is apt, what is “appropriate or suitable in the circumstances” for that future. (ODC)

Apt: to be seizable (Hittite epmi “I seize”), to be reachable or attainable (Latin apisci), to be fitted for (Old French ate), inclined or disposed toward (mid-14th c.). (OED)

We ap-pro pri ate that which is appropriate, and only what is appropriate. We ap-pro pri ate time for ourselves, and by doing so steal time from ourselves as well. To affirm to be is to affirm future, and in doing so to affirm both life and death. Have we made time appropriate for ourselves, in appropriating? If we appropriate only that which is appropriate, does this buy us time, buy us future? How do we design appropriately in face of a diminishing future?

To design for a future, we must design just so, aptly. We must take our time, so that we may design just so, justly. In designing, we must seize time, justly, so that we may continue to have time to design time.

**Facing the Other**

The time is out of joint —William Shakespeare, from Hamlet

Deconstruction is what happens. What happens is perpetual displacement of a present which is not, by a future to come and a past that is no more. The trace is the dis-placement of time, displacing the present, which is not.
There is not, never was, nor never will be a time which is in joint. If everything were in joint, nothing would happen. There would be no event, no future, not even a future with no future. Because we exist in time, we have a future, and a future with no future, a future out of joint with itself: a trace with which we must grapple. (Derrida 1994)

The future is other. When we affirm to be and face an unconditional and unknown future, we expose ourselves to the not-yet, to what is other than ourselves. It is in this exposure that we open up a rift in ourselves to what is other. By doing so, there can be an event, the new, and the future. This rift in time and in our self is the basis for the ethical relation. Openness to the other in time is the opening to the other in myself, and is the opening to all others. I may or may not acknowledge all others. Just as we may mourn without knowing we mourn, I may only acknowledge a few others, or I may only acknowledge the other in myself. But without this improbable and hyperbolic ethical relation, nothing would happen.

In the future to come, I must then make way for others. I must keep the future open so that there may be others. That time is out of joint means that I may be horrified at what is to come, at who may arrive; it also means that those who arrive may live as slaves, as destitute or as oppressed by others. But in affirming to be, we are compelled to accept what comes, in the fullness of what is coming.

In my relation with my self, I encounter the other. Thus, when I encounter all the others, I encounter them as the other I find in myself as I encounter what is to come, the future. I may fear or loathe the part of myself that is other and thus fear and loathe all the others. But it is impossible to be, to survive, without welcoming in some measure the other and all others. An infinite demand: for all others, for all time, in all cases, in the infinite finitude of différance. (DTL 3)

**Time and the Design Decision**

In designing, we work within constraints. To begin: time and space. Then: that what we design may be apt. Now, as always: that there may be future. But how are we to design for all time, for all others?

We must make a decision. It is time to make a decision. There is some urgency to our decision. The design disposition to time, we said, was a negotiation between the temporalities of skholē and askholia: to design for a life worth living, but doing so under dead-line, the time of extinction. We don’t have all the time in the world; instead, we only have a trace of time. To design for a life worth living, we must take time. We design in the time of skholē, with the
leisure to reflect. We need all the time in the world to determine, to fix, what is the life worth living. To design under deadline, we must make a decision, on the fly, with only a finite length of time, an imperfect temporality. The design decision is a critical decision. We are called to make a cut in time that will produce a future: more or less future, and what will become a specific kind of future.

The present time of designing is but a trace, as we have seen, between past and future. As past, it is beholden: to what has been, to the ways in which time has been cut in the past. In the imperfect and finite temporalities of the past, some events may happen serendipitously, and others grudgingly. Some others are disposed favourably, and others unfavourably. What makes it on the design agenda for the design of the to come is always already shaped by what has been, and who has been. It is the past that pays for the time to come. The future inherits its debts.
Chapter 4

THE MOTOR OF PLASTICITY

This is not a striving for immortality; it is something structural. I leave a piece of paper behind, I go away, I die: it is impossible to escape this structure, it is the unchanging form of my life. (Derrida 2007, 32)

We are confronted with the condition of radical finitude in the discourse of deconstruction. This isn’t something we can just shake off. Nonetheless, neither is the to come. As we are situated in the world, we are exposed to the other as an exposure to time: to the threat of its end (in our death, which we experience as the end of the world) (Derrida 1984) and to the ever-never present to come. This is both a profound truth and interminable aporia, imposed by innumerable others, and whose “potency,” as Derrida remarks in his essay on Kafka’s “Before the Law,”

...is différance, an interminable différance, since it lasts for days and ‘years,’ indeed, up to the end of (the) man. Différance till death, and for death, without end because ended. (Derrida 1992, 204)

Design and the Dead-line

Under this condition of radical finitude and under the sign of différance, can we design? Design is an affirmative art, always so. It must be kept in mind, however, that structured within the time of designing, on the most factical level is a threat: that of the dead-line. We must design our time under threat of the deadline. These are wee mortalities, bracketed finitudes within the condition of interminable différance. We are given the gift of time to design, and with it
comes the threat of closure, the *dead-line*. Within this temporary safe haven we *project* a future, a future that itself is under dead-line and that calls for designing, that calls a designer to design—interminably, affirmatively—more future.

The dead-lines, however, keep piling up, coming out of nowhere, making our job more difficult. The question becomes: in our designing, are we designing (more) future or simply more and more ominous deadlines? In an interview shortly before his death, Jacques Derrida clarified (or re-clarified, as he had done so before) that deconstruction was on the side of life, an “unconditional affirmation of life” in the form of survival. (Derrida 2007) In designing, we also must always be on the side of survival, affirming by keeping to our dead-lines and surviving them, so that we may go on to affirm the challenge of the next to come.

Design is an affirmative art. Deconstruction shows us what we must face—the interminability of the dead-line—and what we must do—design so that there be life, always and to come.

### Leaning Toward Plasticity

Design is a plastic art. Facing a dead-line and affirming life, we give form, shaping. That which we design takes form, prosthetically. We design what is other than ourselves in designing, and in doing so are *de-formed*. It is in prosthetic deformation that is opened up the possibility of our formation, our *Bildung*. In its plasticity, design is an iterative art: we must form, deform, and when deformation is complete—touching the void in its destruction—*re-form*. That which is formed in being deformed does so in *con-sistence*: in two, in time and in dialogue (Stiegler 2013, 32–34). I give form to the material at hand, and in doing so I receive form, re-forming and deforming the material in turn. An imago arises, iteratively, from a wisp of a spectre toward something still spectral, but whose spectrality becomes more extensive, capable of holding form in space and sharing. “I leave a piece of paper behind…,” or clay, or carbon pixels. So that there be future.

### Under the Hood of Hegel

In *The Future of Hegel*, Catherine Malabou reinterprets Hegel through attention to the seldom-cited use, by Hegel, of the word “plasticity.” In the process, she has challenged a view of the philosopher that has been dominant
throughout the 20th century, especially in regards to how we understand, in particular, his notion of time. (Jeffs 2012) By so doing, she gives form to time, which will be crucial if we are to explore ways of designing the image in ways that assist us in designing a future. We will thus spend some time exploring her argument so we have clarity going forward.

The towering concept in Hegel’s oeuvre—one that is front of mind in the most rudimentary reader of his work—is the dialectical sublation, or Aufhebung, by which Spirit enters history, a teleological process whose end is the end of history in Absolute Knowledge. Without the understanding of plasticity brought to bear on this key philosophical concept, it is all too easy to dismiss this as a particularly egregious example of metaphysical idealism, a leftover from the centuries preceding Marx. Marx’s materialist reformulation of this conception of Hegel’s dialectics is challenged by the tragic histories of 20th century Communisms. Through the lens of plasticity that Malabou brings to her interpretation of Hegel, however, Hegel is re-formed in a way that gives new meaning and life to dialectics, as something that can be worked with, in its very sublation.

Starting with Spirit

We begin by clarifying Hegel’s use of the term Spirit. Hegelian scholarship historically has been split between what may be called metaphysical or post-metaphysical interpretations of his work. In the first case, his work is viewed as a recovery of metaphysics following Kant’s delimitation of experience to that constrained by the transcendental categories of time and space. In such a view, Hegel offers a “metaphysico-religious” view of God qua Absolute Spirit, the ultimate reality that we can come to know through pure thought processes alone. The other stream of Hegelian scholarship views him as both “accepting and extending Kant’s critique…against the residual ‘dogmatically metaphysical’ aspects of Kant’s own philosophy.” (Redding 2014, 13)

Malabou cites Hegel’s admiration for Aristotle’s notion of Spirit in De Anima in order to place him in this latter stream. At the very beginning of Book 1, Aristotle states that anima (spirit, or “soul” as translated in Barnes) is “in some sense the principle of animal life”—clearly outside of an anthropocentric and metaphysical conception of Spirit. (CSW, 1405) Malabou concurs, citing the following passage from Hegel’s Anthropology:

The three books of Aristotle’s On the Soul, along with his discussion on its special aspects and states, are for this reason still by far the most admirable, perhaps even the sole, work of philosophical value
on this topic. The main aim of philosophy of spirit can only be to reintroduce unity of idea and principle into the theory of spirit, and so to reinterpret the lesson of those Aristotelian books. (Hegel, qtd. in FOH)

_Aristotle’s Soul_

Soul, for Aristotle, is not metaphysically articulated; instead, it is a description of living beings: “what is ensouled is distinguished from what is unensouled by living” (Aristotle, qtd. in Shields 2014) A living body is hylomorphic, _viz._, Substance consisting of both matter and form. The matter consists of the organic and inorganic compounds that make up the physical mass of the body, and the form is the soul that gives shape to matter. Soul, though distinguishable from the material body, cannot exist outside it.

The soul is also not restricted to humans. In the Aristotelian model, there are three kinds of soul: the nutritive, the sensitive and the noetic. Plants have a nutritive soul, animals a nutritive as well as sensitive soul; humans have a noetic, in addition to plant and animal soul. The noetic soul, νους, allows for various kinds of powers peculiar to human beings: thinking in the most general sense, considered as reflection or contemplation; reason or rationality; and deliberation.

Imagination for Aristotle, however, is not restricted to humans nor is a form of νους in itself. Sensitive imagination, he says, “is found in all animals;” they resemble sensations and “their actions are largely guided by them.” It is the _deliberative_ imagination that is found “only in those that are calculative,” i.e., humans, whose soul never thinks without an image. It is in this way that we may consider the imagination a form of νους. (CW4, 1508)

_The Soul of Design_

In beginning his discussion and in order to clarify his notion of soul as coincident with the body in which it is found, it is interesting that he uses the example of a designed object:

Suppose that a tool, e.g. an axe, were a natural body, then being an axe would have been its essence, and so its soul; if this disappeared from it, it would have ceased to be an axe, except in name. (1439)

He does not suggest, however, that the tool as such has soul. But then, he uses the example of an organ of the body to make the same point:

Suppose that the eye were an animal—sight would have been its soul,
for sight is the substance of the eye which corresponds to the account, the eye being merely the matter of seeing; when seeing is removed the eye is no longer an eye, except in name. (1439)

In other words, either the tool or eye could have soul, the first if it were animate, and the second if it were not merely an organ but an organism. Aristotle then goes further:

We must now extend our consideration from the parts to the whole living body; for what the part is to the part, that the whole faculty of sense is to the whole sensitive body as such. (1439)

We have argued in this dissertation for a definition of the human that arrives already as prosthetically enabled and subject to epiphylogenesis, the process of evolution by means of prostheses. As per Marx, we have seen this process happening via labour, the particular way in which humans metabolize nature. We metabolize the stone in order to produce the hand axe, which becomes an extension of our arm and hand. The human world is metabolically produced, and without it, we would most likely cease to exist. We are, indeed, a species with a prosthetically-enabled soul.

The Motor Scheme of Dialectics
To best understand the Hegelian dialectic we must also go back to Socrates and Plato. Socratic dialectics is not an abstract philosophical method; rather, it is a convivial process embodied in conversation. Aristotle considers the Socratic dialectic as partly rhetorical and partly logical, with no clear point where one ceases and the other takes over. It begins in disagreement and in the attempt to persuade another that one’s own viewpoint is the correct and true one. As an attempt at persuasion, it fulfills the most characteristic quality of all rhetorical discourse. Socrates greets his interlocutors as fellow citizens of Athens and addresses them as such, with mutual reputations to honour and uphold—a concern discussed in Aristotle’s *Rhetoric* (4625). The aim of truth is also something we would witness in an Athenian court of law—in any court of law, though the interests of the parties involved often mitigate against truth in the quest for favourable outcomes. It is only the presence of a seed of reason amidst a convivial encounter, and a desire for non-interested truth, that manages to swing the Socratic dialogue away from rhetoric and toward logic.

The Platonic fiction of the Socratic dialogues, with the disparagement of rhetorical strategies in favour of dialectical thinking, is one of the greatest rhetorical achievements in the history of writing. This argument is one that
is well-rehearsed. The reason I note it is two-fold: first, it will give us a better handle on the Hegelian dialectic in its encounter with Spirit; second, it will allow us to include an embodied discourse of design—like poetry and art, considered a form of rhetoric by Plato—within such a dialectical process.

**Destination: Hegel**

If the Greek dialectic is based in an embodied conversation, located within a unique encounter and follows a line of argument toward the true, the Hegelian dialectic is speculative, takes place within history as a whole and follows the movement of Spirit toward the end of Absolute Knowledge.

Let us first consider this line of argument toward the true analogically and metaphorically, as a “line of code” within the logical operations of a Platonic computer. Conversation is disciplined through dialectics. The meandering flow of *doxa* is channeled into the form of *if A, then B*. In a dialectical encounter between interlocutors, you begin at one place—unenlightened *doxa*, flickering shadows of thinking—and end at another—the place of truth. The world you thought had existed in a certain way at point A *is no longer*, and instead has become the world at point B, the *true world*, which had existed always and prior to the world you thought it was at point A. On the one hand, the world is different at point B, as your understanding of it (as well as your capacity to act within it) has changed. On the other hand, the world itself has remained the same—you have merely uncovered a truth about it. A gap—that between a subject and an object—has been overcome, *sublated*, by the neural networks of an embodied brain in the world.

With the network effect that many brains, conversations and sublations may produce over a given time and space, we can begin to encounter the *Hegel effect*, the introduction of the dialectic entering history, arguably more consequential than the Platonic dialectic, as it embodies in its speculative space a multiplicity of individual gestures collated as an historical whole.

**Prosthetics and Dialectics**

What is it that disciplines conversation in this way, such that multiplicity may be collated as one? I suggest it is the Platonic *pharmakon* and bugaboo, which is to say, writing. More precisely, it is due to the effect, within writing, of différance at the level of letterform sequentiality. Letterform, spacing, letterform, spacing, letterform…word. Time becomes space, at each point touching the void, gap, spacing….sentence. The process repeats, letterform following letterform, word following word…paragraph.

Repetition unceasing, linearity enforced at the gap between each letter-
form, word, sentence and paragraph; *meaning-image* arising from within the enforced flow of form and its negation, proceeding interminably throughout the text, due to the text, enforced by the text’s linearity—and producing speculative space. The movement of dialectics is formed through différance, sublation overcoming the void at each gap, spacing. End of story. End of Hegel’s story. *End of history.*

The directionality imposed by letterform sequentiality neither encourages the *phantasias* of poets nor the intimate, dialogical and circular patterns of informal conversation. Through our engagement with the work of Stiegler, we have understood prosthesis, technicity and epiphylogenesis to be the *arkhē* of the human: the driver of human self-awareness, the creator of human time and the horizon of its being. Following the development of the prosthesis of writing in Mesopotamia, we traced its role as a driver of religious mystification, as a tool for practices of scientific observation and categorization and its use for political domination. By the time of the Greeks, this prosthetic beast had begun to enforce its typographic linearity—line by line, axiom following axiom—and to produce the *pharmakon* of reasoned analysis that you find constrained within the Socratic dialogue.

The work of reason, formed in our neural wetware through the linear media of typography, begins to enforce a kind of teleological necessity, achieved in an everyday encounter amongst interlocutors, citizens of Athens. These kinds of conversations, repeated over two millennia—through the birth and death of Christ, the Dark Ages and Catholic domination, from the Renaissance through the Age of Exploration and the Enlightenment to the lead-up of the Industrial Revolution—form collectively, as a whole and as history, the necessary backdrop for the Hegelian dialectic. Hegel is able to conceive of the movement of history—as Absolute Spirit—progressing through dialectical sublation to the end of history in Absolute Knowledge. If, in the Greek dialectic, we may consider the *true* analogically as a line of code within the Greek computer, by the time of Hegel, we may similarly consider Spirit as an *imago* produced through the history of human prostheticity.

*Dialectical Overdrive and the Dead End*

It is, perhaps, a mischaracterization to suggest an inevitable progressive movement of history from the Greeks to the Industrial Revolution. However, it is a mischaracterization that comes with the terrain. Surely, from where we stand—over 200 years after the birth of both Hegel and the Industrial Revolution—we have seen a quickening of material and technological progress on the scale that Marx described, as having created “more massive and more co-
lossal productive forces than have all preceding generations together.” (Marx 2000) The motor scheme of history has been progressive and dialectical for some time. At the same time, it has been fuelled by a reduction in the Earth’s renewable resources, by the addition of carbon in our atmosphere, and through the interminable repetition of factory production.

According to Malabou, we have mischaracterized Hegel’s dialectic itself, conceiving it as metaphysically teleological and forcing upon it a static conception of time that has been its history at least throughout the 20th century, if not from the start. Although Spirit is conceived as entering history dynamically and dialectically, its end, according to Alexandre Koyré, is really an end:

The philosophy of history—and in that respect the philosophy of Hegel as a whole—the “system”—could only be a possibility if history has come to an end, if it has no more future; only if time can stop. (qtd. in Jeffs 2004, 38)

This conception is of a time that is no longer time, a “dialectical sublation of temporality in Absolute Knowledge,” one which, as Derrida notes in his preface to Malabou’s book “…would not have been possible without the teleological and circular Greek time in which one can identify the end and the beginning.” (FOH, xlvi)

It is the time whose seed we explored in the structure of the Socratic-Platonic dialectic, where we arrive, through dialogue, at a world whose truth is the place from which we started: only more true now due to our new self-awareness. Within the Hegelian dialectic, this journey toward the Absolute happens not simply on an individual basis, but at the level of the species as a whole. Our progression through history—whose motor scheme is opened through and dependent upon prostheticity, and whose end is littered with the detritus of our technology—would presumably only lead us back to the place where we began, but secure in Absolute Knowledge, and with no place to go. That might very well describe the situation of humanity at the start of the 21st century, confronting the dire warnings of IPCC scientists, secure in the knowledge of our inescapable finitude and unsustainability:

Perhaps they have carried me to the threshold of my story, before the door that opens on my story. (That would surprise me, if it opens.)

It will be I? It will be the silence, where I am? I don’t know, I’ll never know: in the silence you don’t know.

You must go on.

I can’t go on.

I’ll go on. (Beckett 2009)
Plasticity: When the Rubber Meets the Road

This synthesis of the Kantian and Aristotelian concepts of time form the Hegelian “anticipatory structure” of subjectivity. As Malabou states, “subjectivity projects itself in advance of itself, and thereby participates in the process of its own determination.” (FOH 69) Malabou terms this “le voir venir,” providing the basis for her conception of plasticity:

“Voir venir” in French means to wait, while, as is prudent, observing how events are developing. But it also suggests that other people’s intentions and plans must be probed and guessed at. It is an expression that can thus refer at one and the same time to the state of “being sure of what is coming”…and of “not knowing what is coming”. It is on this account that the “voir venir,” “to see (what is) coming,” can represent that interplay, within Hegelian philosophy, of teleological necessity and surprise. (13)

These two understandings of “to see (what) is coming,” in dialectical contradiction, are sublated. Derrida remarks in his preface to Malabou’s book that this is not simply an example of the Hegelian Aufhebung, “it is its very concept.” (xi) The modality in which this Aufhebung takes place is plasticity. The operations of plasticity—giving form, receiving form and explosion—fulfill the Hegelian dialectic in a way that re-forms a past that has become a dead end. Plasticity explodes the past’s rigidity, thereby opening up a “promise for the future,” a future that has itself become plastic, amenable to both giving and receiving form. (241)

Restarting in Time

Malabou’s careful reading of the Hegelian dialectic through a different motor scheme, that of plasticity, provides an interpretation that may allow us to retrace Hegel in a way that—even if it won’t scrub the 200 years of carbon from the atmosphere—might allow us to begin from a different place, with a different and more plastic horizon onto the future.

Her reading of Hegel begins with Aristotle’s consideration of the workings of time which, as we saw earlier, became the basis for the Derridian notion of the trace and of différance. Of time, Aristotle remarks:

To start, then: the following considerations would make one suspect that it either does not exist at all or barely, and in the obscure way. One part of it has been and is not, while the other is going to be and is not yet. (CW1 816)
As Derrida pointed out in “Ousia and Grammē,” Aristotle’s conception forms the basis of the common, or “vulgar” notion of time (as Heidegger remarked): time is a series of “nows” that pass in a process of becoming. This is only one half of Hegel’s notion of time; the other half is based in Kant. By bringing Kant into the picture, time also becomes something other than becoming—one of the two transcendental categories of time and space. In §4 of the Transcendental Aesthetic, Kant states:

Time is not a discursive or, as it is called, universal concept; rather, it is a pure form of sensible intuition. Different times are only parts of one and the same time. (CPR 86)

Malabou summarizes Hegel’s appropriation of this Kantian concept from the Remark to §258 from his Encyclopedia:

Time is the same principle as the I = I of pure self-consciousness… Hegel absorbs the conclusions of Kant’s analysis and recalls the identity of the ‘cogito’ and time itself. This identity of time and the ‘cogito’ cannot be reduced to a continuum of instants; rather it appears as a synthetic unity, that is as a ‘seeing of (what is) coming’. (FOH 14)

Hegel’s Concept of Plasticity

First and foremost, Malabou’s concept of plasticity is taken from Hegel and meant to bring to light elements of Hegel’s thought, especially relevant to his dialectic, that had been overlooked. The word “Plastizität” entered the German language in the 18th century, just prior to Hegel’s published work, at the same time “plasticity” and “plasticité” entered English and French, respectively. All three words are derived from the Greek plassein, which means “to model,” “to mould.” “Plastic,” as an adjective, means two things: on the one hand, to be “susceptible to changes of form” or malleable (clay is a “plastic” material); and on the other hand, “having the power to bestow form, the power to mould,” as in the expressions, “plastic surgeon” and “plastic arts.” (59)

Malabou locates Hegel’s concept of plasticity as appearing in three “areas of meaning”: The “plastic arts,” “plastic individuality,” and “philosophical plasticity.” The plasticity of art will be most relevant for the unfolding of this dissertation, and was discussed in the Chapter 1 in reference to Kant’s analysis of art in his Critique of the Power of Judgment. The exemplary plastic art, according to both Kant and Hegel, is that of sculpture: a material is moulded by the artist, both receiving and retaining its form. Other arts (and design) such as painting, drawing and architecture are also commonly consid-
tered plastic arts in this way within aesthetic discourse. This determination of
glacial plasticity is the most material of the three, and will be essential in scoping the
workings and effects of prostheticity on the world and future through design.

On the other hand, the Hegelian notion of plastic individuality seems
at odds with the philosophy of design we have been articulating, one that
allows for the plastic and metabolic processes of nature-becoming-tool
and prosthesis-becoming-consciousness. Hegel articulates the concept of
“plastic individuality” by reference to exemplary Greek individuals such as
Pericles, Phidias and Plato:

They are great and free, grown independently on the soil of their
own inherently substantial personality, self-made, and developing
into what they (essentially) were and wanted to be. (9)

This kind of characterization would seem at first glance to be the very
epitome of a “vulgar idealist” discourse. The Greek men are “grown inde-
pendently” from their “inherently substantial” personality, and develop into
what they “essentially” were and wanted to be. Hegel’s work takes its place at
both the pinnacle and the twilight of over two millennia of idealist thought,
coming on the heels of Marx’s soon-to-come transformation of the Hegelian
dialectic. There seems little room given here for a materialist conception of
plasticity to develop; nonetheless, this is what Malabou will achieve, once she
is able to elicit its emergence and extracts it from its Hegelian home.

The final arena of meaning for Hegelian plasticity is philosophic, referring
to the philosophical attitude. As Malabou describes, its plasticity designates:

primarily the ability of the philosophizing subject to attend to the
content, the ‘matter at hand’, by purifying the form of all that is
arbitrary and personal, all that is immediate and particular….The
philosophical reader and interlocutor are of course receptive to the
form, but they in their turn are led to construct and form what they
hear or read. (10)

This is a process of self-determination: the philosophical reader, a con-
tingent individuality, encounters the universal (substance), and in doing so
they give form to each other in and as the unfolding of the substance-subject.
This process, extended beyond these three arenas of meaning, connects the
dialectic, temporality and plasticity in what Malabou sees as “…nothing less
than the formation of the future itself.” (12)
Going the (un)Usual Way: Habit

Here we go again…getting ahead of ourselves. Before future arrives and en route to Hegelian “plastic individuality,” we must develop a habit, the material and corporeal basis of plasticity. Simply put: “If an external change is repeated, it turns into a tendency internal to the subject.” (70) However, we need not wait for a conventional subject to emerge prior to the processes of habit taking place. This will happen in any organism—plant, animal or human—living, as Hegel says, “with itself as its own end” and which must “preserve within itself the unity of the self.” (58) Preservation is a form of repetition of the same within change. The living organism is “nothing but the reduction and condensation of the elements of its environment: water, air, the molecules of nitrogen and carbon.” (59) The effort of this “contraction,” through which the organism maintains its integrity from the environment and from the heterogenous elements from which it consists, is the work of habit. What results is *habitus*, which is “at once the internal disposition and the general constitution of the organism.” (59)

In the case of the animal organism, Hegel will see this contraction of “the divided nature of the inorganic” synthesized “into the infinite unity of subjectivity.” (60) However, the non-human animal “does not have the power to actualize within itself the genus in its true form.” Only the human animal, according to Hegel, is able to “perfectly able to present the genus.” (qtd. in FOH, 23) Malabou goes to considerable length in explicating this process, taken from Hegel’s *Anthropology*, whereby “originary substance, leaving behind the natural world, progressively differentiates itself until it becomes an individual subject.” This process takes place in three stages, roughly corresponding to the infant child’s self-identity, adolescent rupture and the return in maturity to unity. (28)

*Being-there as animal and human*

Hegel’s concept of soul, as mentioned earlier, is an Aristotelian one, being “in some sense the principle of animal life” (*CWA*, 1405) It is an “original vitality (prior to the sundering which introduces particular forms) which has not yet arrived at the stage of division which characterizes particular forms.” (FOH, 29) However, in its encounter with substance soul is “reflected into itself” and thus differentiated, as being-there, as *Dasein*. Approaching the anthropological, it first becomes specialized as “nature-governed spirits,” such as in the “diversity of races;” then as “local spirits” evident in “outward modes of life and occupation…but still more in the inner tendency and capacity of the intellectual and moral character of the peoples;” following which soul is “differentiated into an individual subject.” (30)
This formation of individuality instigates a crisis: as the “self” moves in the direction of its own formation, it also finds itself “dispossessed of itself,” alienated even to the point of “madness.” In the process, “the soul is singularized as an individual subject,” becoming Ego, and capable of experiencing alterity in its relation to itself, a “unity of identity and difference.” (31) This is a process of differentiated and determinate embodiment. Malabou cites an example provided by Hegel that can clearly illustrate this process in something we all experience:

On waking we find ourselves at first only quite vaguely distinguished from the outer world generally. It is only when we start to have sensations that this difference becomes a determinate distinction. (32)

Thus begins a “translation into corporeity,” created from a “relation between soul and body” in encounter with the world—a relation which we can understand as habitual. A repeated instance, in this case, of waking up to the world inscribes, by habit, the emergence of self as a “reflective totality.” From this point on, Malabou states, “the soul is, on its own account, both substance and subject.” (33)

Body and Soul
Substance further auto-differentiates to produce an “immediate individuality,” understood as a relation between individuality and “its own personal being, its own “Self.” Through this self-solicitation the individual becomes a subjectivity, promising unity in the relation between same and other. However, “it is this very dialectical structure of identity and alterity which, constituting itself, immediately causes its own dissolution.” Subjective consciousness and understanding bring with it the very possibility that it may “once again sink into the abyss.” (33–34)

Unlike in the case of the animal, body and soul of the human do not form “a simple ideal unity.” There is an inner and an outer. The outer functions like “an organ” to make the inner visible as a “being-for-another,” in the process becoming sign whose consequence is to “place the individual at the mercy of the gaze of others.” On the one hand, she feels itself to be the “inner individuality and not its expression”; and at the same time, “something external, a reality free from [and thus different than] the inner.” (66) Human habitus, as Malabou summarizes, “signifies the fact that it signifies nothing.” (67) “Spirit…is that which originally terrifies spirit.” (68)
Enter: Habit

There are two forms of subjective illnesses from which the individual may consequently suffer: one that are caused through the soul not having a relationship to anything but itself (which Hegel terms diseases of “tautology” or forms of “idiocy”); and ones that arise out of the soul’s ability of building a persisting relationship to itself as an identity (diseases of “heterology” or forms of “alienation”). Both of these diseases develop out of the soul’s relationship with a “phantasmic alterity,” the soul’s “primary magical relationship.” The individual feels as if it is being controlled by an “other” and deprived of freedom. (34)

Although the “Self” is already constituted as a self with particular feelings, it still needs a structure capable of accepting alterity within itself. It is still susceptible to disease “to the degree that corporeity and spirituality cannot be fully distinguished.” As Malabou summarizes: “The form needs to be the content of all that it forms: subjectivity does not reside in its own being, it ‘haunts’ itself. The soul is possessed by the possession of itself.” (34)

Habit liberates, emerging through a process of dialectical sublation. The soul, in making itself into “an abstract universal being,” also exposes itself to the threat of madness. Unity is then restored by reducing its particulars of feeling and its consciousness to “a mere feature of its being.” The abstract universal being is transformed into a singularity made actual. Hegel remarks:

In this manner the soul possesses the content, and contains the content in such manner that in these features it is not active as sentient, nor does it stand in relationship with them as distinguishing itself from them, nor is it absorbed in them, but as having them* and moving in them, without feeling or consciousness of the fact. (Hegel, qtd. in FOH, 37, italics mine)

When freedom comes it is in the sphere of habit…. Here the body is no longer a foreign being, reacting belligerently against me; rather it is pervaded by soul and has become soul’s instrument and means; yet at the same time, in habit the corporeal self is understood as it truly is; body is rendered something mobile and fluid, able to express directly the inner movements of thought without needing to involve thereby the role of consciousness or reflection…. (Hegel, qtd. in FOH, 36)

The psychic and the physical have interpenetrated each other, and “corporeality is rendered completely pervious, made into an instrument.” (Hegel,
qtd. in *FOH*, 38) With this contraction of habit a “second nature” emerges.

We see, therefore, that in habit our consciousness is at the same time present in the subject-matter, interested in it, yet conversely absent from it, indifferent to it; that our Self just as much appropriates the subject-matter as, on the contrary, it draws away from it, that the soul, on the one hand, completely pervades its bodily activities and, on the other hand, deserts them, thus giving them the shape of something mechanical, of a merely natural effect. (Hegel, qtd. in *FOH*, 70)

The subject disappears into its habits under the influence of repeating practice, the psychic interpenetrating the physical through a consummately plastic operation for which “art is the paradigm.” (69–70) In the work of art as in the plastic individual, spirit becomes visible and embodied, bestowing form because it is formed. What both signify, precisely, are themselves as singular subjects. Style is the mode in which this happens; style is not transparent, it is embodied; it is a display of “substance universalized,” but in a way that has been concretized as individual instance. (71) What is concretized in style is the accidental; through repetition the accidental becomes habitual and thus essential. As Malabou states, “In truth, what is exemplary about man is less human-ness than his status an an insistent accident….Effected by habit, the singularity of the ‘plastic individual’ becomes an essence *a posteriori*. The process of habit ends by canonizing being’s improvisations on its own themes.” (73–74)

*Cruse Control*

This *a posteriori* becoming of essence through habit enables teleological accomplishment, collapsing distance between aim and realization and which makes it possible “to see (what is) coming.”

When nature passes over to its second nature, this implies… that “natural time”—the simple exteriority of moments linked to one another as if in a pure linear sequence—is interiorized and acquires a totally different shape. Subjectivity, henceforth capable of appropriating difference to itself, now appears as what it truly is: the originary synthetic unity linking its determinations and, at the same moment, putting them into sequential form. (38)

Through habit and the motor of plasticity, Hegel has linked Aristotelian and Kantian temporalities into a mode of being and becoming that takes on a specific shape: *to see (what is) coming*. Through contraction, habit keeps in
reserve a kind of future time which, Malabou asserts, “runs ahead of presence...even though presence is logically prior to it.” (50) This is enabled by the virtuality of habit, which is “what is never exactly ‘here.’” (55) Three kinds of time are contained in this virtuality. As habit virtually exists prior to “being put to work,” it is past; as it is itself a mode of presence, it is virtually present; and as it rules the direction of an action that is to come, it engages future. This running of the virtual as a kind of “speculative clock” allows the future to be brought forward toward the present while, at the same time, being postponed. This is the meaning of **fore-sight**. (56)

**Running on Vapours**

If we return now to our original conception of habit as it forms in the simple organism, we may be able to reveal the Janus-faced quality of habit. If the living organism is nothing but the “reduction and condensation” of the inorganic elements of its environment (59), which is the work of habit in the effort of preservation, we can understand the temporary nature of habit which, in constituting itself, opens the organism to death.

By collapsing the distance between aim and realization and enabling teleology, habit is a force of death. As long as we are pursuing the achievement of an aim, we maintain our vitality. As we become habituated to life, we also become “spiritually and physically blunted.” (Hegel, qtd. in FOH, 76) With accomplishment—or the foreseen inevitability of it through the force of habit—we lose interest, render the achievement “null and void,” and are that much closer to death. (76)

We have followed this process of becoming-habit closely, from the instance of the organism to the “plastic individual.” This would be mere psychology and useless for the purpose of this dissertation if it weren’t for the scope of the Hegelian dialectic which Malabou analyses. Its broad parameters are those of substance self-differentiating, acquiring a plastic character both universal and individual, in a movement of spirit becoming concrete and actual. This process of self-differentiating need not be restricted to human subjectivity; it can also apply to “a nation, an artistic epoch, a philosophy....” We name the age of the Anthropocene, for example, *a posteriori* to signify a retrospective past and continuing present in which we have become the *force majeure* destabilizing geological, and consequently, biological ecosystems; at the same time we reach for a future to bring toward the present, as the IPCC’s scientists have been doing for over twenty years in modelling future catastrophic climate change. Should we chose to, this future is something we can postpone. It will require of us a *change of habits*. 
Retracing the Path
As the privileged motor scheme of the modern era, the Hegelian dialectic has appeared as a progressive movement of history, driven by sublation and fulfilling itself into the future. The comprehension of the moment of its finale in Absolute Knowledge, when Spirit will have fully entered history and time itself would stop——has been hindered, precisely due to its articulated framework. Prior to the final determination of Spirit as Absolute Knowledge, understanding is condemned to be misunderstanding, informed by a process yet incomplete. With the rigid teleological structure this misunderstanding enabled, all manner of human misdirection was justified in advance. The rising inequality contemporaneous with the age of capitalism was not redeemed by a future of material prosperity for all, but was instead characterized by increasing inequality. Stillborn communist revolutions did not lead to a classless society, but to oppressive tyrannies; the increasing extraction of natural resources is not leading to a technological wonderland, but instead to a metabolic rift between homo sapiens and Earth so great that some consider a move to Mars to be a viable solution.

The reading of plasticity in the work of Hegel by Malabou provides us with a corrective. Hegel planted the seeds of plasticity that only became visible and viable at the dusk of the modern age. It has been necessary, even essential, to take a retrospective look at the Hegelian dialectic. We find its future compromised by its incomplete determination, and must now insert the spark plug of a new motor scheme back at the beginning, when its engine was idling with misplaced promise.

Malabou follows the structure Hegel articulated in his Philosophy of Spirit “which leads from the ‘sleep of spirit’—the ‘passive νσυς’ of Aristotle—to the ‘intelligence which thinks itself.’” (19) Invoking Heidegger’s onto-theology, she proposes the triad of “Man, God, Philosopher” as “steps” within the above trajectory, advising us, however, that

...in fact, Man, God, Philosopher....are the plastic instances where the three great moments of self-determination—the Greek, the modern, and that of Absolute Knowledge—give themselves the ‘form’ of moments, in other words, where they create their own specific temporality. (19)

Given our concern to reshape future from the standpoint of homo faber, we will proceed in reverse in order to reshape Man in an explosion of plasticity. If Hegel begins his construction of the concept of plasticity from the plastic arts to the plastic individual in order to arrive at philosophical plasticity, (9)
we start with the last term in the order—the Philosopher—to eventuate in
the reconfiguration of first term—Man—in order that we may explore the
plasticity of (his) making, in the image, prostheticity and design.

*Motors and Motor Schemes*

In her book *Plasticity at the Dusk of Writing*, Malabou reads philosophy through
the notion of “hermeneutic motor schemes.” Even though she approaches
each motor scheme conceptually, the body of the philosopher is not far be-
hind. In a footnote explaining her choice of the phrase she cites Bergson,
who “defines a motor scheme as the physical coordination that prepares and
precedes movement, the preinscription of action in the body, a set of kines-
thetic sensations.” (88)

Malabou’s translator, Carolyn Shread, suggests in her introduction to the
book that we can think of motor schemes simply as “conceptual engines.”
(xxviii) If, however, we are to traverse our reading of Hegel in reverse, begin-
ning with the philosopher and culminating with *homo faber*, the maker of tools
and images, we should elucidate the conceptual motor scheme with what we
find materially on the ground. In Malabou’s words:

> A motor scheme, the pure image of a thought—plasticity, time, writing—is a type of tool [that]...gathers and develops the meanings and tendencies that impregnate the culture at a given moment as floating images...a material “atmosphere” or *Stimmung* (“humor,” “affective tonality”). A motor scheme is what Hegel calls the characteristic of an epoch, its style or individual brand. As a general design if you wish, the movement of a whole is an initiating process for action or practice. (14)

In her intent to clarify this concept, she leaves the door open for its appli-
cation to a wide swathe of material culture. Nonetheless, as a philosopher she
further articulates the concept as a philosopher would, applying it not only
to her Hegelian-derived concept of plasticity, but as well to Hegel’s dialectic,
Heidegger’s Destruktion, and Derrida’s deconstruction. All are complex con-
cepts that Malabou analyses as broadly influential—“of their time”—within
the discursive frameworks of philosophy. The shifts of meaning they embody
are, at least implicitly, justified through the Hegelian dialectical framework of
the self-differentiation of Spirit as it moves through history. What is unclear is
how these motor schemes relate materially to a “style,” “brand” or “general
design” of their respective epochs.
The Boots of the Philosopher

These highly fecund—or productive—philosophical motor schemes of dialectic, Destruction and deconstruction refract in materially consequential ways when the “boots hit the ground.” I have already alluded to how the motor scheme of Hegelian dialectics fuelled the misconception of a “progressive” movement of history, which was compounded by the energy that was beginning to be unleashed at the time of Hegel’s writing as the Industrial Revolution was getting underway. One can only cringe as a philosopher when considering what was unfolding on the ground, with Heidegger’s blessing, as the motor scheme of Destruktion was getting underway in Nazi Germany, culminating with the “question of technology” the nuclear age brought back to Heidegger’s later thinking. What can we say of the more recent motor schemes of deconstruction and plasticity?

On a philosophical level, Derridean deconstruction provided the absolutely necessary tools to interrogate the complicity of metaphysical thinking in the political and cultural aporia that Western culture had become. Derrida came of age in the early years of the nuclear age, and died following the triumph of neoliberalism and in the shadow cast by the rise of radical Islam in the collapse of the Twin Towers. By that time, the consequences of what had been unleashed by industry beginning around the time of Hegel’s writing had been foreseen by the scientists of the IPCC. The “apocalyptic tone” had extended its reach fully from the motor scheme of philosophy to that of material society.

In the philosophical and literary world, the era spanning Derrida’s oeuvre became obsessed with “theory” and unmitigated textuality. As the modern turned postmodern, the spectacle turned simulacrum, the signified lost ground to the signifier and the “real” vanished—until it returned with a vengeance with the news of human unsustainability. In the world of technics, the “disruptive technologies,” first of the computer and then the Internet, were adopted globally with the speed of a spreading virus—and the “global village” it promised just as quickly was subsumed by Capital and the “new new world order” inaugurated by the second Bush. (Drezner 2007) The hypnotic flickering of the radiated light of the communal fire was fully replaced on a 24/7 basis by the fully corporatized light flickering from cellular phones, computer monitors and the malingering television screen.

The Destiny of Plasticity

Whither the destiny of the motor scheme of plasticity? Pharmacologically, we can hope for the best but expect the worst. The philosophical concept
of plasticity that Malabou has articulated so forcefully in *The Future of Hegel* has its *bête noire* in the concept and applications of flexibility, addressed in her book *What Should We Do with Our Brain?*

What should we do so that consciousness of the brain does not purely and simply coincide with the spirit of capitalism? We will formulate the following thesis: today, the true sense of plasticity is hidden, and we tend constantly to substitute for it its mistaken cognate, flexibility…. flexibility is the ideological avatar of plasticity—at once its mask, its diversion—and its confiscation. We are entirely ignorant of plasticity but not at all of flexibility. (12)

The plasticity of the brain was discovered by the makers of advertising long before its articulation by neuroscientists or philosophers. It was put to work by Freud’s nephew Edward Bernays based on his uncle’s theory of the unconscious, who exploited the as yet uncodified plasticity of the brain in the service of corporations on a massive scale beginning shortly after the First World War, with the latter’s founding of the field of public relations. The discovery of human pliability is nothing new; the systematic manipulation of brains via the powerful technologies of radio, television and now the Internet is, however, new to the twentieth century. The invisible algorithmic control of how the sensible becomes distributed on our screens is new to the twenty first century.

The body—and the species—is plastic as well. With the threat of ecological collapse, the difficult and ethical work of ecological care is liable to become hostage to the capital-intensive development of cyborg technologies and genetic engineering. The transition from human to posthuman is now being discussed, not merely in theoretical terms but as a practical endeavour. (Bostrom 2002) What would this mean, exactly?

We have explored the prostheticity of the human articulated in the work of Stiegler, whose assumption is, that since its first appearance, the human was already not simply tool maker but, at least to a significant degree, *tool itself*. If we are already cyborgs, what does it mean to become posthuman? First and foremost, that we are plastic beings, capable of thinking and acting not only on the other side, but on the outside of human interests. The pharmacological effects of the philosophical motor scheme of humanism are not far away.

It is time to see what we can do with the motor scheme of plasticity in order to counter its “ideological avatar,” flexibility. As Malabou states, “[t]o be flexible is to receive a form or impression, to be able to fold oneself, to take the fold, not to give it.” (2008, 13) To be plastic is to be to an “agency of
disobedience to every constituted form,” and to maintain a right of refusal for any model of the human or posthuman not agreeable to our being. (10)

Absolute Plasticity
When Kant pitched the tent of his Transcendental Aesthetic, he enclosed all that could be known by reason inside the folds of space and time, exiling religion to the Great Outside. God, or the thing-in-itself could be known only through faith or belief. This gesture by Kant created the level playing field necessary for Enlightenment science and rationality but placed all thinking of the Absolute, the spectral, and the yet-to-be beyond reason’s reach. As Hegel states:

Reason, having in this way become mere intellect, acknowledges its own nothingness by placing that which is better than it in a faith outside and above itself, as a ‘beyond’ to be believed in…. (qtd. in FOH, 109)

Hegel, like today’s speculative realists, sees this as a loss, and sought to return the thinking of the absolute back to philosophy, as a step in the self-determination of Spirit. In order, then, to elucidate the middle term in the triad, Man, God, Philosopher, Malabou devotes a considerable portion of her book to Hegel’s thinking on religion. By doing so, the religious concepts are given philosophical significance and, having been sublated, may drop away. What is ultimately left, as we will see, is the Absolute in the form of plasticity.

The Two Temporalities
The key shift in temporalities for Hegel is between the Greek and the Christian (or “modern”) eras. Since the first term in Hegel’s triad is “Man,” he starts with the Greek “plastic individual,” in the exemplary form of Greek sculpture. As we look upon these individualities sculpted plastically in and of marble, we find not the contingencies of the subjective, but rather, the incarnation of the spiritual and universal within and as the material world of sense. As Hegel noted, “[t]his sense for the perfect plasticity of gods and men was pre-eminently at home in Greece.” (FOH, 9)

Yet in this plastic relationship between gods and men, considered as moments in the historical self-differentiation of Spirit into substance-subject, it is substance, the universal, which is the privileged term. Spirit must await the Christ-event—the incarnation of the universal within the contingent life of an individual—for the substance-subject to arise. This event introduces, for Hegel, the principle of ‘spiritual inwardness’ that constitutes modern
subjectivity. This change from *substance-subject* to *substance-subject* is, most importantly, a shift in temporalities from an originary Greek teleological and circular time, in which the end and the beginning can be identified and thus anticipated in a *to-come*; to a time following the singular Christ-event that is linear and non-recurring. It is, as Malabou states, “[t]he time which makes history turn which itself does not turn or return.” (116)

It is the sublation of these two temporalities that will, in time, produce “Hegel’s God,” Absolute Knowledge.

**Alienation and Representation**

There is no escaping the Christian onto-theological idiom in which Hegel philosophizes when analyzing the “modern” Christian era. We should understand these concepts as aspects of universal substance—forms or modalities of time—that are incompletely differentiated aspects of spirit which will be further sublated.

The most important of these theological concepts for our purposes is that of *kenosis*, which Malabou defines for our purposes as follows:

‘Kenosis’ means the lowering or humbling of God in his Incarnation and the Passion. The word ‘kenosis’ derives from the Greek κένωσις (from κενός, empty) which means shedding the skin, annihilation, pulling down, and from the Pauline expression ἐαυτὸν ἐκένωσεν (Letter to the Philippians, 2, 7): Christ ‘emptied Himself of Himself’, which the Latin translates as *semet ipsum exinanivit*….Luther translates κένωσις as *Entäußerung*, literally ‘the separation from the self through an externalisation’. (FOH, 82)

Hegel continues to use Luther’s concept of *Entäußerung* as “divine sacrifice,” but he interprets this as God’s “becoming other,” introducing the notion of “the alienation of the divine.” For Christ, kenosis signifies the voluntary privation he undergoes through the event of Incarnation and in the humiliation of his death. For the subject of religion, the believer, *Entäußerung* as alienation situates the believer’s relation to God as one of separation. (92–93) Kenosis “finds its ultimate conceptual expression in the Aufklärung’s [Enlightenment’s] philosophical categories,” (111) translating the divine kenosis of God, becoming the crucified and resurrected Christ, to this speculative concept: “In it, the simple being of substance ‘alienates itself’ from itself, yields to death, and thereby reconciles absolute essence with itself.” (107)

Fundamentally, kenosis produces, through its shedding of itself, an alienated other, which provides the conditions for representation, *Vorstellung*. 
The “I=I” of Descartian subjective certainty—a founding Enlightenment gesture—likewise opens up this space. “To the degree that it posits its object outside itself and thus alienates itself in it,” Malabou comments, “representation is the kenotic ordeal of thought.” (112)

*The Final Frontier*

This alienation of the subject in the modern epoch is decisive for the future and the image. In alienation, the subject “sees itself coming” in the form of an other. Future—what is coming—is dependent upon representation outside ourself, whether in the form of lover, state, machine, image or idea. Hegel understands this “modern” era as beginning with the kenotic ordeal of Christ and “sees (what is) coming” while stationed in his own era, peering into the future. For Heidegger, prior to becoming “picture,” world is simply “that which is…the *ens creatum*.” It is the *systematic*—as found in Hegel as well as in Leibnitz, Kant, Fichte and Schelling, according to Heidegger—that provides the “unity of structure” necessary to produce the world as “brought before one as the objective.” (Heidegger 1977, 141)

“We get the picture” concerning something does not mean only that what is, is set before us, is represented to us, in general, but that what is stands before us in all that belongs to it and all that stands together in it—as a system. (129)

It is evident that the Hegelian “modern” has a far longer timeline than that of Heidegger’s “modern,” which is itself longer than the era of “Modemism” in art and design historical discourse, which only begins in the late-19th century at its oldest. By placing the birth of the modern at the birth of the Christian era, Hegel is able to “see (what is) coming” beyond the Heideggerian horizon of the “world as picture.” If we were to review prior shifts in temporalities in relation to what Hegel proposes—such as that between the modern and the postmodern (which seemed so consequential to some), pre- and post-twentieth century, the times prior to and after the beginning of the Industrial Revolution, etc.—we may be able to imagine the magnitude of what the sublation of the Greek and the Modern temporalities into Absolute Knowledge may bring—not that it is in any way preordained, nor that it would be recognized in its present as a consequential event. What it may help achieve is an overcoming of the apocalyptic thinking and discourse of the Anthropocene; or at the least, as Malabou puts it in the closing words of *The Future of Hegel*, an invitation “to enter into the serenity and the peril of the *Sunday of life*.” (193)
Divine Plasticity

What forces, what specific moments of self-differentiation, would bring about this sublation of two temporalities…and what does it look like? The first question responds to the movement of linear temporality, allowing us to probe what remains to be done, in order that we may set the stage for the unanticipated that is to come. The second responds to the teleological schema where the beginning is already the end, and the end the sublated form of the beginning. Its operative form is that of the image, which is both in time and out of time at once.

In order for this sublation of two temporalities to take place, the kenotic ordeal that inaugurated modern temporality must have had to travel all the way to kenotic self-sacrifice in order to bestow on itself its ultimate meaning. Has the modern moment by now “exhaustively completed its route?” (112) Is our insistent unsustainability a sign of self-sacrifice or evidence of our lack of awareness of the same? Billions of years ago, an earlier thriving species, cyanobacteria, caused the extinction of almost all life on earth through their toxic respiratory excretions—oxygen—which left an atmosphere conducive for the evolution of animal life such as ourselves. We have, in turn, set the stage for the next great extinction. (Walter et al.) Will we call this self-sacrificial? It is not. What will be called self-sacrificial for us, in the Hegelian sense, is a self-aware sublation of historical temporalities toward a future of plasticity. It will happen, as Hegel states in the Encyclopedia:

…only in proportion as the pure infinite form, the self-centred manifestation, throws off the one-sidedness of subjectivity…that it is the free thought which has the infinite characteristic at the same time as essential and actual content. (qtd. in FOH, 127)

It will happen as the sublation of sublation itself: the Aufhebung turns into its other as it preserves itself as absolute plasticity. Sublation, in its process, sublates what is other than itself, and thus remains relative. To culminate in Absolute Knowledge, the sublation of sublation must therefore be an an abrogation or, in German, Aufgeben rather than an Aufhebung, a giving up or letting-go rather than a preserving and overcoming. Malabou explains:

To the degree that it acts as a sublation which has been absolved and made absolute, abrogation describes the dual process of suppression/preservation. Yet the process of suppression/preservation it describes is one that has been detached from the subject–object relation, one that has been liberated from the
instance which had traditionally claimed to be its master while in reality being its subordinate, its derivative. (156)

With this sublation-abrogation comes the end of history—but not the end of all time. Malabou argues that the end of history “does not mark the end of all sudden and new appearances,” and that the sublation only applies to the “time which lies ahead.” (128) It is a new form of temporality that arises from the ashes of the Greek and Modern, which “marks the emergence of a new era of plasticity in which subjectivity gives itself the form which at the same time it receives.” (133) It is a time of metamorphosis, not stasis, arriving once the subject-object gap has been suspended in the process of “becoming-fluid.” The liberation of energy which is released from the “transcendental perspective” that was sustained by the gap can now be directed for further metamorphoses:

A process of formation and of the dissolution of form, plasticity, where all birth takes place, should be imagined fundamentally as an ontological combustion which liberates the twofold possibility of the appearance and the annihilation of presence. It is a process which functions on its own, automatically. As such, it comes out of nothing; as such, it is the bearer of the future, if it is true that the future, by definition, comes from nowhere. (187)

The future, in other words, is absolute plasticity.

The Absolute In-Itself
What is the absolute, anyway? The absolute is nothing. The absolute is nothing, aware of itself as nothing. This is to say that the absolute is nothing, plus the self-reflecting animal, *homo sapiens*. The absolute, then is *something*, something in the mind of man.

Following Hegel’s logic, the absolute begins as Being, which is nothing. Being *is*, and only *is*; therefore it isn’t anything. Being *is not*. Being can only *become*. For being to be, it must become. (Hegel 2010, 59–60) What it becomes is immaterial, but it must become something, anything. Being is nothing becoming anything.

The absolute is the end of being. For being to end, it must become nothing. But being is already nothing, nothing becoming anything. The absolute, then, is nothing becoming anything. Absolutely anything. For absolutely anything to be, it must be something. The absolute, then, is no-thing, any-thing, and some-thing. It is thus, in effect, everything.
**Homo Plasticus**

We have now left the philosophical library, backed out of the Hegelian motor scheme and invited *Homo Plasticus* to get behind the wheel. Our destination: to the beginning again, to drop off the package of Absolute Plasticity and recommence our journey. This trip, we hope and expect, will take us further and be way more interesting than our previous sojourn. We’ve got more gas, and our load is lighter. There will be no highways. Our route will be challenging, but we will bring with us devices: devices to shape the roads on which we will be travelling; devices to capture and imprint the forms and experiences of our travel; and devices to explode the formidable obstructions that may stand in front of us, immobile, preventing our passage. We have our papers on hand—Aristotle and Hegel among them—in case we get stopped, or to fix the engine…but this is a different kind of journey, where papers may not be necessary. We’ve studied the maps. Now, we want to make inroads, into the future.

The final preparation for our journey will be to investigate our primary prosthetic device—the image, in its plasticity. We travel the world as image. We make our mark on the world through image. The world makes its mark on us through image. We make things disappear through the phantasm of the image. The image is our way.
Our aim is to understand how we may use the image in the material contexts of the designed image artifact in order to re-form our relationship with the future. Understanding plasticity—a key term used in aesthetic discourse—is a first step. Plasticity resides in the disciplines of art and design; it finds its home in the image. Malabouian plasticity, as articulated from within the Hegelian framework, may seem like a stranger knocking on our door. There is something monstrous about its abstraction, spectrality, and ambition. It could be anything. It shapes itself and morphs into what it is not-yet. It destroys for reasons we do not discern. It may be shaped, itself, by something even stranger. Do we let this stranger—these strange strangers—into our home?

“The home produces the stranger,” Christian Hänggi remarks in his book *Hospitality in the Age of Media Representation.* (Hänggi, 118) This phantasm of plasticity, strange as it may seem, is us—makers, shapers, sculptors, moulders, artists and designers. It is the prodigal son, unrecognizable to our eyes, returning to claim its inheritance. Do we let him in?

The legacy of plasticity may have begun to emerge from the aesthetics arena, but we should not be surprised to find it again at our doorstep in another form. We have always been aware of the power of our plastic operations in the tools we began to make and in the images we have painted upon our cave walls. Rulers, monarchs and priests have solicited our services and purchased our artifacts since time immemorial, even as they kept us at a distance. Our images at least got them thinking—perhaps out of a horror of what they surmised we could do with our plastic images: unleash strange gods and monsters, captivate and hypnotize the unsuspecting, lead people astray from the tasks they were told to perform. They said we were unreasonable.

Some of our skeptics became philosophers, and advised rulers that they,
The Future Is an Image

not us, were destined to rule. (Rancière 2004, 12) They told us that we were poets and makers—unfit for rule, but nice to have around. The rulers put us to work for various purposes: to extol their virtue, to embellish their their abstract visions, to commemorate their victories and to decorate their urns. We became good at what we did—very good indeed—and helped convince people of the resurrection of the dead and the life everlasting beyond. We learned to paint pictures of the life of a humble saviour and saints in order to teach people the virtues of humility and poverty. At the behest of others, we represented the dignity of the rich and arrogant, thus investing them with power over the humble and poor.

We learned to invest things with power too, like the fruit picked from the orchard, the game struck by gun, and widgets coming off the factory line. We created a world of luscious things and then—by the power of our images—taught people how to want them. We coloured a world becoming prosperous through the allure of things, and images of things. This has proceeded apace, and now we find ourselves locked into a world where desire is no longer plastic, but insistent, manipulable and foolhardy. Under the yoke of our leaders—kings, popes, robber barons and auction houses—our plasticity is now thoroughly contrived. We have painted ourselves into a pretty corner and may no longer be in a position to open the door.

It is time that we meet the stranger that is us, outside our door. It is the image in its plasticity. It begins as schema.

The Transcendental Schema

In order that we may experience and understand the world, we need both sense impressions and concepts of the understanding, and a means to connect them. This “third thing,” “homogenous” with both, is what Kant calls the transcendental schema. On the one hand it is simply a “doctrine” that he needs “in order to show how it is possible for pure concepts of the understanding to be applied to appearances as such.” (CPR, 210) On the other hand, it is something a bit more mysterious:

This schematism of our understanding, i.e., its schematism regarding appearances and their mere form, is a secret art residing in the depths of the human soul, an art whose true stratagems we shall hardly ever divine from nature and lay bare before ourselves. (214)

A schema, Kant states, “is, in itself, always only a product of the imagi-
nation.” But as its aim is not to inform an “individual intuition,” but instead to operate between the intuition and the sensible world, it is, according to Kant, not to be confused with an image. To illustrate, he uses the examples of a triangle and a dog. If a schema of a triangle were an image, it wouldn’t be adequate to the concept of triangle that will hold universally for all possible triangles. The schema of the triangle is, rather, “a rule for the synthesis of imagination regarding pure shapes in space.” (213) For Kant, an image would be even less adequate an object of experience:

The concept dog signifies a rule whereby my imagination can trace the shape of such a four-footed animal in a general way, i.e., without being limited to any single and particular shape offered to me by experience, or even to all possible images that I can exhibit in concreto. (213–214)

Kant’s initial exposition of a schema would appear, according to these clear examples, less a “secret art” and more a “doctrine.” However, once the schema is considered in relation to the architectonics of the Kantian transcendental aesthetic in the Critique of Pure Reason and in light of the “productive imagination,” it will take on a more peculiar force.

The Transcendental Aesthetic and Time
What is “aesthetic” in Kant’s Transcendental Aesthetic is the appearance and experience of the sensible world. There are two fundamental determinations of the aesthetic, viz., the “two forms of sensible intuition” through which we are able to experience the world: space and time. Space is a condition of the objective world: an object is “given to us” in space. “By means of outer sense (a property of our mind) we present objects as outside us, and present them one and all in space.” Time, on the other hand, is a condition of the subjective world: “there is a determinate form under which alone…we can intuit the soul’s inner state. That form is time.” (77) This is a far different kind of time than that of the series of “nows” that Aristotle articulated. It is, as Hegel characterized, a “pure form of sensibility,” something we live within, not something we merely pass through. As we explored in our last chapter, it is what enables the trace of différance to become, as Derrida remarked, the “sensuous figurality” of [Malabou’s] concepts of “plasticity” and “to see (what is) coming.” (FOH, xxi)

But Kant might say: not so fast! Just prior to the 1780 publication of the first edition of the Critique of Pure Reason, he changes his text in order to emphasize the power of the understanding over imagination in the “secret art”
of a transcendental schematism. According to Kemp Smith’s 1918 interpretation, this is due to “two persistent but conflicting interpretations of the nature of the synthetic processes exercised by imagination and understanding, the subjectivist and the phenomenalist”—two viewpoints that Kant “constantly alternates between.” (277) Kant’s initial view emphasized the phenomenological, whereby “transcendental imagination has a special and unique activity altogether different in type from any of its empirical processes.” In removing reference to the transcendental imagination, Kant yields to the view that “transcendental functions run exactly parallel with the empirical processes of apprehension, reproduction, and recognition.” (227) This would be in conformity with the Big Turn Kant is known for: namely, pitching the tent of reason, placing religion—and now the transcendental imagination—as part of the Great Outside.

The Transcendental Power of the Imagination

Rejecting this limit Kant placed on reason, Hegel begins with Kant’s notion of time and unfolds it through history as the movement of Spirit. This enables him to bring religion back into the tent through the speculative analysis of the kenosis of the Christ-event. In Faith and Knowledge he identifies this with the transcendental imagination, a point Malabou makes:

Hegel characterizes divine subjectivity as a schematizing faculty, and in so doing he applies in his own way the Kantian problematic of transcendental imagination…. (FOH, 125)

It was Heidegger, however, who put Kant’s feet to the fire. Acknowledging that Kant, in the Critique of Pure Reason, “rattles the mastery of reason and the understanding” that had been built up for centuries in metaphysical thinking, (KPM, 170–71) he accuses him of exiling the transcendental imagination he posited in response. Throughout the Critique of Pure Reason, Kant leaves breadcrumbs pertaining to the decisive role of the transcendental imagination, as triadic—consisting of pure intuition (viz., time), pure synthesis (enabled by the imagination) and the pure concepts of transcendental apperception. Yet, both at the beginning and ending of his book, he reduces this ontology to “two basic sources of the mind, sensibility and understanding,” which are the “two stems to our power of knowledge.” Heidegger continues:

This thesis corresponds as well to the bifurcation of the whole transcendental investigation into a Transcendental Aesthetic and a Transcendental Logic. The transcendental power of imagination
is homeless. It is not even treated in the Transcendental Aesthetic where, as a “faculty of intuition,” it properly belongs. (95)

Kant sees the transcendental imagination, as Heidegger does, as a “pure a priori imagination,” but the latter gives the a priori imagination a greater role: it “makes sensibility possible because it allows pure intuition to ‘catch sight’ of the ‘unified whole’ that is time.” (Piercey, 8) It is less a mediator between sensibility and the understanding—the “two roots”—than it is the unifying root of sensibility and imagination in and as the two stems. (8)

Heidegger allows Kant to put the final nail in his own coffin, as we shall see. “Possibility, existence [Dasein], and necessity can be explained in no other way save through obvious tautology if we intend to gather their definitions solely from the pure understanding.” (KPM, 171)

**The Schema and the Schema-Image**

Heidegger then begins to articulate the operation of schemata from the perspective of the transcendental imagination. By doing so, he is able to conceive of the relationship between the *rule of the schema* to a paradigm of the *schema-image*.

When I see a house, I experience the empirical “houseness” together with the rule which regulates its making-sensible according to the concept of the one-among-many houses. The rule remains veiled. However if I ask, in my making-sensible of the house, “what makes this a house?” the determinations which make the house this-here house seem to float away. Instead,

What we have perceived is the range of possible appearing as such, or, more precisely, we have perceived that which cultivates this range, that which regulates and marks out how something in general must appear in order to be able, as a house, to offer the appropriate look. (67)

We don’t experience what makes this house a house as a “listing” of a rule (unless that was our specific intent, e.g., as a student of architecture). Instead,

…it is a “distinguishing” of the whole of what is meant by [a term] like “house.”…Thus, in the empirical look it is precisely the rule which makes its appearance in the manner of its regulation.(67)

This unveiling of the rule by means of our question of the
houseness of the house is the “how” of its making-sensible, required of any experience of a house as a determinate entity.

This representation of a general procedure of the power of imagination in providing an image for a concept I entitle the schema of this concept. (Kant, qtd in KPM, 68)

Heidegger tells us that “the image-character necessarily belongs to the schema,” but “the character of the image” is the schema-image. This would be to say that the schema is the rule for how a concept manifests as image. The schema-image, instead, Heidegger states, has “its own essence” or character; it is not a rule. He states that it falls between the schema and the image, in that the schema-image is a possible presentation of the rule represented in the schema. (71)

One of the most important take-aways of this discussion is that the empirical and intuited “look” is not the primary determination of the image as experienced; rather,

In the representing of the rule of presentation [through the schema and schema-image], the possibility of the image is already formed [emphasis mine]…In fact, it is not images (immediate looks) of the objects which lie at the foundation of our pure, sensible concepts, but rather the schemata. (71)

Our finitude is centred in transcendence: we cannot experience the thing-in-itself, we therefore deduce the in-itself through transcendental deduction. This forms the necessity of schematicism. The concept, and the concept-becoming-image are therefore as fundamental to our lives as are the sensations we receive. And since the root of our power to synthesize concepts with empirical impressions lies in the transcendental power of the imagination, Heidegger can agree with Kant, and Kant with him, that “This schematicism is an art concealed in the depths of the human soul.” (71)

The Operations of the Schema-Image
We begin with time as one of the two pure transcendental determinations. In time, the self is constituted as self, in a synthesis of time. The self exists over time. This continuity is known as transcendental apperception. It is this self-in-continuity that experiences the world, viz., makes-sensible the objective world determined transcendentally in and as space. In the transcendental deduction, Kant shows the existence of the a priori in the form of universal categories of understanding, or pure concepts. In the making-sensible of the world, the subject, already unified in transcendental apperception, unifies—
or synthesizes—the manifold impressions of the empirical world with the pure concepts. The application of pure concepts to manifold experience is, for Kant, *schematism*. With Heidegger’s understanding of the transcendental power of the imagination as the root of the “two stems,” the “two basic sources of the mind, sensibility and understanding,” he considers schema in its relation to image, as schema-image. (95) (Pereboom 2014) It is this that we will be now looking at.

Heidegger begins §19 of his *Kantbuch*, “Transcendence and Making Sensible,” with this statement: “A finite creature must be able to take the being in stride.” To take-in-stride is to be open to an encounter with something, anything in the world. Beings must turn-toward the other in order to be perceivable. This allows a being to be “immediately capable of being taken in stride in intuition.” (*KPM*, 63) A finite being, to be perceivable, must also let itself stand against a horizon. Thus, the horizon itself must present itself as “a distinct offering...as a pure look.” (63) The finite being thus offers itself as intuitable in the form of “letting-stand-against” a horizon in the “look” of objectivity. It is, for Heidegger, the “pure power of imagination that carries out the forming of the look of the horizon...it provides for something like an image” (64) He clarifies this notion of image by providing an example, as in “the landscape presents a beautiful ‘image’ (look)...” (64)

The language Heidegger uses, which can seem so strange and obtuse, is responding to the Kantian transcendental framework with the emphasis on the imagination he insists upon. In the Kantian framework, as we know, we cannot experience things-in-themselves but only their appearance in the world in time and space. Nonetheless, we can deduce knowledge of the in-itself from the *a priori* categories, beginning with transcendental apperception of the unified self. As we noted, Kant understands the role of the imagination in this process, though he finds his ultimate stability in transcendental logic. Heidegger, on the other hand, understands the transcendental imagination as as the root of both sensibility and understanding. Thus, his language is inflected with a poeticizing logic. Hence, as well, his emphasis on the image and the schema-image:

The pure making-sensible occurs as a “Schematism.” The pure power of imagination gives schema-forming in advance the look (“image”) of the horizon of transcendence. (64)

Through his analysis he hopes to answer these questions:

What then is the character of what is intuitable in pure sensibility? Can
it have the character of an “image”? What does image mean? How is the look “formed” in the pure power of imagination, the pure schema, to be distinguished from images? And finally, in what sense can the schema be called an “image”? Without preliminary interpretation of this phenomenon of making-sensible, the schematism as the ground of transcendence remains veiled in complete darkness. (65)

Heidegger notes Kant’s use of the expression “image” as applicable to three modalities: the immediate look of a being at-hand, the likeness of a being not at-hand, and the look of something in general. The first modality he describes as such:

The best-known way of creating a look (giving an image) is the empirical intuiting of what shows itself. That which shows itself here always has the character of the immediately seen particular (“this-here”). (65)

The second modality is a likeness, as in a photograph (as well as in a death mask, in his exposition). The being is no longer at-hand: I can no longer intuit the being in the empirical world, but I can procure a representation of it, as in a photograph or sketch. The third modality of the image is inextricably related to the first two, but relies on the transcendental understanding through a concept: the photograph is not simply a likeness of a thing not present, but it is also something at-hand itself, a photograph. This photograph, like this or that being, is generally of a kind. As such, and like the very self unified through transcendental apperception, it may be experienced as a unity, and as a one-among-many—an instance of a transcendental category. I may think myself unique, I am one among many who, through transcendental apperception experience their self as such. Kant and Heidegger also rely on the example of a house (as well as dog, as we noted earlier). Any house or dog, for instance, can no longer be seen as a “repraesentatio singularis;” it will always be seen as a “unity applicable to several,” “the rule governing the specific making-sensible.” (68)

**Becoming Image**

What is necessary now is to understand how this transcendental schema-image of the imagination winds its way from its enclave of the subject-in-time to the social and material territory where it becomes artifact, and that exists in a place where it may be encountered, seen, shared with others and open to
change through cultural practices, necessities and desires—and in a way that
allows us to create a future with a future. Auspiciously or portentously, we will
begin this journey with a pit-stop at the altar of Nihilism, to be advised of the
road conditions ahead:

What I relate is the history of the next two centuries. I describe
what is coming, what can no longer come differently: the advent
of nihilism....For some time now our whole European culture has
been moving as toward a catastrophe, with a tortured tension that is
growing from decade to decade: restlessly, violently, headlong, like a
river that wants to reach the end… (Nietzsche, 1967, 3)

Our trip will be, if nothing, eventful. Visibility will be difficult with no
sure differentiation between the road and the abyss. Nonetheless, we will need
to move forward endlessly, winding around slippery hairpin turns, with no
secure destination.

The Image and Change

Metaphysics once tied itself to eternal substance, which is to say, to the infinity
of God. With Kant, this “substantial” orientation to metaphysics was, in part,
overcome: Kant shifts the problem of “thinking God” to a finite problem of
how we can, from the transcendental limit, deduce concepts and synthesize
them with empirical intuitions. Substance hangs there, like rotting fruit on a
tree, beyond our grasp, accessible by faith alone. Hegel contrives a ladder to
be placed under the fruit, using speculative thinking to reach, once again, the
Absolute. The hunger for substance was so great that, even though its fruit
was now reachable, the people mistook the the apex of Hegel’s contrivance
for the hanging fruit itself. The fruit falls to the ground, unnoticed and rot-
ting, whereby Nietzsche encounters the disgusting mess and calls the fruit
inedible. Inspecting it more closely in its half-formed state, invaded by worms
and by a panoply of other remarkable little critters, he scoops its festering
pulp in the cup of his palms and lifts it up further than Hegel’s ladder will
reach, and pronounces it good. Becoming becomes the new substance. With
Nietzsche, metaphysics transforms itself into change itself. Malabou remarks,
in *Heidegger Change*:

[Nietzsche]…is not seeking to renew the content of the “old schema of
hierarchy” but to metamorphose *(verwandeln)* the value of this schema
itself….schematism will henceforth, with Nietzsche, no longer simply
be a mechanism permitting the becoming sensible and figuration of
meaning, but a mechanism that also figures and schematizes itself. With Nietzsche, *schematism itself appears in its schemes*. The “philosopher-artist” puts to the proof the mutability of transcendental mechanisms and in the same move definitively displaces the economy and mode of formulation inherent to metaphysics. (Malabou 2011, 81)

The era of modernity—the modernity of the Modern, not of the Christian—is inaugurated in this emphasis on change and becoming. Substance is no longer the invisible essence at the heart of things, but *becomes itself becoming*. The relation between the true and apparent worlds breaks down, the partition having been removed by Nietzsche. Truth, becoming, becomes illusion; and as such is no longer invisible essence but essence turning around on itself; becoming visible as image.

**The Fantastic Image**

We are still, however, in the realm of the the schema-image—the synthesizing, spectral coming-to-be of the transcendental imagination. Its transcendental folds have yet to be ironed out into a consistent subject-space of self and object. In a double schematization, our imagining sets-forth as *world* and returns as *the other in us*. “As a sight or spectacle,” Heidegger remarks, “[t]he “genuine image…lets the invisible be seen and so imagines the invisible in something alien to it.” (qtd in Malabou 2011, 34) The uncanny infiltrates the familiar.

This is what Malabou calls “the fantastic.” In a post-Nietzschean epoch midwifed by Heidegger, essence is no longer the inner heart of things. Essence turns inside-out to become skin, the “new figure of being.” The fantastic,

…liberating the image of being as originary molting, reveals in the same instant the mutability of the figural, the antic mutability, that is, which responds to ontological mutability as though it were the latter’s echo or shadow…. (156)

This fantastic—*phantasmic visibility*—which we saw as arising in the Kantian metaphysical fissure between the understanding and the sensible, becomes another image, ultrametaphysically sutured on top of the first as an “imaginary point of convergence,” a place “depatriated” of concepts. (181) The Kantian fissure self-repairs, and the switch of the transcendental imagination is now set to overdrive.
The Image and Ontological Difference

There is not a break in the business carried on by essence, not a distraction. (Levinas 1981, 183)

Imagine the night, Levinas advises us. Not a night of fireworks, but its other. Imagine the things familiar to you—house, field, friend—drop away invisibly until the world is evacuated with beings, all beings. The world drops away, until there is nothing—except the humming of the there is. Being without beings, existing without existents. “There is no longer this or that; there is absolutely not ‘something.’ But this universal absence is in its turn a presence, an absolutely unavoidable presence. It is not the dialectical counterpart of absence, and we do not grasp it through a thought. It is immediately there.” (Levinas 1989, 30)

We are somewhere, unlocatable, with/in the ontological difference. It is nothing, but something persists. Levinas describes it in a series of phrases: “the mute and anonymous rustling of the there is,” “the excessive or disheartening hubbub and encumbrment of the there is,” “incessant murmur of the there is,” “murmurs in the depths of nothingness.” (Levinas 1989; Hand 1989)
The ontological difference produces the fantastic. It is the no-place where the schema becomes schema-image, becomes image—and, if we are able to trace the traces—becomes image artifact. We have to begin somewhere, and the best place is on the tip of nothingness.

For Levinas, Malabou tells us, the fantastic is “the mode of being of what does not exist…and thus of existing itself.” It is “reverberation of the schema in the real.” (PLH, 106) By imagining an existing without existents, a subjectless existing, we can imagine the fantastic. It is the presence of this absence that is the fantastic. (106)

Sartre has another way of viewing the same meta-phenomenon that may enable us to trace the path of the schema-image into the world. Unlike the theologian and philosopher Levinas, Sartre places himself, as existentialist, squarely within the world. His Talmud is psychoanalysis; through it, he finds it possible “to establish the way in which each thing is the objective symbol of being and of the relation of human reality to this being.” (108) Things—existents for both Levinas and himself—allows existence (what does not exist, i.e., Levinasian existing or Being) a material or objective appearance. He calls this the “the existential symbolism of things.”

In Malabou’s explication of Sartre in “Pierre Loves Horranges Lévinas-Sartre-Nancy: An Approach to the Fantastic in Philosophy,” she uses his example of the honey and the honey pot (found in the last chapter of Being
and Nothingness, called “Quality as a Revelation of Being”) to point to the way he attempts to redefine the schema. He begins the example by positioning “viscous” as “a valid ontological schema... which will interpret the meaning of being of all the existents of a certain category.” (qtd. in PLH 109) He continues with honey his viscous:

The honey which slides off my spoon on to the honey contained in the jar first sculptures the surface by fastening itself on it in relief; and its fusion with the whole is presented as a gradual sinking, a collapse which appears at once as a deflation (think, for example, of children’s pleasure in playing with a toy which whistles when inflated and groans mournfully when deflated) and a spreading out—like the flattening of the full breasts of a woman who is lying on her back. (109)

This image of “honey upon honey” is not merely subjective. It is the facticity of the world expressing a relation of Being to beings:

In the slimy substance which dissolves into itself there is a visible resistance, like the refusal of an individual who does not want to be annihilated in the whole of being... (Sartre 1992, 608)

It is not an issue of the schema making its way into the world, it is instead an ontological relation of being-in-the-world. The yellow of the lemon, Sartre points out, “is not a subjective mode of apprehending the lemon; it is the lemon.” (186) “We eat the colour of the cake....In this sense every quality of being is all of being...being is there as this.” (186–87)

Jean-Luc Nancy’s thinking of existence parallels Sarte’s, according to Malabou:

Existence is not thinkable, for Nancy, outside of a double structure, that of the “right on” (à même)—“an” in German—and that of the “being-caught-within.” To exist is being-right-on, like Sartre’s honey is right on the honey when its ecstasy takes it from the spoon to the pot. “The being of existence takes place right on existence,” Nancy declares. “There is no existentiale that is not immediately and as such caught in the existentiell.” (PLH 111)

It is easier than we might think to traverse the gap of the ontological difference.

**Honey in the Brain**

In attempting to think the difference between the image artifact found in
the world and the mental image we have of it, as well as the operation that assures its exchange across and throughout the borders of ontological difference, I brought in the term *imago*:

The imago shimmers, and is fecund. It shimmers in the crossings it makes, from artifact to brain and from past to future. It shimmers in neural transience, as networks begin to form. It is fecund, as in its shimmering it may be anything. It must be something or it will disappear. It will be recomposed as future, in artifactual production to come. Human conatus assures its promulgation, as the human perseveres in its being only as imago. (12)

The “shimmering” of the imago may suggest the speed by which the light travels in its journey between artifact and brain. The speed of light is a universal constant, and a standard by which we measure all things in the universe which travel only at speeds lower than this. In our everyday perception and cognition of the things in the world, we experience them in “real time,” as a passing “now.”

What if we were to consider the light, as reflected off the surfaces of things in the world, as “the honey which slides off my spoon,” and our brain as “the honey contained in the jar”? The light passes through the retina and the optic nerve, fracturing into a spectrum of signals colliding with the gelatinous mass that is the brain. Like an instantaneous bolt of lightning or a river carved in rock over millennia, sparks and cascades of activity are invested with energy and experiences. *A temporization occurs.* The image which hit me in the eye with all its force becomes honey sinking within the pot. In this collision of light with the geological, biological and noetic strata that is my temporary being, responses are generated—a Pleistocene arm reaches out and a finger probes the damp blood-red ochre, and colour (ex)changes place between rock and skin. *A practice is inaugurated, a memory formed.* The red ochre is spread onto the bodies of kin and the surfaces of stones and walls. The honey travels slowly, deeper into the pot, is passed through generations, is saved on surfaces and preserved tenderly within brains. Red seeps into cloth to make dresses and flags, is painted on metal to warn motorists to stop, and is inked onto cans and bottles to make soda pop. *Red has traversed a multiplicity of brains and an eon of time, after first reflected into a particular retina, nerve and brain. A brain is a sponge and a stamp. Light is refracted into time.*
IT IS NOW TIME TO ASK how we may design future. The future is never secure; it is more like a rambling road than a superhighway. On the latter, the interminable comes ever closer as we attempt to stay alert by whatever means necessary. On the rambling road, however, we project ourselves around each blind corner, forming a path that will take us farther, not without risk. What we have the occasion to see on the winding road is less a distraction than a stimulant that keeps us alert by providing us clues so that we may better see (what is) coming. Our luggage weighs upon us, lending more stability and giving us more to ponder—what we’ve seen on the roads behind, our accumulated experiences and the patterns they make. The future we wish to create requires ever more of us. We adjust our speed, and approach the curves ahead with a more portentous wonder.*

The Road Already Traversed

We began our journey at a dead end, facing a condition of unsustainability. We acknowledged that the combined material effects of human action in the world were creating conditions that, at some point on the road ahead, would make this world inhospitable for us. The human journey, as it is called, would end in extinction. Full stop. This is when we took out our maps, to figure out where we may have made a wrong turn.

*As with our Sumerian kin, we examine the world using every resource at our disposal. We see, sometimes, portentous signs that fill us with dread, omens of the gods. We know through these signs that it is the future that is at stake, and that we may act in ways that shepherd it forward. “Portend (v.) early 15c., from Latin portendere “foretell, reveal; point out, indicate,” originally “to stretch forward,” from por-(variant of pro-; see pro-) “forth, forward” + tendere “to stretch, extend” (see tenet). Related: Portended; portending. (OED)
Working backwards from our dead end, we know that the condition of unsustainability we face today can be measured in the concentration of greenhouse gases (GHG) in the atmosphere. It has been shown that GHGs have risen dramatically over the last 200 years. Although there may well be technological solutions to this problem, we understand through Stiegler, first, that technology is a *pharmakon*, creating new dangers with each new opportunity; and second, that cultural evolution takes place through *pharmacology*. Therefore, we need to take into full account the co-determination of technology with culture.

De Landa’s “nonlinear history” of Europe from 1000–2000 CE provided us a Deleuzian model informed by Braudel’s historical perspective that allowed us to understand this co-determination in terms of the interaction of non-hierarchical *meshworks* with hierarchical *strata*. It was the advantage secured by oligarchic wholesalers, who had emerged from the flat meshwork of markets early in the second millennium, that created the basis for the “anti-markets” enabling the constitution of capitalism. We traced this condition of social stratification back through Greece to Mesopotamia, the first civilization based on centralized agriculture, and one whose subjugating power was based upon the *pharmakon* of writing.

**A Brief History of the Future**

Time began when we *created it*, approximately 2.5 million years ago. Yearly, seasonal and daily cycles of nature provided the context for the development of a temporal sense. The first evidence of a temporal sense is dated to only around 100,000 years ago, and that only in the context of human burial, suggesting belief in an afterlife, which has followed us to this day. A material and progressive future emerged only around 250 years ago in the build-up to the Industrial Revolution. This sense of future peaked in the last century. We still retain a sense of a progressive future today, but increasingly it is as a future that is progressively worse, and leading to “no future,” the condition of unsustainability.

**Unsustainability, Finitude and Plasticity**

Unsustainability is an expression of human finitude. We live as finite beings in a finite world. In the Derridean deconstruction of Aristotle’s concept of the *now*—“that which is no longer and as that which is not yet”—we also find the constitutive condition of how anything exists (Derrida 1982, 39): Existence in time is always a trace; time is auto-deconstructive. But as Malabou shows us, what emerges from this auto-deconstruction of time, in the gap of difference
that is the trace, is *plasticity*. The critical moment of deconstruction unhinges the time from which plasticity arises. No longer a “no longer, not yet,” plasticity affirms time as “to see (what is) coming.”

If trace is the mark of absence, plasticity is the mark not of presence, but of *image*. It is the schematizing of the transcendental imagination, the phantasm that arises in the ontological gap and in the imago that flits between the surfaces of our world and the neural networks within our brain. It is, as Malabou argues in *Heidegger Change*, essence made skin (96–97)—made essence again, sitting “right on” being. (*PLH* 111-14)

### The Hazardous Road Ahead

Plasticity is a conception that calls out a future in portentous wonder: we hold the history of our unsustainability in mind, and we thus may have an ability “to see (what is) coming.” It is time now to come back to capitalism, to see what it is doing today. It is, perhaps, true what Jameson famously remarked, that “it is easier to imagine the end of the world than the end of capitalism.” (Jameson 2005, 199) In no way does this absolve us from contesting capitalism. Instead, our understanding of unsustainability allows us to view capitalism as a more recent and contingent epiphenomenon that may be subject to change sometime prior to “the end of the world.”

### The Externalization of Society and the Subsumption of Innovation

And, you know, there’s no such thing as society. —Margaret Thatcher

Given the productive force of capitalism, that in its industrial form is dependent upon the use of carbon-based fossil fuels, we may consider capitalism responsible for the rise of greenhouse gasses and the probability of catastrophic climate change. Although this may be viewed as a problem of technology, it is by viewing it as an economic problem that we can better see its invidious nature. An economic entity registers only those costs on its balance sheet that it is legally bound to assume. All other costs are externalized, and are borne by the public. This presupposes the acquisition of wealth through the rationalization of private advantage. We can see this in its most extreme form in the externalization of factory emissions. Factories exist in specific locales and are owned by private corporations. Their emissions, however, have global effects on climate. As there is no global enforcing body capable of regulating emissions, their cumulative environmental effect remains an economic exter-
nality. We are witnessing the limit case of an economic system valourizing private wealth at the cost of the public good. It is society itself which is externalized in capitalism.

This is a process that is fuelled by the subsumption of innovation within rationalized capital accumulation. The effects of innovation are not known in advance. Thus, profits may be harvested prior to the legal regulation of harmful externalities. Only in a totally rationalized society could all costs associated with innovation be predicted and regulated in advance. Such a society would be incapable of significant innovation.

This process leads inexorably to today, to the reign of what Berardi calls semiocapital, wherein “economic production is increasingly tightly interwoven with processes of linguistic exchange.” (ATF, 82) This allows capitalism to subsume innovation in order to stay ahead of the game. By rationalizing innovation into capital accumulation—which is to say, by extracting cognition from society, re-forming it into signs for private gain, and then re-cognizing society for further innovative subsumption—capital is able to refuel its economic machine on a process of living carbon extraction, through the capture of brains. (AND)

**Semio-Technologies**

The use of signs for the purpose of economic manipulation is nothing new. With the use of images of women for the purposes of commodity advertising, we find a distinct rise of this strategy in late 19th century Europe, in what has become known as the Art Nouveau style. In early twentieth-century United States Edward Bernays, using women’s bodies as signs for the purpose of tobacco sales, kickstarted the field of public relations, organizing a bevy of debutantes to light up cigarettes on cue as “torches of freedom” while marching in a prominent parade. (Curtis 2002)

Twentieth-century technologies of attention (read: distraction) have developed since with alarming speed, from movies, radio and television to video games and Internet-based forms of cognitive capture. The data that is captured by Facebook may seem as innocuous as most of the posts created by its “users”; but the artificial intelligence it is attempting to prototype bears our most attentive scrutiny. Its purpose, according to Berardi, “implies the reduction of cognitive activity to algorithmic procedures,” (NPD, n.p.) replacing an aleatory and open consciousness to a predictable and determinable one. The rationalist process of subsuming innovation becomes complete when information technologies become two-way: the cognitive frameworks of “live” subjects are captured as complex strings of algorithms that are then rational-
ized for the extraction of wealth, and fed back as forms of determination to the same subjects for the purpose of further extraction. (NPD)

This would not be possible without the neuroplasticity of the brain. It is why we need to think carefully around the question Malabou asks: “what should we do with our brain?” (2008) Plasticity is pharmacological; it may be used against us. Malabou carefully separates the signification of the term “plasticity” from that of “flexibility” and “elasticity,” which are often used in the context of industrial and economic management. Nonetheless, it is our brain’s pharmacological neuroplasticity that, according to Paolo Virno, situates culture as “an innate biological dispositif.” Citing Gehlen, he asserts that culture:

…blunts danger, but, in other respects, it multiplies and diversifies the occasions of risk; it “defends man from his very nature’, sparing him the experience of his ‘own terrifying plasticity and indeterminateness,’’ but, being itself the principal manifestation of this very plasticity and indeterminateness, it simultaneously favours the full unfolding of the nature from which it was supposed to protect us. (2007)

It is culture—and the neuroplasticity it is dependent upon—that enables language, with its terrifying power of negation. It is only the language-enabled human who can negate the world, allowing the “Nazi lieutenant in the lager” to say of the Jew ‘[t]his is not a man.’” (2007) This is the reason why the question “what should we do with our brain?” is so important.

Getting There, Equally

Unsustainability is based in inequality. We see this in recalling the historical precedents of capitalism. We see this in the power of language, both as negation and as what written language has enabled from its beginning. But in any case, the issue of inequality trumps that of unsustainability. If unsustainability is taken to its final conclusion, this means the end of human society itself. Two questions follow: first, what kind of society do we wish to end our days with? And in such a society, who lives and dies and when?

We will therefore base our arkhē on a “flat ontology.” In a Spinozan world, each thing is equal, as it only exists as an individual insofar as it affects and is affected by others. A “thing” may be a body or being and could be anything: human or animal, organic or inorganic, a symphony or
a stone. (Bennett 2010, 2) It is a much larger “assemblage” of equality, and for our purposes a more relevant one, as it acknowledges more agency for the material world of design (and art) as well as enmeshing it in dense ecological relationality with our mineral and atmospheric habitat.

**Conatus and Culture**

Each thing, insofar as it is in itself, endeavours to persevere in its own being. (Spinoza *Ethics*, Part III, Proposition 6)

For there to be future, we must persevere. For this, we look to our conatus. Conatus is not a simple quality of being; it *is* being insofar as it perseveres. Conatus is supra-individual, as seen in the common observation that parents who have children will seek their child’s future more so than their own.

Conatus may also be said to exist for culture. In Spinoza’s monist ontology, each thing both affects and is affected by all other things—they are all “modes” of a common substance. Conative substance turns itself into confederate bodies, congregating with each other in the pursuit of the enhancement of their power, becoming a “heterogeneous assemblage” of distributed agency. (Bennett 2010, 22-23)

Conatus is not a mysterious force; it is, as neuroscientist Arturo Damasio states in *Looking for Spinoza*, “the aggregate of dispositions laid down in brain circuitry...[that seek] both survival and well-being.” (36) The binding of self/brain to cultural assemblage takes place through the force of the imago, refracted from brain to brain, brain to thing, and thing to brain, within and throughout the material world. It is a trans-temporal phenomenon, connecting us through cultural artifacts to those who came *before* us, exist *with* us, and that *through* us will persevere in generations to come. This is not an extraordinary occurrence; it happens on a continual basis at every moment of the day.

**The Great Binding Law**

An exemplary illustration of cultural conatus is provided by the creation of the constitution of the Iroquois Nations in the early 18th century. Five separate but linguistically related aboriginal nations who had been consistently warring—the Seneca, Cayuga, Onondaga, Oneida, and Mohawk—met and recorded the *Ne Gayanashagowa* or “Great Binding Law” a constitution for their League of Five Nations.*

*Some scholars acknowledge the Iroquois Confederation as an important influence on the federalist government of the early United States. (Grinde and Johansen, 1996)
The Lords of the Confederacy of the Five Nations shall be mentors of the people for all time. The thickness of their skin shall be seven spans—which is to say that they shall be proof against anger, offensive actions and criticism. Their hearts shall be full of peace and good will and their minds filled with a yearning for the welfare of the people of the Confederacy. With endless patience they shall carry out their duty and their firmness shall be tempered with a tenderness for their people. Neither anger nor fury shall find lodgement in their minds and all their words and actions shall be marked by calm deliberation. (Iroquois Nations)

The nations of the Iroquois recorded their constitution using wampum belts and sticks. “Wampum” is a Narrangassett word that refers to a shell bead, made by Native Americans of the northeast for 4500 years. They were traditionally drilled with stone drill bits until “first contact” in the 1600s, following which metal bits became more common. Wampum belts are made by weaving rows of beads together. (Prindle) They were used for both official and sacred purposes, as a person’s credentials or as a way to bind peace between peoples. (Haudenosaunee Confederacy) In the case of the Ne Gayanashagowa, women from each nation first “received” the law, and selected the sachems, the men who act as representative delegates. The holding of the wampum belt gave each representative the authority to speak during discussions, with the belt passed around between the speakers. Once agreements were made, wampum belts were made so that, if at a later time the agreement needed to be discussed, the belt could be brought out and “read.” Small sticks were also used as a recording device. A stick would be given to each sachem by the presider of the Council member in order that the person it was given to would be responsible to remember was said. (Ojibwa)

We can clearly see the role of the imago in the constitution of the “Great Binding Law.” The wampum belt transmits ancient cultural practices that begin with the making of beads from local Quahog clam shells, in an elaborate and difficult process. The artifact is “sticky,” able to embody stories, testimonies and cultural practices—all imagos. Depending on how they are made, the wampum belts may serve a more general purpose, such as giving individuals in a group the authority to speak; or they may become elaborated symbolically such that important sources of memory may be called up from the neural networks of individuals to become commonly shared experiences, values and behaviours. The “artifact” may be an unelaborated stick, but it shares the imago that is present with the wampum belt, conveying a responsi-
bility upon an individual to remember a speech act for a future performance.

Although the Iroquois Confederacy has faced significant challenges during its colonial history—including its forced deposition by Royal Canadian Mounted Police in 1924—it has continued to act as a binding force of cultural conatus. The individuals, clans and nations that are so bound “are not yet assimilated and have maintained a viable means to contest and resist colonial constructs”—after almost three centuries of domination by the nation-states of Canada and the United States. (McCarthy 2010, 96)

The Distribution of Art and Design: A History of the Rift

As we have clearly demonstrated, unsustainability runs deep. We cannot assume that historically-recent practices of working with the image will be sufficient to address the problem. If we are to engage a cultural conatus that has the capacity to sustain future by means of the image, we will need to to find a way to overcome the two-century rift that has existed between art and design.

Early Rifts

There is an ecology of bad ideas, just as there is an ecology of weeds. (Bateson 2000, 409)

We briefly looked at the historical relationship between art, design and craft in Chapter One, specifically the “bad ecology” that developed between them at the beginning of the Industrial Revolution and that took the form of an ecology of epistêmê, technê and capital. This resulted in “the growth of a powerful yet unsustainable industry of mass-produced design and advertising, separated from a culturally influential yet materially ineffectual sector of fine arts.” (Calvelli 2009)

Larry Shiner explores the history of this relationship from the Greeks to the Industrial Revolution in his book The Invention of Art (2001), in particular through an exploration of how areas of knowledge were defined and redefined. The Greek separation of epistêmê and technê was codified by the Roman era as the liberal and vulgar arts respectively. (28) This categorization survived the Romans into the Middle Ages. Only the liberal arts were taught at the Medieval university, which were separated into the Trivium (consisting of grammar, rhetoric and logic) and the Quadrivium (arithmetic, geometry, astronomy and music). (30) The philosopher Hugh of St. Victor (c. 1096–1141) successfully argued that the term “vulgar arts” should be replaced with the less derogatory “mechanical arts.” However, once Arabic philosophy arrived in Europe along with Aristotle’s
works, the deprecation of the mechanical arts returned, and with it the return to the term *vulgar arts*.

*The Status of Art*

As is well-known, the arts slowly began to gain status during the Renaissance, particularly due to the efforts of the group of painters and sculptors associated with Giorgio Vasari, who started the Academy of Design in 1563, as part of a claim for liberal arts status and exemption from the guilds. Craft-based utilitarian decorative objects were still revered, however, with no clear boundary existing between what we consider the categories of art and design. It was a slow transition from here to the modern category of fine arts. Although painters and sculptors gained more status, their contracts reveal the design-like restrictions placed on their work, which included things like size, color and subject matter. It is only beginning in the late seventeenth century, with the rise of science, that the older conception of the liberal arts began to change, eventually leading to the division of knowledge into the *fine arts*, *sciences* and the *humanities*. However, even by 1728, Ephraim Chambers publication *Cyclopedia* “scatter[s] painting, sculpture, architecture and music among fortification, hydraulics and navigation” (80). Although the term *beaux-arts* (beautiful arts) was in use at the time, it should be kept in mind that the Société Académique des Beaux-Arts included not only some painters and engravers, but also watchmakers and engineers. (82)

It was only with the publication of Batteux’s *The Fine Arts Reduced to a Single Principle* (1746), and more definitively with Diderot and d’Alembert’s *Encyclopédia* (1751) that a category of what we would call *fine arts* emerge, which grouped poetry, painting, sculpture, engraving and music under the faculty of imagination, one of the three root categories of knowledge.

*The Industrial Rift*

This delivers us to the pre-Industrial era. The steam engine had already begun development, and by 1763 James Watt began working on the first industrially-capable model. By 1769 Josiah Wedgwood had opened his pottery factory, which instituted the assembly line and a division of labour between the crafts-people who manufactured the the product and the artist that designed it. During the same decade, Joachim Wincklemann published *The History of Ancient Art*, (Minor 1994, 20) marking the entrance of art history into the University. To cap it, Kant published his *Critique of Judgement*, arguing that aesthetic judgments were objective and necessary, even if we were not able to form universal agreement over what, in fact is beautiful, in the process
making a philosophical distinction between “free” and “dependent” beauty that underlies our contemporary notions of fine art and design. (Forsey 2013, 134-35) By 1804, with the beginning of the Romantic art movement, French painter and art critic Benjamin Constant then uses the term “art for art’s sake,” possibly for the first time. Thus is instituted our “bad ecology” of art and design.

**Rancière’s Distribution**

Rancière’s notion of the *distribution of the sensible* may provide us with a model that will work more seamlessly between art and design. It is a good place to begin for our task of articulating ways in which we may use the image to sustain a future. The *Politics of Aesthetics*, the book which introduced the concept to English-language readers, defines the *distribution of the sensible* in its “Dictionary of Technical Terms” as follows:

> Occasionally translated as the ‘partition of the sensible’, *le partage du sensible* refers to the implicit law governing the sensible order that parcels out places and forms of participation in a common world by first establishing the modes of perception within which these are inscribed. The distribution of the sensible thus produces a system of self-evident facts of perception based on the set horizons and modalities of what is visible and audible as well as what can be said, thought, made, or done. Strictly speaking, ‘distribution’ therefore refers both to forms of inclusion and to forms of exclusion. (Rockhill 2004, 85)

Rancière relies on Kant for his concept of the sensible: an *a priori* of time and space which is the condition for any experience in the world. The distribution of the sensible is an *a priori* arrangement overlaid upon the Kantian one, *in-formed* by the Aristotelian *arkhē* we discussed earlier:

> That some should rule and others be ruled is a thing, not only necessary but expedient; from the hour of their birth, some are marked out for subjection, some for rule. (Aristotle *CW*, 4273)

The distribution of the sensible is the means by which each person is put in her place through the sensible order; the “sayable and visible” are partitioned in a way that codifies, as natural, the *arkhē* of inequality. Rancière holds the position that we are *already equal*. “Making equality” is a matter of *making appear* an equality which *already exists*; hence, Rancière’s focus on the “aesthetic revolution:”
That aesthetic revolution, which took place in the nineteenth century, did not only change poetic values. It also changed the partition of the spheres of experience. (2005, 14)

Which is to say, it inaugurated the rift between art and design. A new distribution of the sensible had been effected, made possible by the cultural valuation of the privileged goods of fine art, on the one hand, and the production of mass-manufactured design and spectacles of distraction, on the other.

The Surface of Design

Nonetheless, Rancière is able to imagine an equality between art and design in his essay “The Surface of Design.” He seeks to demonstrate the way in which “people define not merely various forms of art, but certain configurations of what can be seen and what can be thought, certain forms of inhabiting the material world.” (2007, 91) He accomplishes this through an analysis of the early 20th-century industrial and graphic design of Peter Behrens in relation to the poetry of Mallarmé. His analysis revolves around two tropes used by both Behrens and Mallarmé: the “line” and the “type.” What interests Rancière is “the way in which, by drawing lines, arranging words or designs distributing surfaces, one also designs divisions of communal space. (91) Behrens “places the ‘classical’ cult of the line the service of different line—the product line distributed by the unit of the AEG brand….” Not only is the line both graphic design and the product line; it also for Rancière the assembly line. (93) What then is Mallarmé’s line? Mallarmé is well known precisely for his broken line, the way in which words on the page are placed in non-linear configurations, arranged in a different logic than typical in the poetry and typesetting of his time. One could characterize the innovation of its page design as more complex than his contemporaries and predecessors—which is precisely the opposite of Behren’s innovation of simplifying the ornate forms of Jugendstil product design into an early modern aesthetic based in the idea of function.

Rancière seems less interested in this easily grasped visible difference between their respective artifacts than he is in a certain invisible principle that Behren’s product design and Mallarmé’s poetry both share: namely, that of types, which is a word that Behrens uses to characterize his design of AEG products. (93) Behrens uses this word in order to convey that the graphic language is developed in accordance with its functionality or semantics rather than as a decorative or fashionable addition to encourage consumption. According to Rancière, Mallarmé also uses the word “type” to describe his work:
The object of his poetics is not the assemblage of precious words and rare pearls, but the layout of a design. For him every poem is a layout that abstracts a basic scheme from the spectacles of nature or of the accessories of life, thereby transforming them into essential forms. It is no longer spectacles that are seen or stories that are told, but world-events, world-schemes. (93–94)

A scheme could be the opening and closing of a fan or the motion of a dancer. For the latter, it is not the resemblant spectacle of bodies on stage that he is interested in, but rather, “dance conceived as a writing of types, a writing of gestures, which is more essential than any writing traced by a pen.” (94) Correspondingly, Mallarmé is interested in the poem “freed of any scribal apparatus,” according to Rancière, for a purpose similar to that of Behrens: namely, to abstract them and to separate them from “the consumption of resemblance.” (95)

As a “distribution of the sensible,” these parallel strategies of using lines and words are not useful mainly as a gesture of anti-consumption, but rather as an “outlining” on page or in steel of an emergent community without hierarchy—in interaction with bodies and brains. (95)

Rancière’s analysis of equality and the role that aesthetics plays making it sensible is helpful in demonstrating the role that art and design play. And yet there is a lacunae in his theoretical project: everyone is already equal. The sensible simply covers this up to show everyone their place. Art may provide means to imagine—to show—the equality that already exists, but it is questionable what kind of effect it has on changing the conditions of the sensible in a society of “really existing inequality.” Rancière’s analysis of Behrens and Mallarmé exhibits design’s commensurability with art but neglects to imagine what power it might have were it to use its considerable capability to enact change within the reigning distribution of the sensible by redistributing it.

Instead, Rancière perpetuates the privilege of the fine arts—a recent invention, as we’ve seen. The valorization of fine art lends power to the unsustainable distribution of the sensible. We need, instead, a redistribution of the sensible that privileges neither thinkers nor makers and that engages a plasticity that will allow formal aesthetic values to become real social and material values as well, with the power to sustain a future.

**Berardi’s Attunement**

Like Stiegler, Berardi focuses on the influence of technologies on human consciousness, understanding them—especially in their contemporary digital
variety—as tools of semiocapital. Berardi, however, focuses more specifically on the power of contemporary digital networks in their subsumption of the cognitive worker:

The history of the last fifty years can be read from the point of view of the relation between subjectivity and automation, the replacement of a living process by a technological artifact whose performances replicate the logical and functional succession of human acts. In the history of capitalism, this replacement has a double goal: increasing workers’ productivity and subduing the political force of organized workers. In the last decades of the century, the digital network became the engine of the increase in productivity in every branch of social production. (NDP)

He is less interested in the question of time—the “hegemony of the short term” (Stiegler 2012, 105)—and more interested in the underlying state that may underlay this short-circuiting of attention. It is a question of chaos. According to Berardi, the collective territory of the contemporary “infosphere” creates conditions that result in the brain’s inability to attune itself to the world, the subjective experience of which is chaos. The brain, for Berardi, seeks attunement with the world, which he characterizes as a rhythmic vibration between the singular and the collective—in what we may consider a form of cultural conatus:

Rhythm is the relation of a subjective flow of signs (musical, poetic, gesture signs) with the cosmic environment, earthly environment, [and] social environment. (AND 253)

Take the example of African drumming and dance: rhythms are laid down one after another—perhaps starting with one simple rhythm on a single drum, accompanied by embodied dancers performing a simple step. Other rhythms are overlaid, entering the cycle and creating more complexity in the beat and the bodies. This is then punctuated by a refrain introduced by a leading drummer. The startling complexity of rhythm that was introduced will then be overcome by new rhythms of beats and gestures of body, as the singular and the collective are newly attuned.

Key to the notion of refrain is “the sensibilization of a form, the translation of a formal prototype into the sensible subjectivity.” (210, my emphasis)

Sensibility is…the ability to perceive the meaningfulness of the shape that is emerging from chaos, not by way of recognition, not because it is compatible with some form that we have seen before—but simply
because we perceive its aesthetic correspondence, its accordance (conformity) with the expectations of the conscious and sensible sensitive organism. (12)

In our fight against the complexity and saturation of the contemporary infosphere we “stiffen” our refrain, (30) and undergo in Guattari’s terminology, “chaosmic spasms.” (199) In biophysical terms, a spasm is an involuntary muscle contraction. As a response to the infosphere of semiocapitalism, it can be considered a neural contraction, “a sort of forced vibration of the rhythm of social communication.” (199) To overcome the spasm we must undergo a process of “chaosmos,” which will enable us to create a new “order” out of the present chaos, a “harmonic relation between mind and the semio-environment.” (255)

It is art, for Berardi, that will allow us to evade this cognitive subjection to the financial economy, which has become “the universal grammar traversing every level of human activity.” (255) The “excess” of imagination found in art can act as a tool of attunement that will allow us to cut through the chaos experienced by us through the semiocapitalist infosphere and “find the way for a conscious and consciously managed neuroplasticity.” (256)

Art is not chaos but a composition of chaos that yields the vision or sensation, so that it constitutes…a chaosphos, a composed chaos—neither foreseen nor preconceived.” (Deleuze and Guattari, qtd. in AND 255)

Berardi, however, sets up a rift between these exemplary forms of art, like poetic language, that can fight our neural spasms, and forms of design, such as “social communication,” which he sees as a “limited process.” This forces him into a corner:

Techno-linguistic interfaces are linking the organism with the bio-info super-organism of the Net, and language is subjected to the automated wiring. Cognition is taken in the inescapable loop of this endless self-confirmation.

Only the excess of imagination can find the way for a conscious and consciously managed neuroplasticity, but we cannot know if the imagination excess still functions when cognitive wiring is set. (256, my emphasis)

Perhaps the rigidity of our “cognitive wiring” will not be changed by those few extraordinary moments when we experience the boundlessness of language and the excess of imagination reserved for art. It may be, instead, that
the pervasive plasticity of design—which can modify its form between the formless and the formed, novelty and the habitual—will be able to contribute to the change Berardi seeks. Change which is made habitual, and which allows not only for an individual attunement with the social, but which reaches for a historical sublation of sublation, an epoch of chaosmos.

Groy’s Rift
Boris Groys diverges from both Rancière and Berardi in fully acknowledging the rift between art and design, yet he does so in a way that may provide us with a way to go forward, in a 2014 article for e-flux that examined current practices in art activism. (“On Art Activism,” 2014) In it, he examines a conundrum that exists between art and the political: on the one hand, much of contemporary art seeks to use art as a form of politics; however, art is traditionally seen as “useless” in our society. Two problems emerge according to Groys: on the political level, the “spectacularization” of art undermines art’s practical effect; on the other hand, giving art a purpose “dooms it to failure” as art.

In an attempt to clarify the problem, Groys makes a few interesting critical moves. First, he reminds us that “we should see the whole art of the premodern past as, actually, not art but design.” (4) Art begins for him at a very specific historical moment: directly following the French Revolution when the revolutionary government decided not to destroy the wealth of objects inherited from the Old Regime, but instead to exhibit them as its corpse, in a palace turned museum. By doing so, “the museum institutionalizes the truly radical, atheistic, revolutionary violence that demonstrates the past as incurably dead.” (6) By doing so, the objects cease to have function; thus they turn into “art.”

Twentieth-century modernism, according to Groys, repeats this gesture. Countering the dominant view of Marinetti’s futurism as one that extolled speed and the machine, he contends that artists of the historical avant-garde were only interested in de-functionalizing and thus aestheticizing technology in order to expose the ideology of progress “as phantasmal and absurd.” (8) He then takes on Benjamin’s well-rehearsed dichotomy of the Fascist “aestheticization of politics” versus the Communist “ politicization of aesthetics” by making the claim that the work of the Russian Futurists, Suprematists and Constructivists was the aestheticization of their politically revolutionary society, while Socialist Realism under Stalin politicized aesthetics and was therefore a form of what Groys terms “political design.” (10)

Contemporary activist art also seeks to politicize aesthetics and is thus a form of political design:
Design wants to change reality, the status quo—it wants to improve reality, to make it more attractive, better to use. Art seems to accept reality as it is, to accept the status quo. But art accepts the status quo as dysfunctional, as already failed. (10)

Gross began his essay stating that he wanted to clarify the issues around art and activism. He did so, in a rather perfunctory way: “real” art is useless, thus activist art is not real art, but, rather, design. He does so based on the view that our modern conception of fine art happened suddenly due to a historical anomaly—through a revolutionary governmental decree. Objects of design once held by the nobility become, in a stroke, works of art. His clarification opens up, however, many interesting questions. It would seem, on the one hand, that he is simply reinforcing the rift: art is serious, useless and seeks radical change, while design tries to make the status quo better whatever way is possible, trivial or significant. On the other hand, he opens the way for a significant shift in design: from serving primarily commercial interests to taking on the (political) work of changing society. His view of art is almost a parody of the worst presumptions of its detractors: art really is useless, and artists have no wish to improve society but only wait for it to get worse. In their heads, however, they think they are ahead of the game. It is almost as if Groys wants something different for art, but the rift gets in his way. Berardi, instead, sees a significant role for art, even if its success at countering cognitive chaos may be rare.

Perhaps it is time, and the gap narrow enough here, that we can cross the rift. Artists and designers are makers, contributing their work for a variety of human uses from designing a website in the morning to pondering the state of the world in the afternoon and composing a song in the night. We are past the time when waiting for the status quo to crash is either interesting or viable, since the status quo is us, in our species existence. Capitalism, unsustainable technologies, invasive media or inequality are no longer simply the status quo, but things that will bring us to the end—outside of which there is nothing, not even us.

**Seeing the End Ahead**

Plasticity is a form of response-ability. In our interactions with the world, things and others, it allows us to shorten the gap between being affected and affecting. Plasticity enables us to travel within the gap of différance, rending,
bending and mending the rifts that we encounter in pursuit of life. We have discerned its traces in the forming of subjectivity, the movement of history and in the forming of neural matter. We have acknowledged the way it has traversed time and shaped temporality, how it has shaped phantasms and made them material. In its shape-shifting metamorphoses we have touched its skin and faced it directly, while seeing it drift over the horizon.

*The imago is plasticity.* It is the sticky stuff that holds us together as individuals and collectivities. It is the ephemeral stuff that makes us seek. It is the stuff we use in being, thinking and making. It is a form of life extension. We use it to sustain ourselves. We will use it to overcome, sublate the rift.

**Brain and Imago**

We begin by tracing the path of the imago as it travels between brain and world. The brain, as part of the body, is itself part of the sensible world. It is that object which orchestrates the metabolism of matter exterior to the body, from within the body itself. Of this matter, the organic is metabolized relatively quickly, providing the body with energy to live—as is the case with all other animals in their phenotypic expression. In addition, and in concert with formations of neural networks—imagos—in the brain, it organizes more complex form of metabolism involving both organic and inorganic matter. In this interaction between brain and world, matter—in the form of mineral pigments, wood, skin, and ore, among other substances—become forms of embodied energy that are put to use in the world—as tools, prosthetics and design. *Imagos become artifacts.*

The imago and the artifact are two resultant forms of the same metabolic process. There is no primacy suggested here; only forms of interaction and metabolism between different types of organic and inorganic matter. The imago exists in all forms of human understanding, behaviour and relations. It is always material, taking form in bodies and brains or outside them, as artifacts in the environment. Its materiality, however, is plastic, in all the ways we have already discussed. An imago can be *anything*; it is up to us to give it form.

**Imago and Facture**

An artifact consists of an imago and a substrate, a form of inert matter. Through thinking and doing, a metabolic transfer is effected, allowing the imago to shape the substrate; what was inert becomes something other—neither inert nor living. In interaction with its environment, it becomes a form of what Stiegler describes apropos the technical object, a form of “organized inorganic matter that transforms itself in time”. (*TTJ* 49) The imago, encod-
ed in and as an artifact, now has a durable ability to affect the living matter of other brains in their neural plasticity. New metabolic activity within the organic body and between the organic and inorganic produce new variations and transformations in different confabulations of imago and matter.

In becoming artifact, the *imago* becomes *image,* displacing space—not Descartian coordinate space, but as art historian David Summers calls it, *real space,* “the space we find ourselves sharing with other people and things.” (43) It is space defined by “the body’s finite spatiotemporality, its typical structure, capacities and relations,” its common and universal conditions, “within which an actual human life may be led.” As image in *real space* it takes on the indications of having been made—what Summers calls *facture* (683-84)—through which the past becomes visible and is made available to travel through time via other brains, into the future. New confabulations of imago and matter are made, and *facture becomes future.*

In displacing space, the imago reveals its *facture*—the material basis for human memory and the instigator of future. In much of Western art and in contemporary media design—in distinction from much of the rest of the world throughout history—facture is suppressed in the form of the *virtual,* which is to say, in favour of the two-dimensional image. What displaces space in such an art is merely a planar surface—possibly with a frame or as a screen—opening up a virtual space as image. This emphasis has the effect of obscuring the means of its being made and suppresses the evidence of its facture. It thus not only has the tendency to decontextualize the artifact from social space, but also to erase the past, the image of time, thus short-circuiting the building of material futures.

*The Practice of Arte-facture*

In order to to counter this emphasis on the virtual—designed and experienced today primarily as light emanating from electronic screens—I will use the word “arte-facture” to designate an activity of making based in the imago, that takes full cognizance of its material uses and social existence, and that doesn’t perpetuate the rift that has separated the practices of art and design.

The imago designates human being in interactivity with the world and others. It is based in noesis, υους, but emphasizes this quality of the soul in its character of mutability and exchangeability, in interaction with the sensible world. The interactivity of the imago is not limited to that involving language or technology. It must be considered in all relations with the organic

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*I use the word “image” here in order to clarify its relation to art historical discourse, to make it consistent with Summers’ usage. In this context, it is an imago-become-artifact. Summer will also call this “art”.*
and inorganic world. It is a particularly human mode of affecting and being affected by other bodies. It is not necessarily conscious—it may be mostly unconscious—but it can become conscious through facture.

Facture can take many forms. It is the making of the material and artificial world, through whatever means. Singing is a form of arte-facture, with the body its substrate. This it shares with birdsong; but what distinguishes human singing as arte-facture is its compositional character and its mutability which, like language, are based in the prior experience with the making of tools. In singing, the body is used as tool.

Lascaux is a cave of arte-facture. It is based in human interactivity with and as animal, in the space of a cave. Its interactivity is based on previous forms of arte-facture—the tool and the spear—that helped bring that interactivity into being. It is based in interactivity with earth, as mineral and pigment. Arte-facture may be a work of art. It may also be a hut, a chair, a chocolate cake, a pencil or what a pencil might enable. This book itself is arte-facture.†

Re-pairing the Rift

Rifts counter affection, interrupting the work of conatus. There are many rifts that have challenged human existence, beginning with the rift in time inaugurated by early toolmaking, and continuing with the rift of inequality established through centralized agriculture and enhanced by writing. The rise of industrialism produced new and powerfully damaging rifts, including the one between art and design. This has resulted in, on one side of the rift, design fusing its imagos to unsustainable industrial production and distribution, shaping the look, feel and practices of the social-sensible world; and on the other side, fine art shaping the imago into unique objects for only a small sector of the social-sensible world.

Arte-facture seeks a new redistribution of the imago, and thus of the sensible. In its plasticity, the imago seeps inside, flows between and even overflows the rift. As the binding element in cultural conatus, it assures the persistence of co-affection. Arte-facture re-pairs the rift by engaging the imago in the metabolic production of common structures. For the fine arts, this entails a redistribution of imagos across the public sphere; for design, a defusing of imagos from the unsustainable industrial sphere. Imagos that sustain must re-shape the social-sensible world so that there may be future.

† See Afterword
The Arte-facture of Wonder

Umwelt and Umwelten

We are animals in a world. The persistence of this world is an expression of its inter-relationality. To the degree that we persist with others is the degree to which we persist at all. A look into our gut will show this to be the case on the microcellular world. If we don’t typically acknowledge this, it is because we are too awash in inter-relationality in our everyday world. It is this world that Jakob von Uexküll called *umwelt*. As we noted, a tic has only three “markers” in its *umwelt*: a branch to climb on, a warm mammalian body to fall onto, and a spot of un-furry flesh to burrow into. Other animals have more complex and larger *umwelten* with many more markers. We can look, for instance, at a bee, a cat, or a chimpanzee: according to von Uexküll, each species may differ in the complexity of its *umwelt*, but there is only one *umwelt* per species—except for *Homo sapiens*. As we stated:

the preference of the human is based on the distribution of a multiplicity of markers that humans make for each other. Through their existential activity, innumerable recombinations of imagos are formed into a multiplicity of cognitive worlds. (26–27)

The Vita Activa

In *The Human Condition*, Hannah Arendt articulates a philosophy of *vita activa*, which she sees as consisting of “three fundamental human activities: labor, work, and action.” (7) This will help clarify for us von Uexküll’s notion of the *umwelt* of human and animal.

*Labour*, for Arendt is the activity we do, like all other animals, to secure our biological existence through the metabolism of the “vital necessities” of nature: e.g., air, water, plants and other animals. This labour is repetitive and insistent: we must replenish our bodies every day, like any animal with a fixed *umwelt*, or we die. *Work*, instead, is the activity which Arendt characterizes as corresponding to “the unnaturalness of human existence:” (7) what, in fact, Marx would call labour, which is to say the particular way we metabolize nature in our creation of the artificial world, the world of design. We “house” ourselves as individuals within this world, but it is meant to “outlast and transcend” us all. (7) This productive world of work is also repetitive, and it is increasingly more insistent as well. Ever-multiplying *umwelten* are constructed through the activity Arendt names *work*. We make worlds for each other through work, increasing the marks we must seek within our individual and
social umwelten. In the process we create cultures and myriad subcultures, each more insistent and productivist than the last.

In Arendt’s vita activa, “action” is “the only activity that goes on directly between men without the intermediary of things or matter. (7) Action isn’t production for Arendt; the confusion comes in the ways in which work and thought, vita activa and vita contemplativa have been thought. (14-20) In our reading of Leroi-Gourhan and Stiegler, we understood that the evolution of the human was an inextricable co-development of hand and brain. Through hand-brain coordination, we produce thinking and a tool. We need be careful how we think this. In a post-Enlightenment industrial world, thinking leads to the tool. (291-92) In the long trajectory of becoming human, existing eons prior to modernity and leading us truly forward today, it has been, instead, making that led to wonder then wondering that led to further making. This constitutes the vita activa of the human. Unfortunately, we have kept on making, but for the last several centuries have kept losing our wonder.

Wonder-making and Making-wonder

“We are not mortals, but suicides.…We are working ourself to death,” states Schirmacher. (“Vita Activa,” 28) Through work, we produce our multiplying umwelten, creating a cacophony of marks for our evolutionary pursuit. We wander frantically through our decorated mazes, which “directs us and urges upon us deathly consistency.” (31) Schirmacher suggests a different path:

For the human is not merely capable of so-and-so-many beginnings, as one wishes to calculate for us; instead, attunement to beginning accompanies the actor right into the euphoria of his timely death. Even dying can be acting, as the philosophers knew. It is always a start, with every word, in every silence, and no content can withstand the dynamism of beginning. Throughout, we need not decide enduringly, as the reality principle seems to require. Only surpassing holds sway, in every direction… (31)

What we surpass are our multiple and insistent umwelten. We make of them an uber-umwelt that we may abide with, through the practice of arte-fac-ture, a practice of wonder-making and making-wonder.
IF YOU HAVE BEEN FOLLOWING me and have arrived here, you have done so through the interpretation of pixels, the graphic equivalent of ones in a sea of zeros. The “z” in the word “zeros” you see above measures fourteen by seventeen pixels, for a total pixel dimension of 238. Within this space are 101 white pixels—unobstructed light radiating from my screen—and 137 pixels of black and shades of grey digital ink. If you are reading this on a computer screen, these coloured pixels are obstructing light to various degrees in the area of their occupied space. If you are reading this on paper, the “z” that you see is likely made up of 1050 smaller pixels, sprayed as dust adhered onto paper.

Your eyes scan the paper or screen. You are aware of all of the pixels as splayed across its receiving background; at the same time, as someone looking at you might verify, your eyes are scanning left to right, line by line, constructing out of strings of letters, words; out of strings of words, sentences; then paragraphs, from the first letterform to this: X. It is an operation of difference making différence, letterform by letterform and word by word, differing and deferring, providing a sketch of a thesis about the image, the future and the end.

We are coming closer to the end. What does this mean? You will have been reading, and then there will be nothing. The End. That is, nothing but a trace, an idea of what I’ve been thinking—over the last three years, the last fifteen years, over a life. This trace will be stored in a mass of inorganic matter—minerals of star dust made living, formed through random processes of natural selection into a brain, existing in a cranial casing at the top of your body and behind your eyes. You will forget most or all of what I have written, unless the neurons stored in your brain as memory are activated by some occurrence in your life. Should you wish to, you may access this text you hold in your hand or that your computer stores in electronic memory—it is now one of your many semi-attached prostheses.
What remains organic will be stored in your brain as image—a plastic image, with no sharp contours, ready to make its synaptic leap to attach itself to other stored images or a live stream of temporal events in your life. Should you need sharper contours, a clearer image, you may consult the pixelated and prostheticized pixels you’ve stored somewhere in space. If not at hand, movements of your fingers across a keyboard will produce it in seconds as pixels on screen from a server in North America, Europe, Africa…

These sharp pixels or vague neuronal configurations I leave behind will be evidence of my having been once the cells in my body lose their vigour, are taken over by other forms of cellular life or otherwise cease to exist and die. Nonetheless, the pixelated or neuronal traces I have planted may recombine with others, stripped of their signature perhaps, but still, in a variety of forms be selected for and passed down and around throughout time and space. I have become plasticized.


Franco “Bifo”


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