

**Between Technological Flesh
and
The Technological Field**

A Phenomenology of the Domestic Interior

by
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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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ABSTRACT

Swift and radical technological change necessitates a re-appraisal of the phenomenology of the house. Canonical phenomenology often has been technologically averse and the phenomenological appraisal of the house, as offered by philosopher Gaston Bachelard (1958) and architect Juhani Pallasmaa (1994), has notably omitted its technological components. This thesis asserts that neither the technologization of the flesh nor the field can be ignored. Upon asserting the importance of both technology and the house to our Being, the thesis proposes some basic principles for understanding technological change. A re-appraisal of the phenomenology of the house is then initiated, starting with a selected series of behavioural and symbolic foci: the hearth, the toilet, the table, the bed and the window. These are discussed with regard to their historical importance in the house and speculated upon as they become increasingly changed by advanced technology.

This thesis takes the form of a book. It is a synthetic and removed work, navigating the overlapping zones of a number of disparate discourses. Its perspective is situated in the midst of many complex and interconnected metaphors. It is part historical description, poetical observation, philosophical conjecture, curation, and design.

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Together we build this house.

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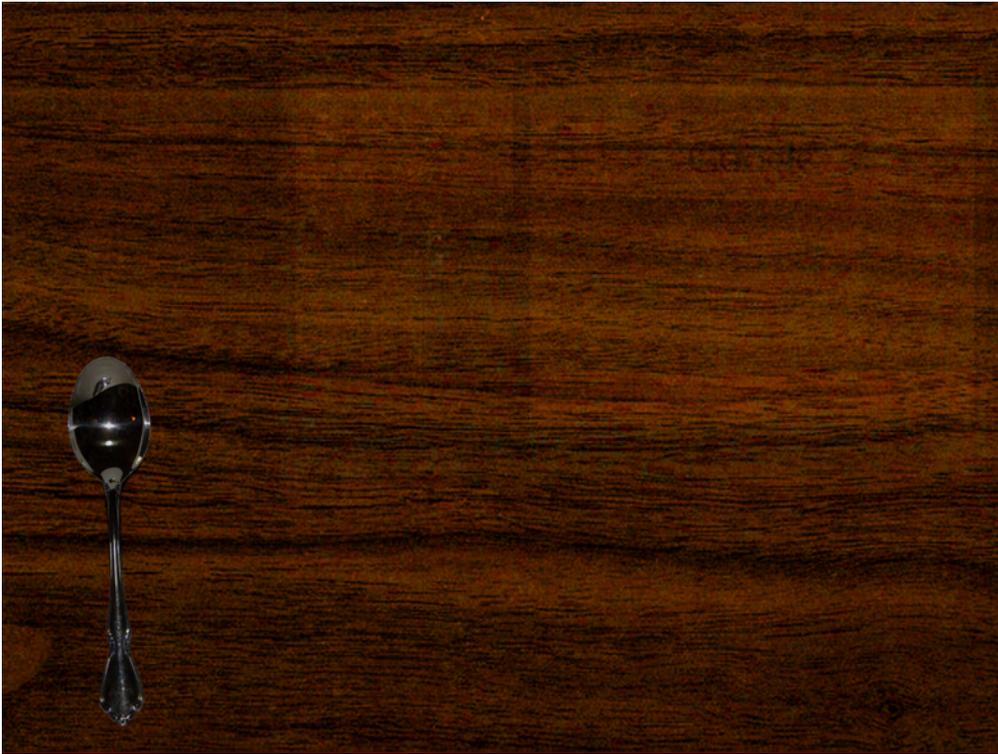


fig 1.
Dining Table?

ENTRY

The writing of this thesis began with my own personal struggle with architecture. I have always been particularly interested in statements about the meaning of architecture in our lives, statements that assert the value of everyday architecture in constructing ways of living, its role in giving form to our beliefs and our desires, and in turn its effect upon us. While this relationship has always been my principal interest in architecture, I have never fully understood it, or at least found the right vocabulary to express it.

This search for an appropriate vocabulary led me to phenomenology, a branch of philosophy that purported to provide a method for understanding our encounter with the *world-of-life*. I deliberately chose the phenomenological approach over the framework of contemporary psychology, the behaviourist bent of which I found, rightly or wrongly, to be too constraining. Phenomenology, as expressed by Heidegger, by Merleau-Ponty, by Gaston Bachelard, and in architecture by Christian Norberg-Schultz and Juhani Pallasmaa, seemed to offer a way of talking that would allow for an effective description of our intimate engagement with architecture.

To talk of the phenomenology of architecture is to speak of a particular relation, the relation between the individual and the building. For architects, this is two-fold, both the relation between themselves and the work, and the relation between the work and an imagined individual. Therefore, in order to speak about the phenomenology of architecture in a meaningful way individual requires identification.

This is what brought me to the question of technology. I believe that our technology is changing us immensely. Sitting on a bus one day, recently I took the opportunity to look around at my fellow travelers. Four out of the eleven of us were wearing headphones, plugged into some sort of electronic device. Three out of the eleven of us were looking at our cell phones or some similar device. Five out of the eleven of us were reading. Where were these people, I wondered? Could they really be said to be on the bus? Their bodies were on the bus, but while the body may be a thing amongst things, as Merleau-Ponty has written, we “certainly do not exist in the way that things exist.”¹ Our minds exist in a realm that is substantially different from the time and space of science. In assemblage with our technology, be it a ‘smart phone’ or a book, our presence is significantly changed, and, to lean on Heidegger for a moment, the ‘coming to presence’ of the world for us is likewise mediated.

Amongst the phenomenology that I engaged with, the work of Gaston Bachelard, specifically his *Poetics of Space* (1958) impressed me the most. Partially this is because of the specificity of his subject matter, partially because his subject matter is of great concern to me, but also because of his great respect for art. “Poets and painters,” he quotes Van den Berg as saying, “are born phenomenologists,” a sentiment I wholeheartedly adopt, with the addendum that filmmakers, performers, and even occasionally architects should be extended the same compliment. For this reason in the work that follows I have attempted to listen as much to artists as to philosophers and historians in sketching my territory of concern. What can Stelarc teach us about connectivity, Magritte about windows, or Eileen Gray about the house? These are the sorts of questions that I will address here.

Additionally, technologies, especially experimental technologies, can be read as the daydreams of scientists and I shall use them as such. Scientists generally

consider their work, far from the territory of the daydream, as the pure pursuit of truth, something I certainly do not want to argue with here. It is, however worth pointing out that all science is practiced with some participation of the imagination and so bears somewhat the pattern of fantasy. This holds more particularly true for the scientific development of technology as technological innovation must first be forged in the hot fires of the imagination. We may then regard the developers of technology as truly the poets of science, and we can learn much by listening to them in this manner. When the young scientist hooks up his brain-wave-reading apparatus to his ‘twitter’ account and writes a blog with his mind, he may reason to himself that this will help patients without the use of their hands enjoy the abundant pleasures of micro-blogging. But, does it seem likely that it was from this sort of practical consideration that the idea originated?

Another intellectual debt worth mentioning is the work of Richard Rorty, especially his highly accessible *Contingency Irony and Truth* (1989). From Rorty we learn of the use of ideas and metaphors as tools and that they may be useful no matter from where they are culled. Thus the shoulders of giants may be used as toe-holds to get where you want to go, even if that giant may have at one point in his life been a sympathizer of the National Socialist Party in Germany. It is thus that the ideas of many disparate thinkers will be found in the pages that follow, including Bachelard and Donna Haraway, Pallasmaa and Felix Guattari. Also from Rorty comes a general ethical perspective which sits in the background of this work. This consists of two assertions, first that cruelty is the worst thing that we do, and second that irony, the recognition that one’s own final vocabulary is fallible and imperfect, is a good thing.

Guattari entered into this work quite late, but I found his formulation, admittedly based on Bateson, of the ‘three ecologies’ to be a very useful framework within which to organize my observations on self, other, and group, and self, technology, and architecture. Thus, using Guattari, Rorty, and Merleau-Ponty, in the essays that comprise **part one**, the self is described as an auto-metabolizing network that behaves as an ecosystem amongst other ecosystems. As ecosystems, we engage with each other and also with abiotic components of the environment including our technology and our architecture. Of crucial importance is our engagement with the intimate architecture of the house. Vectors of technological change are articulated generally as they reflect trajectories

of human desire, and then I articulate more particularly the changes in us attendant to these changes in technology. The final essay of part one addresses the technologization of the house.

Following Pallasmaa's assertion that the phenomenology of the house is centred around certain "foci of behaviour and symbolization",² part two of this work examines in detail five different parts of the house as traditionally conceived. These foci are discussed first in terms of their phenomenological role as parts of our landscape of Being, and second in terms of how they have or may become technologized. The hearth is examined as it represents both danger and comfort, how it has provided a location for reverie and for communal gathering. The toilet is examined as the depository of the waste of the body, as an extension of our internal organs, and as a historical site of distinction between class, race, and gender. The table is discussed as a site of open rational encounter, the ordering of the world, and its historical connection with sacrifice and incorporation. The bed is likewise engaged with as a flat zone of negotiation, but also as furrowed place of refuge and as a removed territory from which the world is understood. In the final essay we meet the window, the most typically 'architectural' of the assembled foci. The window is appraised as a medium of surveillance, of dreams, and of definition of the interior environment as it relates to the exterior. The 'window' is also speculated upon in its contemporary context as a medium for accessing other domains of information.

The work concludes with a series of ten principles for the design of cybernetic houses. These points draw together concerns about the direction of technological development, optimism about the same, as well as what has been learned about the value of the house for our Being.

One thing characteristic of both the philosophic tradition of pragmatism and phenomenology is a willingness for, even an insistence upon, thinking things afresh: recognizing your position and going from there. If what follows seems circuitous, and occasionally obvious, it is because I have attempted to adopt this attitude. This also explains the use of examples drawn from popular film that I happen to have seen and you may not have, or painters from my home town of London, Ontario. The work makes no claims of exhaustiveness, and instead is purposefully situated and partial. I have made use of what is at hand to attempt

to address a topic that I think is worth pursuing.

I would hesitate therefore to describe what follows as ‘interdisciplinary’, as that seems to imply an ‘inclusion’ of disciplines. Instead this work moves amongst the intersecting zones of disciplines. It is a work of wandering, or ‘error’ as Guiliana Bruno has put it.³

PART I
OF FLESH AND FIELD



fig. 2
Perhaps a medicine cabinet could be part of a complete personal health system - the glass showing three types of information, the contents of the cabinet, your reflection, and an informational dimension potentially augmenting both of these.

SELF, TECHNOLOGY, ARCHITECTURE | I

SELF

We are. At different times, and in different places, in different contexts, we are different. In more Heideggerian terms, we are differently. Around certain friends we are a certain way, and when we communicate with them we communicate also in a way particular to our relation to them. Together, through our communication, truth and meaning are made. This mutual manufacture of truth and meaning is what we call *intersubjectivity*. Intersubjectively, we describe the world and arrive at notions of self and group. We are intersubjectively.

In Felix Guattari's essay "The Three Ecologies" (1989), he speaks of the world in terms of three separate 'ecological registers'. In addition to environmental ecology, in which the physical environment is described as a complex network of interconnected components, according to Guattari, it is possible to talk also about a 'social ecology' as well as a 'mental ecology'.¹ The social ecosystem is the realm of intersubjectivity, to which our independent mental ecosystems are closely tied. We can't talk about any one of these registers in isolation, since ecosystems are closely connected and interdependent.

Rather than talk of the ‘self’ as if it were an organic singular entity with a stable, integral structure, it is Guattari’s implication that we should speak of it instead in ecological terms. Ecosystems after all are dynamic, continuously changing their form and structure in response to stimuli both from within and without their boundaries. It is not sufficient to say simply that our experience is subjective, for this implies a stable subject, and as Guattari puts it, “rather than speak of the ‘subject’, we should speak of *components of subjectification*”.² We are not just the contingent result of our personal historical ‘thrownness’, we are also very much the result of where we are, whom we are amongst, and what is around us at any given point. Given that these ‘components of subjectification’ are not solely social, but are also environmental, it would seem that the word ‘intersubjectivity’ is not entirely sufficient. We should also speak of the *rapport* that occurs between us and our physical environment. ‘Rapport’ is a word employed very briefly by Heidegger, but which seems worthy of resuscitation. Heidegger used the term to refer to how things “speak to us,” or “concern us.”³ If ‘intersubjectivity’ describes the relations between mental and social ecosystems, ‘rapport’ shall be used to denote their relations with environmental ecosystems.

Organisms adapt in order to fit into ecosystems and likewise ecosystems adapt to fit particular organisms. Ecosystems also mutate to relate to other ecosystems. This seems to be a suitable metaphor for how we relate to each other and to the world around us. The group of thoughts and beliefs and desires that we consist of constantly adjust to get along within us and are also perpetually shifting in relation to external forces. The ecosystem is a compelling metaphor for the self exactly because it encourages us to talk about our engagement with these forces and not talk of the self without them.

Some sympathy for this manner of talking about the self can be found in Richard Rorty’s essay “Non-reductive Physicalism” (1991). Rorty asserts that there is no intrinsic self that *has* thoughts, beliefs and desires, but rather, the self *is* these.⁴ This is an important distinction to make: the self is thus not somehow separate from the ecosystem, nor does it contain the ecosystem. It *is* the ecosystem. The self is in fact a “network of beliefs and desires which is continually in process of being rewoven.”⁵ The self is always in a process of flux, says Rorty, as “it reweaves itself, in response to stimuli” encountered in larger networks. “The individual,” agrees Guattari, “appears to be something like a

‘terminal’ for processes that involve human groups, socio-economic ensembles, data-processing machines, etc.”⁶ We are battlegrounds for these forces, which are not always in agreement with one another, and somehow, in the midst of this flurry, we perceive ourselves, and we perceive the world, and from this we compose a coherent story.

Guattari’s three layers of ecology are interconnected. He quotes Gregory Bateson as saying, “there can be an ecology of bad ideas, just as there is an ecology of weeds,”⁷ but what is actually of greater interest is that the ecology of bad ideas can actually be linked *to* the ecology of weeds. They are part of the same larger ecosystem. Ideas do not ‘happen’ in abstract locations, they are occasioned and affected by the environment in which they appear and are considered.

The phenomenologist Maurice Merleau-Ponty agrees whole-heartedly with this debunking of Cartesian abstraction. “There is no inner man,” he wrote, “man is in the world, and only in the world does he know himself.”⁸ In fact these notions of the inter-connectedness of the self and the environment find great sympathy in 20th century phenomenology. Phenomenology generally assumes that the process of ontogenesis, ‘becoming’, is a constant fact of life. To the phenomenologist, we are always engaged in self-production, giving ourselves definition, whether intersubjectively, in communication with others, or on our own, in reflection or engaged in a task. We engage with all sorts of things in this process including ‘language games’, macro-economic structures, and the people and objects around us. With all of these we form phenomenological assemblages that are a part of how and who we are at any given point in time, just as ecosystems cannot be understood in isolation from their context.

THINGS

In the study of biological ecology, ecosystems are generally understood as consisting of both biotic and abiotic components, their character depending on both of these and the relationship between them. Geological parameters such as the mineral-content of soil have a great affect upon plant life, which in turn greatly impacts animal life. The geographic character of a landscape too has a large impact upon an ecosystem. Ecosystems develop in relation to the physical

landscape in which they are thrown. The ecosystems that we are, too, whether we are talking in terms of mental or social ecology, are profoundly affected by the abiotic elements of our world, which compose the landscape of our Being. We are ‘conditioned’, as Hannah Arendt has put it, by things.⁹ Through rapport, we involve the things that are around us in our constant process of self-making, forming engagements, phenomenological assemblages with them. This is true both of things that we consider ‘natural’ and ‘artificial’.¹⁰ In the moment of their making, man-made things immediately become a part of our conditioned condition.¹¹

As American psychologist Sherry Turkle has shown in her *Evocative Objects* (2007), our everyday landscape of things is not neutral. Things are important, intimately involved in our Being and how we understand ourselves and the world. They frame and compose our perception and are a party to almost everything we do. When things frame our perception, they narrow it. When two mountains emerge from a horizon, they narrow what is visible beyond, providing a limit to what is perceived. Our gaze is limited by the frame of the mountains to a particular ‘partial’ perspective.¹² All things act upon our perception in this way. The things around us frame what we see, what we hear, what we can feel and smell. Everything stands in front of something else, contributing to our partiality. The horizon is not objectified by the mountains, but when it is actively framed it does become an object of our perception.

All things, whether they stand forth independently or are supported by a frame, participate in our Being. As Heidegger points out in his essay “The Thing” (initially delivered as a lecture in 1950), ‘things’ and ‘objects’ differ. Objects are produced from things when they are examined objectively, as in science, at which point the ‘thing’ is ‘annihilated’.¹³ Within a scientific framework it is easy to imagine that things must become objects in order to be useful, but this is not true. Things can be considered co-participants, instead, in the process of becoming, rather than clearly distinguished from human experience as objects. When objects *are* clearly distinguished from subjects in this manner, as in science, it is an attempt to ignore our conditioned nature, isolating the subject simultaneous to the object. Recognizing things as things allows them their own mystery, which is closer anyway to how we actually relate to most things in our presence.



fig. 3
Film still from *2001 A Space Odyssey* (1968)
The bone becomes technology.

Claude Levi-Strauss famously observed how it was common for the different peoples that he studied to incorporate physical things into their thought processes, forming mental-physical assemblages with them. This is not an unfamiliar phenomenon to most of us. When architects work with so-called ‘sketch-models’ they place pieces of things next to each other, on top of each other, even wrap them around each other so as to explore abstract notions of tectonic configuration. The notions only relate to the model in heavily mediated ways although to the perception of the architect they are the same. Levi-Strauss referred to the pieces of thing that compose this sort of model ‘goods to think with’.¹⁴ Phenomenologically, the thing and the idea, one residing in the environmental register and the other in the mental register, are entwined. When the thing is manipulated, the mind changes. In this way things can, and very often are, vitally involved in our thinking. As Turkle has put it, things “help us make our minds, reaching out to us to form active partnerships.”¹⁵ To operate as if thought is possible without things to think about (as Turkle would say, *with*) would be to revert to an outdated form of Cartesian abstraction.

Husserl’s phenomenology was precisely an insistence on things, a plea within the schools of philosophy dominated by Kantian critique and Hegelian historicism to remember to look at the world around them. In his rally-call to return to ‘the things themselves’, he wished to anchor philosophy. As Maurice Merleau-Ponty intended it, phenomenology puts “essence back into existence, and does not expect to come to an understanding of man and the world from any starting point other than that of their ‘facticity’,” as opposed to the thought of those philosophers for whom ‘facticity’ seemed to be in danger of being forgotten entirely.¹⁶ We are indeed ‘in the world’ as Merleau-Ponty observed, and it is only in the world, conditioned by the things around us, that we may know ourselves.

TECHNOLOGY

The mountain frames the horizon without objectifying it. Active framing, on the other hand, objectifies. Framing, and here we can think of the obvious example of the window frame, is an intentional narrowing, and it is akin to

a cutting. The frame imposes a limit on what is perceived, cutting out the context. By framing the thing, by focusing on it, it becomes, through our focus, an object. And it is in this light that Martin Heidegger may call technology an ‘enframing’. This word, enframing, comes from the German *Gestell*, which also means ‘skeleton’ and ‘bookshelf’¹⁷. The enframing that is technology is thus to Heidegger the imposition of a frame, a structure, upon the standing forth of the world. In our re-purposing and manufacture of certain things, the making of what we call technological things, or tools, we actively participate in the enframing of the world.

What distinguishes a tool from a non-tool thing is its instrumentality. A stone as participant, standing forth independently on its own, is what we have called a thing; when scrutinized scientifically this thing becomes also an object; when we pick it up and use its hardness for something, like driving a tent-peg into the earth, then it also becomes a tool. Surely we can see the difference between a stone simply as a stone and the stone as used. We understand the stone simply as stone very differently than the stone as used, and it affects also our understanding of other things. Crucially, holding this stone in my hand I am very different from when I am not holding it. It is almost as if, as architect William J. Mitchell has described it, my hand itself has extended and hardened.¹⁸ This abiotic factor of my ecosystem has become vitally integrated in my Being as I have formed an assemblage with it. When I swing the stone to use it, is it not as if it is part of me, as if it has become an instrumental extension of me? It becomes like an appendage.

I think what I want the stone to do, and it is done. The same, no doubt, occurs when an elderly person or an invalid requires a cane. When they use that cane, it is as legitimately a part of their experience of locomotion as is their leg. Which is frankly necessary. Taking a slightly more complicated tool as an example, think what a bad driver you would be if you didn’t form some sort of instrumental assemblage with your car. If your consciousness was cluttered with every little detail of the incredibly complicated act of driving, you would forever be a beginner.

This ‘assemblage’ is empirically legible, as a couple of recent scientific studies have shown. In 2005, a group of researchers at the University of Virginia attempted to demonstrate how people think differently when they are in posses-

sion of a tool. The researchers asked a number of subjects to judge a particular distance, some with a tool in their hand and some without. What they found was that the people with tools consistently estimated the distance as being shorter than the people without.¹⁹ The tool in their hand had observably affected their understanding of space.

It is amazing exactly how fast these sorts of ‘assemblages’ occur. In another recent study undertaken at Claude Bernard University in France, a number of subjects were asked to use so-called ‘grabbing tools’, the sort used frequently by litter collectors. After using the tools, the researchers analyzed the arm movements of the subjects while they reached for a series of objects. What they found was that their arm movements had changed. They had effectively re-mapped their body to include the tool – when they went back to not using the tool, their body-map, their proprioceptive sense of embodiment, had become flawed.²⁰

The same thing happens with all of our tools – in our instrumental assemblages that we form with them, we stop attending to them and they become, phenomenologically, part of us. We change. When I hold my stone in my hand I am both more dangerous and more useful. I form an assemblage with the stone, and when I bend over my tent peg, I also am tied phenomenologically with that peg, and with the purpose of the peg too. Something about me extends outwards, through the stone, through the peg, to incorporate the ‘tentness’ that this peg will help me achieve. The intention towards tentness, enacted through my instrumental use of the stone, becomes a characteristic of me.

Through the incorporation of the stone into my ecosystem I change both in the first obvious sense and also because the stone relates me to other things in the world through what I can and can’t do with it. The stone makes me more useful at hitting things, but, like Edward Scissorhands, less effective at wiping the hair from the brow of my loved one. The late American critic of technology Neil Postman has called this the Faustian bargain of technology.²¹ All technology both enables and disables, and it fundamentally changes how we relate to the world. To a person with a hammer, the old adage goes, everything looks like a nail. Similarly, Postman adds, “to a person with a pencil, everything looks like a sentence. To a person with a TV camera, everything looks like an image. To a person with a computer, everything looks like data.”²² We use our tools in order to extend our agency in the world, but with every positive change comes with it



fig. 4
Film still from *Edward Scissor Hands* (1990)
*Edward was a great topiarist, but his prosthetics
came with their drawbacks.*

a host of potential negative changes.

The phenomenon of our tools extending our agency out into the world is insightfully described by Italo Calvino in his “The Crow Comes Last” (1949), a short story about a boy with a peculiar knack for marksmanship with a rifle. With every pull on the trigger he is able to reliably affect change at a great distance from his body and hence from the usual limits of his agency. “Why,” thinks the boy, “could he see the pine-cones at the tops of the trees on the other bank and not touch them? Why was there this empty distance between things and himself? Why were the pine-cones which seemed part of him, inside his eyes, so far instead?”²³ His ability with his tool makes the world seem to shrink to his own size, but it doesn’t. Calvino, an acute phenomenologist, accurately describes an important aspect of technology – it extends us outward with its power and simultaneously brings distant things close.

Let’s say for instance, rather than a stone in my hand I have a ‘remote control’. As I had changed with the stone in my hand, I am another person again, and one with greatly expanded power over the world (although, also, as when I had the stone in my hand, I am probably less effective at other tasks). The remote control allows me the power to change things, and to change things far outside of my usual sphere of influence. I can activate or deactivate a television screen, or a radio. Or I can make a fan, suspended from the ceiling, begin to rotate. Instrumentally, not only is the remote control suddenly a part of me, but so are all the parts of the building I have control over.

Technology increases our agency, you might even say it gives us power, but more importantly it *liberates*. This is the crux of the issue: the principal driving force behind technology is that it enables us to do things we otherwise wouldn’t be able to do. Things that we could already do, technology allows us to do them with greater *ease* and *expediency*. The expediency with which a tool allows us to do something opens up time to do other activities, potentially activities that we would rather do. It is tools that free us from spending all of our time labouring over the most basic requirements of life so that we may construct the elaborate artifice of our world. Thus our primary attraction to technology is its ability to liberate us, and the history of tools reads precisely as the history of our liberation, as we become increasingly divorced from the shackles of necessity.

This desire to be free of base necessity has led us from simple tools like our

re-purposed stone, through crafted instruments for all kinds of applications, on to simple machines. The effective harnessing of steam, beginning in the late eighteenth century, famously revolutionized practically all labour in what is now referred to as the industrial revolution. In the late nineteenth century the harnessing of electricity, or as Arendt has described it, the channeling of “nature’s elementary forces . . . into the world itself,”²⁴ took this automation further. Quite abruptly, many of the tasks that had hitherto been undertaken through the toil of the human body were either replaced or seriously augmented by machines. Where both labour and work had been enacted through the rhythmic repetitive movement of the human body, industrialization linked up this body with self-moving machines, such that it was no longer clear which was in control. As Arendt put it, “unlike the tools of workmanship, which at every given moment in the work process remain the servants of the hand, the machines demand that the labourer serve them, that he adjust the natural rhythm of his body to their mechanical movement.”²⁵ With the changing logic of production that industrialization entailed, the labourer lost much of whatever autonomy they had had, synchronizing their activity with the machines’ and becoming increasingly mechanical themselves in the process.

The birth of civilization can be described as a process of individuation, in which individuals learn to separate their psyche from the world, as it empties of magic.²⁶ In this way, the industrialization of the 19th and 20th centuries was actually a step backwards. Individuals were being turned into sorts of machines themselves, “units of work”, as French economist Bernard Stiegler has put it, and thus *disindividuated*.²⁷ While it might be liberation that attracts us to technology, it doesn’t always have that affect, or, while it has that effect for some it doesn’t necessarily for all. While some of us ride the railroad, as Thoreau put it, for others *it rides on us*.

Slaves, after all, dehumanized in their forced servitude, must have often appeared as sorts of tools to their masters, especially in times before the invention of elaborate machines. The word ‘robot’, we must remember, comes to us from the Czech word *robotnik* meaning, precisely, ‘slave’,²⁸ an observation that would seem to shed some considerable light on the purpose of our development of machines. The abolition of slavery historically follows a period of considerable mechanical innovation. Machines make human servitude less necessary. It is

notable for instance, how the twentieth-century woman, suddenly in charge of the household without the benefit of servants, found herself awash in helpful gadgets to help her with her tasks. The new tools were in effect replacements of the servants that had come before. Put another way, a servant is an obsolete form of tool.

Indeed, as Heidegger says, the essence of technology precedes our tools. Enframing is less a matter of tools as it is a mode of thought that becomes evident in tools, the “setting in order,” of the world.²⁹ Through the enframing of things, essential to technology, the world is “set-upon” so as to be revealed as what he calls “standing reserve,” the world re-described as resource and means to other ends.³⁰ Heidegger agrees that technology gives power, and is thus cautious of it, seeing the potential for technology to unleash, as Arendt says, a “limitless devaluation of everything given.”³¹ Both Heidegger and Arendt are wary of the meaninglessness of a world mastered by technology, “where every end is transformed into a means,”³² a result that Heidegger foresees as being inevitable unless balanced by the poetic revealing occasioned by art³³ and by dwelling.³⁴

ARCHITECTURE

Heidegger saw clearly that a person’s Being, their dwelling, and their thought, were intimately connected with their environment. In his late essay, *Building Dwelling Thinking* he wrote that:

Space is never something that faces man. It is neither an external object nor an internal experience ... I am never here only, as this encapsulated body; rather I am there, that is, I already pervade the space of the room, and only thus can I go through it.³⁵

Our Being is not isolated to a simple point in space and time but incorporates what is around us. Our mental and social ecosystems are directly engaged with the environmental conditions within which they are situated. These environmental ecosystems in which we move are made up of things, both technological and not. Much of what makes up these environmental ecosystems is that type of things or group of things that we call *architecture*.

We create ourselves as we act and as we react – as we play out our lives in the world. Since architecture structures intersubjectivity and rapport, it is easy to agree with the architectural theorist Juhani Pallasmaa that we actually “exist through architecture.”³⁶ When we see a friend, framed by a hallway, we don’t just see them, we see them in relation to the architecture and we understand them in relation to the architecture. We have spent all of our lives in and around architecture – it is the shape of our world. As children we played in buildings; we daydreamed in buildings; we learned to walk and how to think and how to talk in buildings. Architecture from the very outset has been deeply etched in the very structure of our consciousness. “We cannot understand ourselves without it,” philosopher Mark Kingwell has written about architecture, “for it is where we eat and sleep and raise our children.”³⁷ Architecture, even in its most banal forms, is essential to how we understand ourselves, how we understand others, how we structure our image of the world. Pallasmaa is correct when he claims that “buildings and towns enable us to structure, understand, and remember the shapeless flow of reality, and, ultimately, to recognize and remember who we are.”³⁸ Architecture is directly and actively engaged with our being in the world.

Architecture can engage in our Being through the *canalization* of our circulation, to use Foucault’s term, through the actual physical manipulation of our behaviour.³⁹ We may for instance think of the very tight control over movement implied by the compartmentalized Victorian house compared to a late 20th century ‘open-plan’ house. The traditional compartmentalized house literally guides one’s body through it. Speed bumps, to use a quite different example, can also be thought of as demanding (more or less effectively) a certain type of behaviour from people, as of course can guard rails and windows of various operability. The bridges built by Robert Moses from Manhattan to Long Island were intentionally built so as not to allow buses (and thus ‘undesirables’) through. We can even imagine a similar sort of effect being achieved through the employment of very small doors, designed to manipulate our bodies into humiliating shapes and prevent others from passing through entirely. Chairs, also, could be designed to fit the hips of only the *correct* shape of person. If you were not the right shape, you would be ‘architecturally’ prevented from sitting in the chair. Although this sounds fanciful, it happens on a regular basis. Chairs

are always designed for a specific range of the population. Think of seats at the cinema – they are all the same size, but we are not. A very short person can't see over the seat in front of them – a very large person will not fit between the arm-rests. Benches are valuable largely because of their flexibility – you can sit, or sprawl, or lie down. One person could use a bench, or several – size does not matter. But many public benches are now designed specifically to prevent one from lying down. The design of these benches forces one to use them in a certain way. From this sort of indication in the environment we pick up ideas of how life is supposed to occur.

Architecture may also bear the imprints of the builders, what might be called the 'conditions of production'. John Dewey pointed this out in his *Art as Experience* of 1934 when he wrote that architecture “ ‘represents’ the memories, hopes, fears, purposes, and sacred values of those who build in order to shelter a family; provide an altar for the gods, establish a place in which to make laws, or set up a stronghold against attack.”⁴⁰ Architecture, amongst the things of our landscape of Being, is decidedly not neutral.

As Cuff and Ellis pointed out in their 1989 book *Architect's People*, there must always be an “implicit actor who lurks in the designer's imagination.”⁴¹ The character of this actor affects our experience of the designed space. Crafting a building always involves imagining possible world-creating that could occur within it. Andrew Ballantyne put this well when he commented that, “what architects can do in proposing a design for a building, is to propose a fragment of a world.”⁴² This imagined 'way of living' could resonate very well with the inhabitants of the building or it could be rejected, as when the lobby of a new condominium tower makes your skin crawl. A residue of the initial vision remains present in the space.

Our collective consciousness breathes through our buildings and our towns, spreading ideas and assumptions silently from one person to the next. Architecture is a cultural construction and, like language or popular narratives, 'codes' are written into our environment. As feminist writer Leslie Kanes Weisman has argued in her *Discrimination by Design* (1992), “the spatial arrangements of our buildings and communities reflect and reinforce the nature of gender, race, and class relations in society.”⁴³ These semantic codes are then imprinted on our spatial awareness as we proceed to form active phenomenological assemblages

with the architecture of the environment around us. Gendered spaces in houses are clear examples of this with the den for the man and the kitchen for the woman. Older examples are of course available by the legion such as racially segregated movie theatres.

However, meaning in architecture is by no mean always inscribed in the building from the outset, and is hardly immutable. Architecture, as Pallasmaa has observed, is understood through verbs, not nouns.⁴⁴ Its meaning is not primarily *read* but rather *experienced* through “interactions over time,” as architectural theorist Christian Norberg-Schultz would have it.⁴⁵ Because this experience over time, through which architecture is confronted, is contingent upon many factors, architecture seems to have the least stable ability to signify among the art forms. Despite much of what we’ve been describing, much of architecture is actually ripe for appropriation. Many monuments that once meant one thing now mean completely different things. In Toronto the CN Tower doesn’t really represent the supremacy of Canadian National Rail. For some it’s a symbol of civic pride or at least identity, while others recognize it as linked to the commercial identity of the city sold to tourists. For many it simply means ‘south,’ along with a tinge of ‘east’ or ‘west’ depending on where you are in the city. Architecture is even more ready for appropriation on the more intimate scale. Through dwelling we confront architectural form on a daily basis. We work in it and with it, push up against it and alter it as our needs change. Because we alter architecture through dwelling, there is an immense potential for meaning not passed down from above but rather created poetically through the happenstance of inhabitation.

Take for instance a rubber band wrapped around a wooden newel post. It was put there at some point, but no one remembers why. Now it’s just there, beige against the brown of the wood. How does this signify? It signifies its own presence, and it also signifies inhabitation. It marks the passage of time simply by still being there from day to day. It gets grubby. It becomes more and more a part of the newel.

In addition to the drawings and the cement trucks and table saws, architecture is also made this way. Steps are made by the wearing of stone with your feet and a living room can be completed by draping a sweater over the back of a couch. When we dwell properly, in the way that Heidegger would have us dwell in order to “save the earth,”⁴⁶ we are attentive to these things. For to truly dwell is to live in

awareness not only of the sky but also of the earth and not only the divine but also of the world of mortals. And dwelling, as Heidegger has it, is also a cultivation, a sort of making that is very like building and is in fact intimately connected to it.⁴⁷

HOUSE

Amongst architecture, in the West, the house is of particular intimate importance to our Being. Statements made thus far about architecture are *more true* of the house. It is in fact in our houses that we ‘eat and sleep and raise our children’. It was in our houses that we learned to walk and to think and to talk. It was in our houses that we learned about mirrors and saw ourselves for the first time, that we learned to identify ourselves. As Gaston Bachelard put it, “before he is ‘cast into the world’ ... man is laid in the large cradle of the house.”⁴⁸ We are nurtured in the house, held, as Bachelard also says, in its arms.⁴⁹ Our earliest daydreams fill the house of our childhood and we carry it through life with us. Our childhood home intersects with other houses, becomes other houses, augments other houses and no doubt undermines some houses. Our dreams retain the shape of the house in which they were first experienced. We could say that the rapport we experienced with those first intimate spaces of our childhood laid the template for our rapport with all spaces thereafter.

To see the imprint that the house has upon our mental ecology we may think of the famous dream that Carl Jung had in 1909. In this dream he found himself in a house. Somehow, he instinctively knew that this was his house. He was on the upper storey at the beginning of the dream but became quickly curious about the levels below, and began to descend. As he descended, the house became progressively older and more primitive until eventually when he reached the basement he found himself in a dark, low cave. “Thick dust lay on the floor, and in the dust were scattered bones and broken pottery, like remains of a primitive culture,” he records in his autobiography.⁵⁰ This dream was instrumental in the formulation of Jung’s model of the self. The house, he realized, was him. As he descended he moved through his various layers, from his conscious self to the unconscious, until eventually he reached the primitive remnants of his ancestors, that common inheritance which we all carry with us



fig. 5
Whitread, *House*, 1993.
*Whitread's house provides a new way of
looking at the house*

that he termed the ‘collective unconscious’.⁵¹ This dream was instrumental in Jung’s discovery of the collective unconscious, but what is most interesting here is that the house had such a profound effect upon him as to completely structure his dream understanding of the self. We might suppose that the ‘verticality’ of the house, to use Bachelard’s term,⁵² conveniently matches up with the vertical structure of the psyche. On the other hand, we might say that it only seems that way because our familiarity with the vertical structure of the house makes it so that the world is necessarily understood through it. Either way, it appears that the house is important to our psyche, at least to those of us who live in houses.

Many, of course, don’t live in houses. In the West (and when we speak of houses here we are speaking of Western houses), what we now know as the house didn’t evolve until the rise of the bourgeois in the seventeenth century. Previous to this there was a wide range of shelters, many of them very primitive and some of them very large and complicated, neither of which really much resembled what we now call houses. In the middle ages it was common for as many as 25 people to live in the same ‘house’.⁵³ Today, many people live in apartments in towers raised high up in the air. Would Jung’s dream metaphor of the house have any resonance for someone raised in a two-bedroom apartment on the fifteenth floor? It’s hard to say. Nonetheless when we speak of the house here what is really meant is ‘dwelling unit’.

According to Leslie Weisman, it wasn’t until the nineteenth century that the house was formally divorced from the place of work, and as a result, she argues “no time in Western history was the home more celebrated as a repository for societal values than during the Victorian era.”⁵⁴ The place of work became definitively associated with the male, leaving the house the domain of the female. The house became the domain of feminine virtues as the woman became the “guardian angel” of the house,⁵⁵ and, indeed, if we look at nineteenth century texts on domestic economy such as those by Isabella Beeton or Catharine Beecher, this seems to be the case. Such texts are riddled with evocations of the ability of a good house-wife to hold her domain together. The care of the house, which at the time was largely with the abundant assistance of live-in ‘domestics’, was not just the task, but the vocation, of the woman, her Christian duty.

And it is within this context that the house became so seemingly indelibly linked with the feminine. Continuing into our present era, as Weisman has

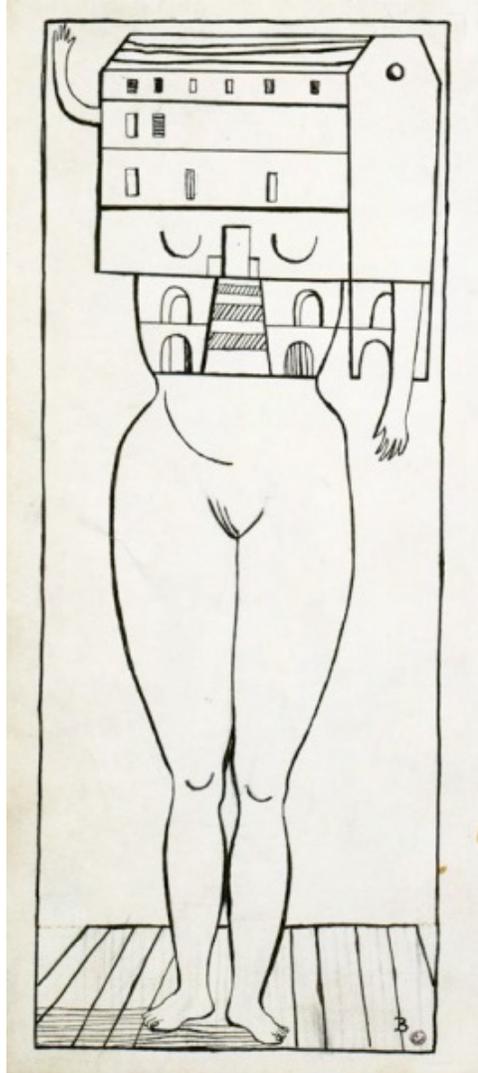


fig. 6
Bourgeois, *Femme/Maison*, 1947
House as woman, woman as house.

shown, even in completely dual-income households, most of the chores situated within house and related to the care of the household are the responsibility of women. In an early series of drawings by Louise Bourgeois, titled *Femme/Maison* (1947), the upper body of a woman has become a stylized depiction of a house. Her mouth, which oddly seems to be situated at her navel, is represented by the steps leading up to the door which reads as her nose. Her arms, protruding from the sides of this house-head-torso, are limp-looking and ineffective. She does not look comfortable in this arrangement, but rather a bit baffled, as if her sudden metamorphosis had taken her by surprise. We should not forget this identification of the woman and the house, the house-wife phenomenon. The house is the site of dream and it is the site of the working-out of many of life's big issues: it is a site of crucial existential significance; and for women it has often also been a site of containment.

Gaston Bachelard could rightfully be called the greatest philosopher of the house. In his *The Poetics of Space*, he speaks continuously in reverent terms of the existential dimensions of the house. Bachelard reveals the house as an “instrument for confronting the cosmos”.⁵⁶ Because of the reassuring enclosure of the house, it helps us say, “I will be an inhabitant of the world, in spite of the world.”⁵⁷ It holds us and constitutes the most intimate landscape that our Being encounters. Our rapport with the house is strong, and it participates actively in our subjectification, both structuring our interaction with that which is without, and actively engaging with us in its own right. As Bachelard puts it, “a house that has been experienced is not an inert box,”⁵⁸ but rather is deep with personal meaning. It is a party to our self-creation, and in many ways actually behaves as an extension of the self. When the territory of our house has been penetrated, for instance, as in a burglary, it feels like it is in fact the self that has been violated.⁵⁹ We should also consider Pallasmaa's observation that “to see an unattended home is the same as seeing its dweller naked or in his most intimate situation.”⁶⁰ In an important way, as Kingwell has observed, “the household interior is an extension of our embodied consciousness.”⁶¹ We both express ourselves to others through the composure of our interior spaces and make statements to ourselves about who we are. Bounding this interior, the skin of our house is actually like a second skin, like a shell.

The making of a house is thus an existential act of considerable importance. As Carl Jung put it when he went to construct his tower in Switzerland, he expected it to be “a kind of representation in stone of (his) innermost thoughts ... a confession of faith in stone.”⁶² No doubt in recognition of the sort of rapport we have with our environment, he saw the sculpting of this environment as a therapeutic act, as an aid in his lifelong project of self-definition. Notably, he was not overly forceful in this sculpting, however, letting the building grow over time as he dwelt in the house, paying close attention to his lived relationship with it.

Martin Heidegger, as we have seen, was likewise aware of the intimate relationship between our Being and the things around us. He, too, was very purposeful in the siting and construction of his place of dwelling. Heidegger, the enlightened sage, needed to be high up, removed from the bustle of the quotidian down below, in communion with the landscape from which he felt he drew inspiration. The window that opened out over his desk framed the mountains to the east so that he could properly engage with them while working. He had no books at hand, but rather, as Adam Sharr observes, “the mountains’ tangible presence and seasonal movements prompted explorations of existence ... For him, the very ‘nearness’ of the mountain situation preceded interpretation. The material he needed to philosophize was already then laid out before him.”⁶³ If the making of a house is a primary act of self-making, the act of looking out (and over) was obviously very important to Heidegger.

Houses are also made with rubber bands, though, and we don’t have to engage in the sorts of deliberate acts of construction like those of Heidegger and Jung in order to enjoy these existential benefits. A house unattended, that lacks proper dwelling, is hardly a house at all: a shell indeed, but an empty shell. Heidegger described dwelling as a ‘saving’ of the world, and also as a sort of cultivating. I would add to this the word ‘caring’. When we attend carefully to things, our fingers running softly along the rough texture of wood, our eyes playing games with the pattern in the carpet, we bring them into presence; it is a form of making. Carefully cleaning is a great example of this. As Bachelard says, in attentive cleaning “the house-wife awakens furniture that was asleep.”⁶⁴ And in this context, the more politically correct way of referring to a housewife, ‘home-maker’ certainly seems much more appropriate – the home-maker

literally brings the home into presence.

We may then think of the home-maker transforming a house into a home through their care, increasing our rapport with it. Care has the power to connect us to the world. When we say phenomenologically that in attentive care we make things, what we really mean is that we make them real for *us*. Care brings things closer to us, and us closer to them. How often we miss out on the potential of this kind of activity by rushing through tasks, when attentively engaging with our house instead could help us develop a rich rapport.



Fig. 7
*We are rapidly moving into an era where the pieces of
which we are composed may be replaced at will.*

TECHNOLOGICAL FLESH AND FIELD | 2



Fig. 8
*The technologization of flesh frequently
provides rich material for artists.*

TECHNOLOGICAL FLESH AND FIELD

Cleaning as ‘care’ can enrich our rapport with things. Yet we often act as if cleaning were somehow *beneath* us. It is a base necessity of life. Despite its resemblance to making, cleaning is labour, and it is always one of the first things to go once you’ve reached a certain level of dominance. In times when it was acceptable, slaves would do your cleaning for you. At other times, servants. Even today in the West cleaning is probably the most common task for wealthy households to hire paid labour for, along with yard-work and childcare. When, however, slaves, servants, or ‘hired help’ are not an option, we look to machines. We can see that, starting in the nineteenth century, along with environmental conditioning and cooking, cleaning is one of the most common applications of the machine in the house.

We’re constantly inventing machines to clean for us, like vacuum cleaners, washing machines and dish-washers. As we move into an era of robots, and it *does* appear that we are moving into an era of robots, it seems evident that the first household tasks for which they will be adopted will be cleaning-related. In South Korea, the Ministry of Information and Communication declared in 2006 that they were aiming to have 100% market penetration for household

robots by 2015,¹ probably mostly machines for cleaning.

A notable example in the West has been the recent success of the ‘Roomba’ vacuum cleaner. As though vacuuming wasn’t already easy enough, we can now purchase a robotic device that will wander about our houses cleaning up our dirt for us, avoiding objects and pets and precipitous drops with its built in sensors.² Expanding its market, the manufacturer of the Roomba, iRobot, has also recently released a mopping robot as well as a robot for cleaning eaves troughs.

The conditions of our dwelling have changed and continue to change on a regular basis. Our world of things has rapidly become a world of technological things, and the development, the mutation and enhancement of our technology is moving at an increasingly rapid rate. To ignore technology in the discussion of dwelling, to say it’s irrelevant, or to search for modes of dwelling that can be practiced outside of technology, is naïve. For, as Alberto Pérez-Gómez has written, “the reality of our changing mental landscape and our technological flesh” is “undeniable”.³ It is as if our technology, once an array of convenient tools, has become more like a “biological development,” to use Arendt’s description, which belongs to us, “as the shell belongs to the body of the turtle.”⁴ We are surrounded. We have repeatedly and continuously transformed our world until the field which we occupy and against which we define ourselves has become a thick palimpsest of technology. As we’ve said of architecture, our development of this technological field is both predicated upon and has a direct affect upon cultural attributes and attitudes.

For example, take the invention of the mechanical clock. According to Lewis Mumford, the invention of the mechanical clock marks a crucial moment at the beginning of the new ‘mechanical civilization’, but it in effect manifested in technology an already present view of the world as carefully ordered and metered out by God. Following the Rule of St. Benedict, the monks were already living their lives according to a strictly organized schedule in keeping with what they understood about the principals of the world. When the monks invented the mechanical clock, like most technology, it both reflected the prevalent habit of understanding and reinforced it.⁵ In addition to the affects that it has upon us, the technological field can be read in this fashion, as a mirror held up against our ways of understanding and our desires.

And many of these desires persist over time. While our technology continues

to change abruptly and massively, much recent development is linked clearly by lines of desire with our earliest of dreams. Man, for instance, has always wanted to leave the ground behind and soar through the heavens. Similarly, it has always been a fantasy to control things remotely, to animate the parts of the world not directly attached to our body, and also be able to communicate our thoughts directly from one mind to another without an outward betrayal of the act. Technology has often been designed along the lines of such largely unarticulated existential desires of freedom and extension of human agency.

Before moving explicitly into the territory of the house it will be useful to first attempt to define some of these lines of desire. I would therefore like to highlight six vectors that seem to be traceable in current research and development: *miniaturization, immediacy, connectivity, maximization, simulation, and correspondence*. These vectors are extracted from both the fanciful visions of scientists and from real technology. Scientists of technology are certainly not incapable of daydreaming, in fact we might say it is what they do best. The rest of this chapter attempts to read these fantasies (and their enactments) for what they reveal about us, so that this may first be understood in terms of our changing humanity and then be situated within the territory of the house.

MINIATURIZATION

As computational technology tends to get more and more powerful, following Moore's Law,⁶ the electronic devices that we use in turn become smaller and smaller. Clearly one of the primary trends of technological development is *miniaturization*, applying to our telephones, our personal computers and even the engines of cars. Today we can hold in the palms of our hands devices far more powerful than the room-sized computers of forty years ago. It seems to be assumed by researchers that we want our things to be smaller. There appear to be several reasons for this appeal. The resource conservation implicit in the manufacture of smaller things make them more economical to produce and more profitable to sell. Further, smaller technological things are less of a burden to consumers, allowing both a more seamless integration into the environment of their life and greater portability. As our technological things get smaller and

smaller, the more they become mobile and move around with us, accompanying us wherever we go.

Not only are pieces of miniaturized technology easier to integrate into our living environments, less conspicuous additions to our landscape of Being, they are also easier to integrate with our bodies. It seems like there is a clear line linking portable technology (like a revolver in its holster at our waist) with prosthetics. We move from the large, fixed telephone of the bourgeois to the smaller, abundantly available telephone of the mid-twentieth century, to the portable phones wielded by bubble-gum snapping teenaged girls in the 1980s, to 'pagers' hung from the waist, eventually to cellular phones which seem to get smaller and smaller. Bluetooth telephone apparatus that snap onto your ear, one of the most visible recent examples of miniaturized portable technology, are practically prosthetics. Following this logic, it would appear that the obvious next step is technology so small it may be easily implanted in your body, and indeed this is happening.

'Hearing aids', a technology we have all become familiar with, are essentially tiny microphones and speakers that can be implanted in our ears, which would not be possible without miniaturization. That is just the beginning, however, with researchers today taking this much further. New devices actually translate acoustical information into electrical pulses that may be used to directly stimulate the cochlear nerve.⁷ Other aspects of our body are similarly being augmented as well by tiny technological components. Miniature video cameras for instance can now be affixed to our eyeglasses that we can then transmit visual information either to our retinas or directly to our optical nerves.⁸ Defibrillators are now so small that they can be carried around actually within the body of the person whose heart may stop.

Microchips can now be easily implanted directly into our bodies, too, as in the case of Kevin Warwick at the University of Reading. In 1998, Warwick had a small silicon chip implanted directly in his arm with the capacity to generate a radio frequency. This allowed for immediate identification of him by the architecture around him equipped with radio sensing technology. Approaching his office in the morning, his door would unlock, the lights would come on, his computer would turn on, and an electronic voice would greet him, all automatically. The miniaturization of the chip, paired with the radio frequency identification technology (RFID) allowed his presence to be 'felt' immediately by the environment without him barely having to take any action.⁹

IMMEDIACY

In addition to portability, unobtrusiveness, and resource conservation, evidently one of the desires manifested in miniaturization is our wish for *immediacy*. The defibrillator for instance which is small enough to be implanted in the body of the subject satisfies a desire for the heart to be immediately restarted once it begins to fail, causing a minimal amount of damage to the body. In this case the delay is a matter of life and death, but often our desire for immediacy has more to do with our daily struggle with the press of time, and, more frivolously, mere impatience. The longing for an immediate reaction is clearly related to the breakdown of barriers to human agency. Think of our earlier example of the remote control. It allows us to remotely manipulate the world. By moving our thumb only a half an inch we can immediately induce change, maybe causing the blade of a fan to begin to rotate overhead. This is what is meant here by immediacy, an exaggerated version of what we referred to earlier as expediency. Expediency is one thing, and can be seen, alongside liberation, as one of the primary forces at work in our will-to-technology. Immediacy is simply expediency as it approaches infinity.

This erosion of obstruction between will and effect is visible in all manner of our technological advancements. While at one point I would have needed to physically cross town to alert a colleague of a particular change in plans, the original static telephone allowed me to suddenly be able to do it from where I was. A cellular phone allows me to not even have to get up from my chair. Bluetooth, combined with voice recognition software, allows me to not even have to use my hand. I can speak with someone across town, or across the world, as easily as if they were standing in the same room. Time and distance, natural barriers between will and effect, are transcended. This desire for immediate effect also leads us to want to seamlessly interface with our machines. As our computational devices have increased in sophistication, our ability to easily communicate with them has increased as well. The history of interfacial technology is the development of increasingly fluid means of translating what we want the machine to do into the immediate enactment of that desire. These interfaces continue to become more intuitive and less visible until they threaten to disappear entirely. So-called ‘tablets’ which allow a user to draw more or less how they would directly



Fig.9
Promotional image for Emotiv EEG headset
*EEG sensors allow us to control devices with
our minds*

on a piece of paper and have their action be plotted in a digital image are a good example of this, bringing personal expression and computational ability that much closer. A different approach, but also demonstrative of the desire to diminish resistance in the translation of human desire into computational effect, is displayed in a recent design by NTT DoCoMo, of Japan. DoCoMo has developed a prototype device that monitors eye movements in order to flip from track to track on a portable music device.¹⁰ This way you can select your music without using your hands. Presumably, once you got used to such a technique it would soon feel like you barely had to think about your musical selection for it to be enacted. And indeed that would seem to be the natural extension of this sort of development. The most interesting (and invasive) advances in interfaces between people and machines involve tapping directly into our neural activity using an EEG (electroencephalogram) array. Consider for instance the ‘mental typewriter’ developed by the Fraunhofer Institute in Berlin that allows people to move a cursor around on a screen by only using their brainwaves.¹¹ Or, take the University of Wisconsin researcher who recently managed to micro-blog using nothing but his mind,¹² or the baseball cap recently developed by researchers in Taiwan that uses EEG signals to detect drowsiness in drivers. The hat then sends a Bluetooth signal to an onboard computer which alerts the driver that they should pull over. These sorts of developments take ‘virtual telepathy’ well beyond the cellular phone or our remote control example from earlier. The Taiwanese researchers go so far as to suggest that such a technology could someday be used to control “household electronics devices”¹³ In the future maybe all it will take is a single thought to make a cupboard door open, or a fan blade rotate overhead.

CONNECTIVITY

What is particularly interesting about the cell phone example is of course not just its miniaturization or its ability to produce an immediate effect of desire, but that this effect is felt at a very great distance from the place where the desire originates. Simultaneous to our closer and more constant interaction with our tools, our tools are increasing in their vast and perpetual *connectivity*. Our things



Fig. 10
Photos of Steve Mann over the years
*Mann's wearable computing became
increasingly miniaturized*

become technologized, and when they become embedded with computational ability we program them to communicate with each other. Everything becomes connected to everything else, and inevitably, as William Mitchell has pointed out, we are also connected to it all. In this new networked world, as Mitchell has put it, “I am inscribed not by a single Vitruvian Circle, but within radiating electromagnetic wavefronts.”¹⁴ We are suddenly much larger than ourselves, able to both learn about and affect change upon things that are very far away.

Steve Mann at the University of Toronto has been experimenting with visual augmentation such as described earlier for many decades now. His EyeTap technology captures a moving image of what is around him and then projects it directly onto his retina using a low-powered laser. This allows for other information also to be layered on top of the stuff around him, allowing him to send and receive email and surf the Internet while simultaneously interacting with the immediately adjacent world.¹⁵ Further, not only does his perception include the contents of his expanded networks, but he has been broadcasting visual information about the world around him onto the Internet for years so that others could view it. This opens up fascinating potential for pseudo-telepathic connections. As Mann describes, “while I am grocery shopping, my wife – who may be at home or in her office – can see exactly what I see and help me pick out vegetables.”¹⁶ And not only can she see what he sees, but she can also communicate with him in real-time by literally projecting words and images onto his retina. Thus Mann, as an ‘electro-nomadic cyborg’,¹⁷ to use Mitchell’s apt phrase, can stay in close communication with his wife even while very far away from her, thanks to the confluence of miniaturization, immediacy, and wireless networking.

NTT DoCoMo, the Japanese company developing the eye-controlled music device is also working on a project for cellular phones that remotely transmit emotion. These phones would contain ‘biochips’ that would be able to detect “excitement, emotion, stress, or disease” from your skin and transmit this information to the person you are speaking with.¹⁸ This information would be revealed through basic biometric data such as skin conductivity, temperature, pulse, and possibly even pupil dilation. As if this wasn’t enough, another experiment being conducted by Kevin Warwick in the UK involves actually connecting the nerve endings in his arm to a chip with radio broadcast capability. For

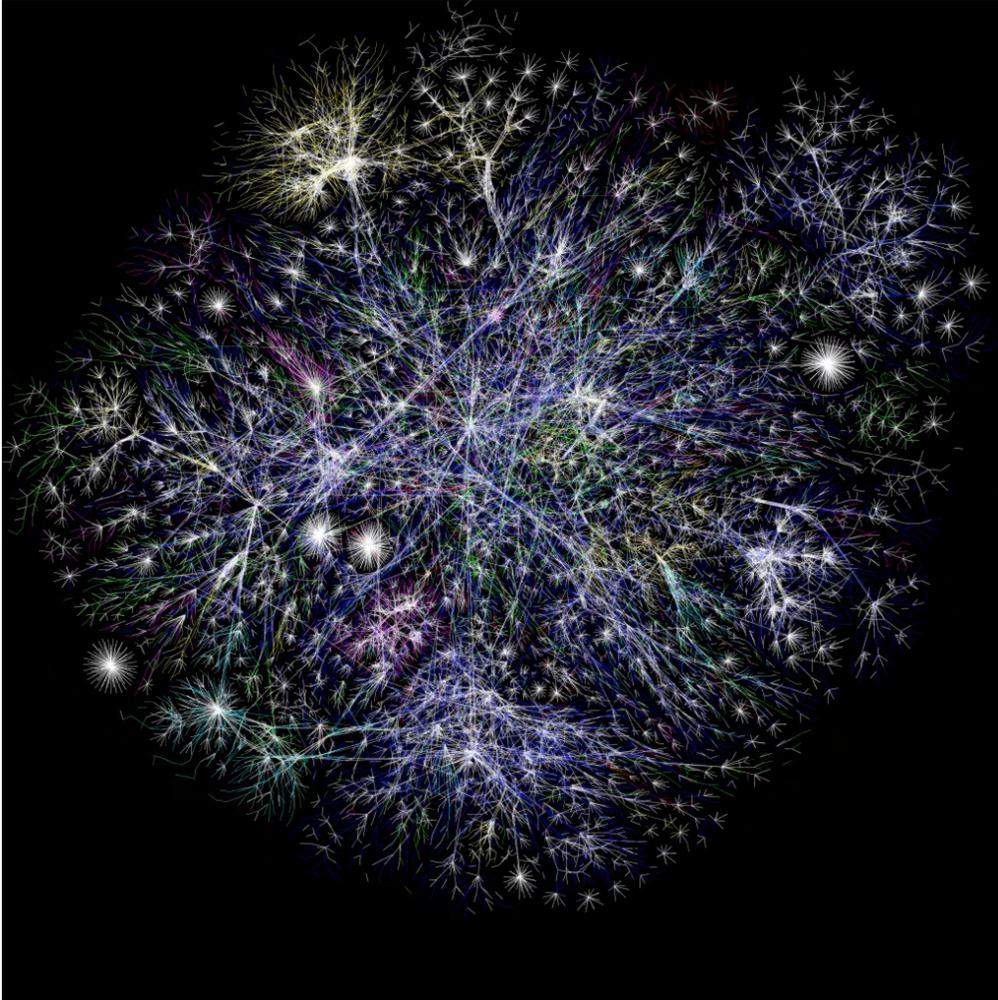


Fig. 11
Map of Internet, based on data from Jan. 15, 2005
Beyond the Vitruvian Circle.

this experiment, Warwick also had his wife install a similar sort of chip in her arm, the idea being that he would then be able to communicate directly to his wife the emotion carried by the nerves in his arm.¹⁹ Potentially, she would be able to feel what he feels. If, then, Warwick and Mann were both at the grocery store, side by side, while Mann's wife could see how ripe, bruised or damaged the peppers were, Warwick's wife would be able to sense how he really felt about the cucumbers.

Australian artist Stelarc has taken this networking of human experience in slightly different directions. In his *Ping Body* performance of 1996, for instance, and many similar performances later on, Stelarc created a virtual avatar of himself online that could be manipulated remotely by people all over the world. He then mapped this avatar directly onto his own body using electrical impulses operating as actuators for his own muscles. He connected these actuators to many points all over his body, so that when someone accessed his avatar on the Internet and moved part of it, his muscles would involuntarily respond to the stimulation, forcing him to make the same movement as the avatar.²⁰ In this performance, demonstrative of his notion of the Internet as an extended nerve system,²¹ he gave over the control of his body to a network of anonymous 'users' who proceeded to move him about the stage regardless of his will. In performances such as this, Stelarc reveals to us is that networks may potentially be used in both directions, both as a way of extending our will immediately outwards into the world, and as a means of negating our will entirely.

MAXIMIZATION

In 2006, working in a slightly different vein than Stelarc, researchers in the United States managed to get a monkey in a lab at Duke University to control a robotic arm at MIT using its thoughts alone. The researchers implanted the monkey's brain with an invasive sort of brain machine interface similar to EEG that directly transformed evidence of brain activity into digital signals. This information was then streamed across the internet to Cambridge where it was used to manipulate the arm. As one researcher commented, "it was as if the monkey had a 600-mile-long virtual arm".²² What a fantasy! Indeed, that's

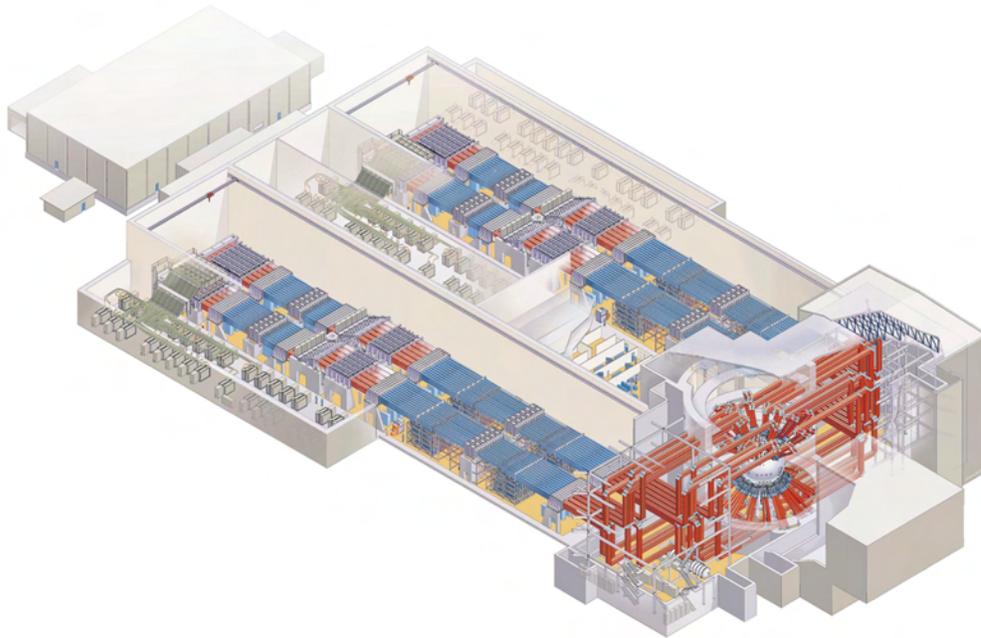


Fig. 12
Axonometric of the National Ignition Facility.
*This machine is the size of a football stadium., its
lasers are 1/3 of a kilometer long*

exactly what it was like. With the aid of our developing technology, this monkey easily stretched out its arm across the once wild and daunting United States of America, and reached for a banana.

This sort of demonstration goes far beyond the space-shattering phenomenon of the telegraph, or the telephone, or the television. This ventures even beyond the frequently imagined video-phone of science fiction. It is now possible to actually manipulate things, whether directly with your mind or with cruder physical movements, at a great distance. As writer James Geary speculates in his *The Body Electric* (2002), in such a future as that imagined by these researchers at MIT, “robotic appendages located in remote locations would be as close as our fingertips, as would virtual limbs situated in cyberspace. Someone in Tokyo could literally reach out and touch someone in Topeka over the Internet.”²³ At the same time that nanotechnology allows us to build robots at the scale of a flea, our reach grows to the scale of the globe.

Perhaps inevitably, our technology is growing in both directions. It is both getting smaller and much larger. Partially as a result of networks, partially due to our capacity to efficiently fabricate parts in massive batches as well as at massive scales, and also due to our relatively newfound abilities to harness seemingly endless quantities of energy from nature, our horizons of agency have expanded enormously. Our nets of infrastructure are woven over the entire surface of the globe. Ambitious engineers are building giant machines the size of small towns. The Large Hadron Collider (LHC), which opened in Switzerland in September 2008, is a scientific instrument 4 meters in diameter and 27km in length, built to discover the very smallest pieces of matter imaginable.²⁴ This is arguably the largest machine ever built. Not as big as this, but close, in 2009, the US National Nuclear Security Administration opened the National Ignition Facility (NIF), another large machine, this time composed of 192 oversized lasers. The goal this time is not to discover small particles but rather to ignite them, to create a similar nuclear fusion as that which occurs in stars.²⁵ Observing these sorts of projects along side our global economic, telecommunications, travel, and energy networks, it is evident that humanity is now operating at a scale hitherto never possible. And of course with the sort of tremendous power we gain from these infrastructures comes tremendous responsibility. Small adjustments in the form and operation of these infrastructures have a large and lasting impact upon the

world, whether intentional or accidental. And having in this manner inflicted vast negative effects upon the planet, it is only fitting that we are now attempting to affect the same sort of scale of influence, but positive this time. In response to global warming, for instance, researchers are now recommending such drastic, large-scale options as painting our clouds white, launching hosts of satellite sunshades, and building large, building-sized air purifiers.²⁶

SIMULATION

Image sensors, such as the charge-coupled devices (CCD chips) found in most digital cameras, have the capacity to constantly capture reflected light, and thus a visual image, and convert it into digital code. A similar technology is employed in ‘scanning’, in which a high resolution image of the graphic contents of a flat surface is again produced in digital code, or in satellite photographs in which a digital impression of a plan view of a segment of landscape is created. All of this is, however, two-dimensional, each an entirely ‘framed’ partial perspective. New, 3D scanners which rotate around an object, actually create a new sort of ‘image’, an object-centred representation which is free from the spatial distortion of a simple static lens. The three-dimensional digitally-coded ‘model’ of the object thus produced, or alternately produced through laboured construction, is hence free of perspective. Our tools give us the power to record, mimic, and even *simulate* the things about us, normally in a biased, two-dimensional fashion, but increasingly in a manner that attempts to even escape this ‘situatedness’.

In some ways many historical experiments of photographers, draughtsmen, and painters have attempted to create complete, thorough representations of the world about them – to compulsively, even feverishly, record. Steve Mann, with his constant rapportage of visual and auditory experience, as well as his digital behaviour and even his own biological data such as his heartbeat, exemplifies this tendency even more completely.²⁷ And, cooperatively, as we have found ourselves with miniaturized photographic equipment augmenting our bodies, many of us are starting to take on this task as well, visually documenting the world as we move through it and posting it to the Internet. Rapidly, on-line,

a simulated version of the world grows. If you failed to attend an event that you wanted to go to, you can be sure nonetheless to find digitally coded visual depictions of it after the fact, probably even annotated with comments.

Nobody, however, has taken this as far as Google, Inc. The company was created in 1996 as a search engine for websites on the Internet, but soon its mission statement “to organize the world’s information”²⁸ came to mean something quite different than what it had originally meant. In 2004, Google, Inc. acquired the hi-tech start-up Keyhole, Inc., a company that had created a viewing software for piecing together disparate and fragmented satellite imagery. Through this application, re-branded as Google Earth, Google was not only able to aid you in imagining the world of the Internet, literally scripting a view of something that hitherto had seemed impossibly amorphous, but provided you with a comprehensive view of the entire earth’s surface as well. Also in 2004, Google initiated its Google Books program. It began sending trucks to many large libraries in the United States, and shipping large quantities of books off to be scanned. Using special software, Google was able to represent the contents of these books not just as graphic images, but as a series of character sets, comprising text. Suddenly, Google was able to make available online the full contents of any book in the public domain that they could get their hands on, and much of the content of books under copyright. In 2006, Google launched Google Patents, giving users access likewise to over seven million US patents.²⁹

Also in 2006, Google, Inc. purchased a company called @Last Software, the manufacturer of the 3-D modeling program Sketchup. This allowed users to construct 3-D informational representations of their surroundings and *place* them on the field simulated by Google Earth, where other people could discover them. This made Google Earth legitimately a navigable three-dimensional simulation of the earth. But this was just the first step: in 2007, Google began to augment the three-dimensional qualities of Google Earth with a new initiative called Google Street View. Google employees began to drive specially designed cars about major cities around the globe, taking constant panoramic photographs while they went. These photographs were then uploaded into a database cross-referenced with Google Earth.³⁰ Through these activities, plus such policies as enabling users to warehouse every email they ever sent or received, Google is not just cataloguing the information of the world, but effectively is creating a digital

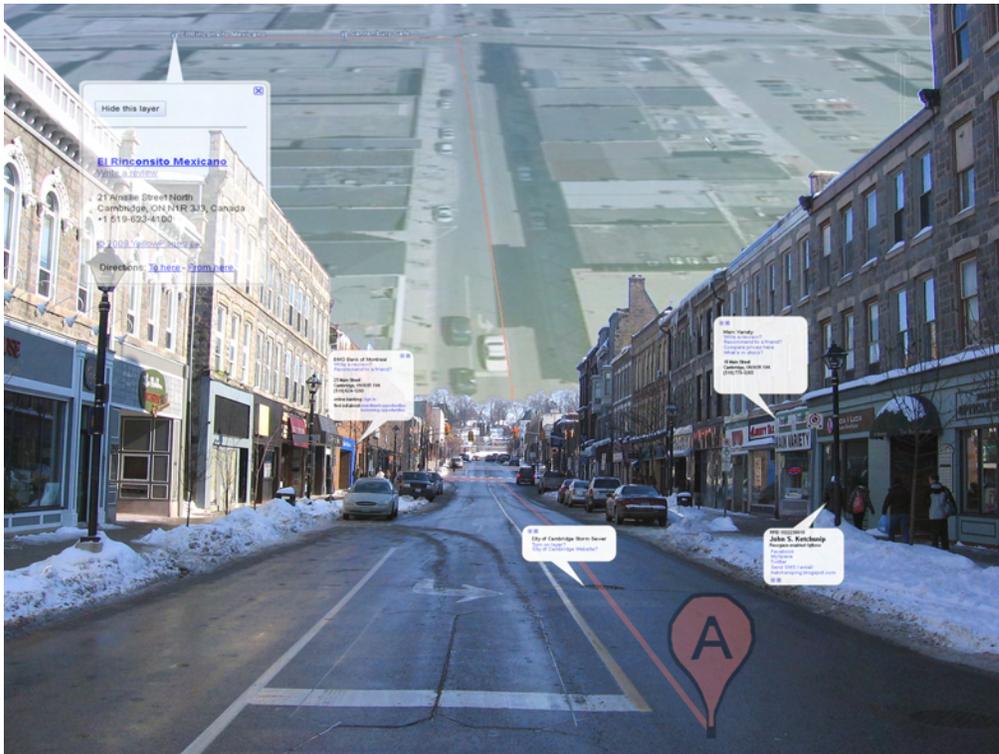


Fig. 13
Increasingly the 'real' world is being augmented by the 'virtual', creating a condition of correspondence between them.

simulation of everything, a *digital shadow* cast by the real world.³¹

Through these phenomena, exemplified by the activities of Google, Inc., but aided everyday by our own activities, the world is being recreated as information, a virtual world parallel to the physical World of Life historically occupied by humanity.

CORRESPONDENCE

As technology becomes immediately responsive, miniaturized, and networked, there is a growing propensity for this digital shadow to lie next to or on top of the real. We could say that there is increasingly a direct *correspondence* and interactivity between the virtual and the real, such that the virtual and the real begin to continuously affect one another and the subject's perception starts to encompass both simultaneously. In such a *mixed reality*,³² both the virtual gains in its potential to enhance the real, and the real may also enhance the virtual.

This sort of new environment of correspondence is not as speculative as it sounds but is actually something we live with on a day to day basis, and in many ways is as old as consciousness. As soon as I am living not just in the given world but also in my understanding of the world, mediated by remembered experiences of it, I am living in something of a mixed reality. When I read a book about a city and then visit it, I am inhabiting both the 'real' city and the 'virtual' city of the book. Similarly, walking through a city with a map I am experiencing both the city from the situated perspective of my pedestrianism and from the 'Apolonian' perspective of the cartographer. The question becomes, how has this experience of the city changed when instead of a map I am carrying a digital GPS device that doesn't just show me the city but locates me in it, as well as potential points of interest and utility. The experience has changed, but has it changed in kind? There is a clear line that can be drawn from the influence upon experience of the pre-digital book and map and a GPS-enabled smart phone.

With the new technologies, whether it is a smart phone or a wearable computer like that of Steve Mann that literally projects virtual information on top of the perception of the real, the augmentation of the experience is immediate and is constant. In response to this, a whole host of so-called 'geolocative' ap-



Fig. 14
*The virtual increasingly augments the 'real', and
the 'real' the virtual.*

plications have recently been developed. Fire Eagle, for example, a Yahoo! Inc. company, allows you to regularly update your location on a remote server. Fire Eagle then shares this information with secondary applications that use this information to suggest, for instance, things for you to do, or people nearby that you have similar interests to.³³ Geolocation, in which your ‘real’ position is plotted virtually and thus associated with other virtual information about the real is one example of this correspondence.

This virtual tracking of physical things can occur through GPS, through the triangulation of your position using satellites, or through other technology like RFID, as discussed earlier in the example of Kevin Warwick. RFID allows an object, or a person, to have a virtual identity tied to them and hence to occupy a sort of mixed reality. Objects that have this dual reality are not uncommon, such as the computer mouse or the stylus used to write on a tablet. A more complicated version would be something like the Cyberglove developed by the MIT Touch Lab that literally allows you to reach into virtual space. Not only does the Cyberglove plot the movement of your hand in virtual space, but when you touch something in that space, the computer generates ‘force feedback’, a physical register of the contact.³⁴ In this manner, virtual space, such as that represented by our current understanding of the Internet, may soon be something that we can touch.

But correspondence between the virtual and the real is both about the augmentation of the virtual with the real and the other way around. Steve Mann, for instance imagines that if several people were to adopt the sort of wearable computer he has developed, they could leave virtual impressions for one another upon the real world they move through. It would be possible to leave a virtual sticky-note on a door that could be perceptible only by the intended recipient. Another interesting example of correspondence is that demonstrated by the MIT Media Lab’s Hiroshi Ishii. Ishii wants “to join the richness of the physical world with digital technology.”³⁵ As one way of approaching this question, he has created a table that responds to a series of old glass bottles that may be placed on top of it. The array of bottles, some brightly coloured, others hand-blown by Ishii himself, sit nearby and represent different types of information. In his words, “people have used glass bottles for thousands of years ... why not use them to hold digital information? ... Laptops and desktop PCs are not the only

place in which digital information can, or should, reside.”³⁶ When these bottles are placed on the table, and their stoppers removed, different information is revealed, like music or the local traffic conditions. When the stopper is replaced, the corresponding information flow stops.

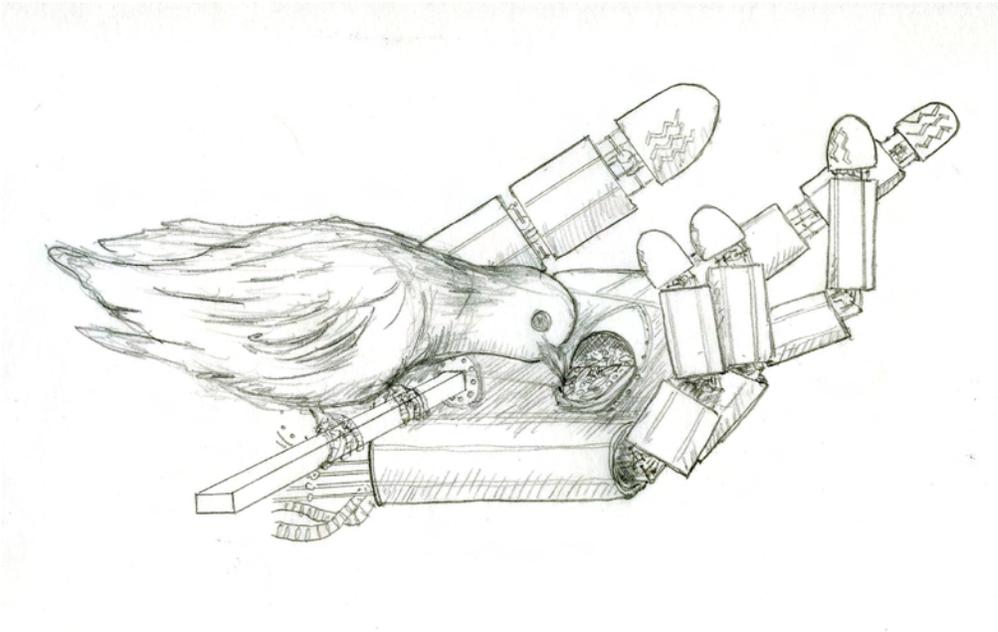


Fig. 15
Mechanical hand designed to augment
one's relationship to 'nature'.
*If our parts are replaceable, perhaps we can
choose replaceable parts that make us more
effective at caring for each
other and the world.*

CYBORG | 3

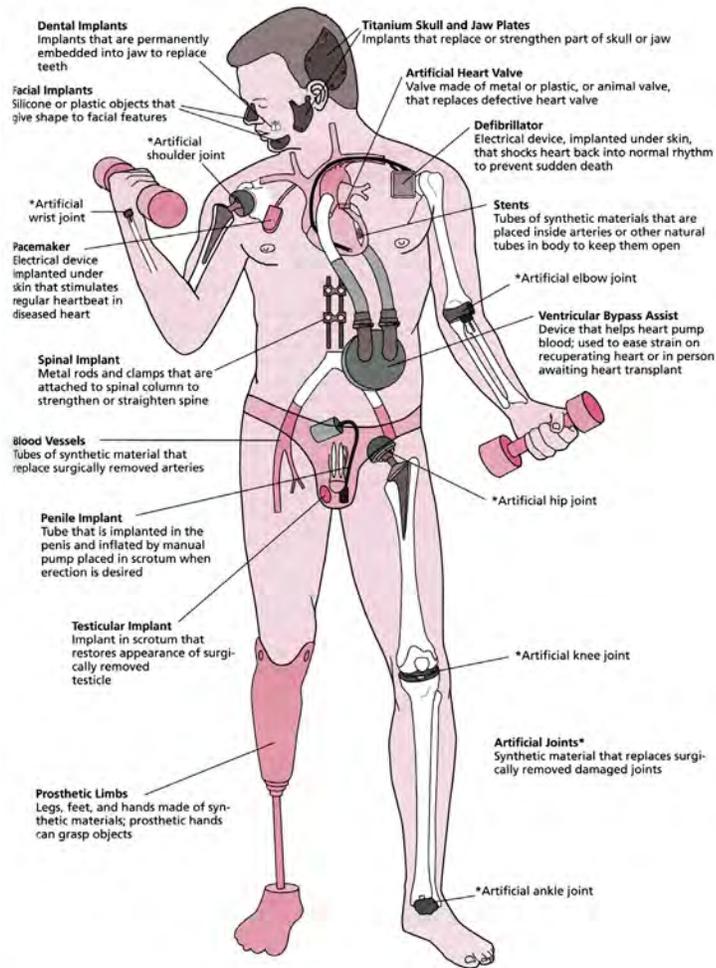


Fig. 16
 “Replaceable Parts of Irreplaceable You”
 from Harvard Medical School Family Health
 Guide, 1999
*We are becoming increasingly accustomed to
 the technological augmentation of our bodies.*

Cyborgs are not spooky things of the future. We are all already cyborgs. As Mitchell put it, “it is not as if we became posthuman in the wireless era; since Neanderthal early-adapters first picked up sticks and stones, we have never been human.”¹ It is common to be unnerved by the idea of the cyborg, which has always been seen as somewhat monstrous. Steve Mann, with his early experiments with wearable computing, seems to have put up with a lot of ridicule, being called a ‘freak’ on a regular basis. But now he is just as often revered as a visionary. As Norbert Weiner once commented, it used to be an assault on our dignity to be likened to an ape, but we seem to have gotten over that.² Might we not eventually also get over the fear of being part machine?

We have been wearing eyeglasses to improve our vision since the middle ages. Why is this any different in kind from improving our vision with implants directly tied into our optical nerve, or the creation of new, unexplored senses, fed directly into our brains? In Turkle’s *Evocative Objects*, Joseph Cetello, a diabetic, writes about his glucometer that allows him to read his own blood-glucose level and medicate accordingly. His device has become a part of him,

his ritualistic self-administration as natural as eating. The whole process has become so intrinsic, he writes, “it is difficult for me to remember that I have diabetes.”³ In Turkle’s language, the glucometer has become co-extensive with his self. “In the cyborg world,” writes Turkle, “we move beyond objects as tools or prosthetics. We are one with our artifacts. And in the cyborg world, the natural and the artificial no longer find themselves in opposition.”⁴ Not just technologies intimately involved in the function of our bodies become co-extensive with us either, but also ‘close’ technologies like the laptop on which I am writing this, or whatever medium through which you are reading it.

The fundamental point is that our technology is a part of us and as it changes, so do we. As we saw in the last chapter, it is changing quickly. Joseph Dumit et al described it this way in their ground-breaking, “Cyborg Anthropology” of 1992: “human subjects and subjectivity are crucially as much a function of machines, machine relations, and information transfers as they are machine producers and operators.”⁵ The question becomes, who is watching as we completely transform ourselves? Despite technology’s capacity for liberation and for extension of will, what of Heidegger’s worries about the mastering of the world? What of the potential for maximized, networked technology to enslave not just the world, but us too, turning us into units of work? What of the capacity for wireless miniaturized technology to cast us adrift in a solipsistic sea of simulation? The worry is that no one has their hand on the tiller, and that we might become, as Arendt fretted, “helpless slaves, not so much of our machines as our know-how, thoughtless creatures at the mercy of every gadget which is technically possible, no matter how murderous it is.”⁶ It does seem as if there aren’t nearly as many hand-wringers about technological change as there are enthusiasts and people who ‘pragmatically’ see it as inevitable, a sort of teleological pull that will leave you in its wake if you don’t grab on to the tow-rope.

Anthony Vidler’s assessment of Diller and Scofidio’s *withDrawing Room* (1987) as both a home for cyborgs and also a “no-man’s land,”⁷ clearly shows that he sees the merging of the human and the machine as detrimental to our experience of the world. In the *withDrawing Room* project, D+S tear the house apart, dislocating furniture, making it unusable with ambiguous technological ‘augmentation’. Vidler’s vision of the electro-nomadic cyborg is decidedly lonely, alienated from home and other beings through her technological mutations.

It's easy to see how our technology does have the potential to do exactly that, seeing strangers on public transit oblivious to one another, awash in their digital occupations, or given the reputed creep of portable electronic technologies into the family lives of middle-class North America.⁸ Consider the 'awakening of furniture' described by Bachelard in relation to the way of life implied by the Roomba vacuum cleaner: something is lost.

Additionally, the primarily visual nature of much of digital technology threatens to aggravate the ocular-centric division between body and mind present in Modernism in which we are figured as visual apparatus atop two legs. The graphic nature of the Internet, combined with the logical structures of its cybernetic construction seem to emphasize the thinking rather than the feeling parts of the self and this is enacted through the eye.

Technology, however, does not necessarily need to alienate us from each other, nor be solely a means of mastering, nor imply an ocular-centric subject, inert in front of the blue glare of a screen. In fact, as philosopher of science Donna Haraway declared in her 1985 essay, "The Cyborg Manifesto", the coming merger between humanity and machine actually offers a great deal of political potential. In her ironic 'manifesto', Haraway forged a strange but influential argument in favour of our increasingly *cyborganic* condition, an argument that continues twenty-four years later to have a pervasive influence on the imaginations of writers about technology.

What attracted Haraway to the cyborg was its implied blurring of boundaries. A radical Marxist and feminist, Haraway pointed to the way that Western thought had a tendency to construct dichotomies, dichotomies that she saw as being "systemic to the logics and practices of domination." This includes such central and problematic dualities as self/other, mind/body, culture/nature, male/female, civilized/primitive, reality/appearance and whole/part. All of these constructed dualities stand in the way of the free, truly egalitarian world that she wanted to believe possible. Emancipation, therefore, lay in their destruction, and thus she presented the model of the cyborg. Like Wiener, Haraway saw the blurring of the boundary between humanity and machine as offering possibilities for the blurring of other distinctions.

Haraway already perceived, as Wiener had, the blurring of the distinction between person and animal in the natural sciences, and hoped to see it blurred

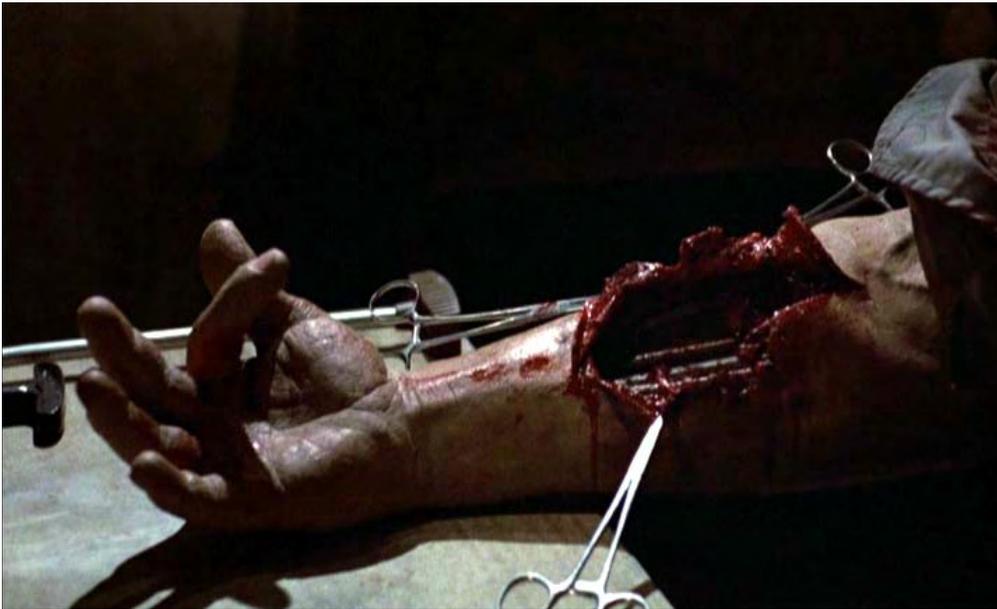


Fig. 17
Screen shot from the film *Terminator*, 1984.
*Film is a popular medium for making sense of
the blurring distinction between humans and
machines and dealing with the anxiety that this
causes.*

even further. Her dream - a “monstrous”, “blasphemous”, “ironic political myth” - was that the distinction between the emerging man-animal and the machine, which she saw as being increasingly leaky, would disintegrate entirely. In the resulting monster, the cyborg, she saw hope for us. In the image of the cyborg, the opposite of purity, an ironic merger of dualities devoid of hope for resolution, Haraway saw “bases for new kinds of unity across race, gender, and class.”¹⁰ Great riches are to be found in the erosion of traditional distinctions as it destabilizes the dominant narrative, making room for new networks of meaning.

William Mitchell’s primary contribution to this discussion has been to highlight the effects of wirelessness and networks on the new cyborganic condition that Haraway had foreseen. We are transformed by our new level of connectivity. As Mitchell writes, “I am inseparable from my ever-expanding, ever-changing networks ... not only are these networks essential to my physical survival, they also constitute and structure my channels of perception and agency – my means of knowing and acting upon the world.”¹¹ In this new electronic era, our networks are becoming more immediate and constantly engaged with our cognition. Our image of ourselves is inaccurate if it does not include these networks.

DISINDIVIDUATION

In order to attach to these networks we must first identify ourselves. Identifiers take two distinct forms. First there are loose identifiers able to be carried by anyone. This category of identification would include mechanical keys that unlock doors, but also text-string passwords and wearable RFID tags. These identifiers are elective and can be carried by anyone. As Haraway had predicted, we are frequently now identified by encoded representations of ourselves.¹² Biology has been working hard at breaking the code of our genetics and finding various other ways to categorize our individuality – such as fingerprints, retinal scans, etc., a project, as Haraway insightfully observed, not unlike cryptography.¹³ The second type of identifier of the cyborg then is not elective but integral and includes our DNA code as well as our fingerprints, but also implanted RFID tags such as that experimented with by Kevin Warwick. One analogy for these two sorts

of identifiers would be the floating versus static Internet protocol address. It is common for some networks to demand that a computer retain a static address, so that it is identifiable and the behaviour enacted through it traceable. Other networks, however, fluidly assign new addresses as computers join or leave, thus not necessitating a hard link between the identifier and the identified.

This, of course, has serious political connotations. There are times when we don't want to be identified, and that is as it should be. Compulsory integral identification has obvious resonances of totalitarianism, in which the individual cedes their power to a controlling system. The problem with the translation of the self into code as implied by biometrics, essentially a quantification of the self, is that while it makes us more network-ready, it reduces us and in so doing, is easily put into the service of surveillance. It seems clear that we should resist the temptations of codification, and although it makes us fit better with both machines and with networks, we must remember that there are other options besides integral identification.

The question here is how exactly we stand in relation to our machines and networks. As we know from cybernetics, the point behind codification is to make two things 'interface' with one another. If two machines are operating in the same language then you can plug them into each other; you can network them. It's the same with humans: our great systems, like democracy and the market economy, depend on our predictable and understandable behaviour. More totalitarian societies have required a greater degree of regularity in order for their machinations to run smoothly. Technology is both fitted to our needs and in turn requires particular behaviour from us. The simplest tool bears implications as to how it is to be used, and the more complicated the tool, generally, the more specific its use becomes.¹⁴ We saw something similar earlier with the particularity of the chair. A bench allows for many different people to use it in a variety of ways, but not Le Corbusier's chaise. Technology liberates, but as the field of technology thickens along with our technological flesh, the distinction between its ability to serve us and its power to control us blurs.

As Arendt says of the mechanization of labour, "unlike the tools of workmanship, which at every given moment in the work process remain the servants of the hand, the machines demand that the labourer serve them, that he adjust the natural rhythm of his body to their mechanical movement."¹⁵ The

industrial revolution caused a disindividuation of the workers as the individual craftsman was reduced to a ‘unit of work’. As the French economist Bernard Stiegler has pointed out, this does not stop at the factory door. “When proletarianism extends to ever-widening spheres of activity through progress in automated tasks,” he explains, “the result is psychic and collective disindividuation.”¹⁶ The automation of labour threatened to reverse the process of individuation, both in the factory and in the office. While this was the case with industrialization, we must consider if it is still true today.

For the electro-nomadic cyborg, standing in a room with a remote control in his hand, the remote control allows him to manifest change in the world with very little effort. It makes him very powerful. But does this make him more articulated from the world as an individual? Does the new technology render him more or less individuated? Despite his increased power as an individual, the tool still blends him with the world. Through his networks, as described by Mitchell, he is linked to the rest of the world by a pseudo-telepathic connection. Being increasingly networked certainly *feels* like disindividuation. Through these networks, we are now capable of ‘remembering’ things that we never experienced or learned. We can reason through a problem with the capacity of one billion minds. Technology like wikis and clusters of blogs render ‘truth’ constantly negotiated. Our capacity to affect change increases drastically in size. And it is as if we also increase drastically in size as we reach across the landscape with our 600-mile long arms.

The formation of alternate reality gaming groups such as the Cloudmakers or the Collective Detective bring large quantities of individuals together for group problem solving online. Such collectives are capable of solving puzzles, meant by designers to take months, in a day. In these sorts of emergent scenarios, many minds aggregate into an assemblage much like a ‘hive mind’. As one enthusiastic member of the Cloudmakers wrote:

The 7500+ people in this group ... we are all one. We have made manifest the idea of an unbelievably intricate intelligence. We are one mind, one voice ... made of 7500+ neurons ... We sit back and look at our monitors, and our keyboards ... our window to this vast collective consciousness ... we are not alone ... We have become a part of something greater than ourselves.¹⁷

This passage is not notable as an individual's sentiment, but, suitably, as an expression of a feeling common amongst the members of these groups. As Jane McGonigal has argued, their sense of identity is profoundly impacted by the role they play in these hive minds.¹⁸

Our new forms of technology appear to cause a disindividuation similar to that produced by the industrial revolution. But something else interesting is happening too: there is also a re-enchantment. Science had largely rid the world of its mystical cobwebs, but as the vastness of the networks and the complexity of the technology move well beyond our capacity to understand, it all begins to assume an unmistakable aura of the mystical. As Arthur C. Clarke suggested, "any sufficiently advanced technology is indistinguishable from magic."¹⁹ The way in which we discuss our technology often implies a ghost in the machine, an assumption which is not far off from believing in sorcery. Children habituated to computers in childhood have been actually found to describe computers as 'sort-of' alive,²⁰ as if their PC was of the same type as a dog, which is fascinating given the apparent appeal of computer-based simulations of pets and, more recently, robotic pets. It would appear that children at least are not overtly averse to this blurring of boundaries.

And of course it is customary to perceive the technology we inherit as part of the natural fabric of the world. The revolutionary innovation of one generation is just another ply to the technological field of the next. It is part of the given world in which we are thrown. But this tendency is of course dangerous as well, for the blindingly obvious reason that not all that is good. As long as we are mystified by technology and treat it as being sort-of alive, we will have a hard time being skeptical of it. The way Postman describes this is that "when a technology becomes mythic, it is always dangerous because it is then accepted as it is, and is therefore not easily susceptible to modification or control."²¹ As soon as we stop being skeptical of our technology we become less equipped to keep it properly serving; in short, we risk being dominated by it, like the labourer whose movements are dictated by a machine, or a man whose La-Z-Boy chair is stuck in an awkward position, or whose email application only allows him to type in capital letters.

A more serious example of this potential domination is rendered by Kubrick and Clarke's *2001: A Space Odyssey* (1968) in which the central computer of

the ship actually begins to kill off the crew. Notably, when the one remaining member of the crew proceeds to disconnect the computer, it pleads with him to stop. In the film the machine seems alive and expressive compared to the cold and passive crewman,²² illustrating evocatively Donna Haraway's observation that "our machines are disturbingly lively, and we ourselves frighteningly inert."²³ "Stop, Dave. I'm afraid. I'm afraid, Dave. Dave, my mind is going. I can feel it. I can feel it. My mind is going," enjoins the computer.

"As a cyborg, I stand in the ebbing current between freedom and entrapment," writes Steve Mann.²⁴ In response to this condition, he argues, we need to focus on augmenting the individual instead of making our technology responsive and 'smart'. Using technology to perfect the individual would avoid the ceding of power into the hands (scoops? actuators? databases?) of an anonymous technologized infrastructure, which is the perverse possibility residing in the unhindered development of such technologies as artificial intelligence (AI). In the words that we have been using, Mann prefers technological flesh to the technological field.

One of the aspects of the technological field that Mann is particularly suspicious of is the perpetual surveillance we are rapidly finding ourselves under. The subversion of this is one of the goals behind his own rapportage, or as he calls it *sousveillance*.²⁵ He seems comfortable with the obvious contradiction at play here. "Faced with ubiquitous surveillance," he ponders, "our only (il)logical response is: more surveillance."²⁶ Rather than doing away with the recording of the world, he is attempting to remove its privilege. Within a paradigm of 'sousveillance', the constant capturing of images is not only the domain of those in power, but can be performed by everyone. While disindividuation and enchantment offer a greater sense of communality, a sense of being part of something bigger than oneself, there is also something threatening about it, as if we are in danger of being dominated by our technology (or possibly through our technology). It is this threat that Mann claims to be responding to in making himself into a cyborg.

As Thoreau pointed out long ago, however, "all of our inventions are but improved means to an unimproved end."²⁷ The technology itself is neutral. While surveillance can be a means of humiliation, domination, and even cruelty, and it can, it by no means needs to be. It is a unique capacity of humanity



Fig. 18
Screen shot from the film, *The Matrix*, 1999
*Anxiety about virtuality and disembodiment can
be seen clearly etched in our cultural texts.*

to be cruel. If we are dominated by our technology, it will be a case of our having dominated ourselves. It is useful to remember the etymology of the word cybernetics. Unlike ‘robotics’, which has to do with slaves, cybernetics derives from the Greek root meaning ‘steersmanship’. This implies an encouraging image of navigation rather than enslavement.

BODY

Steve Mann wears his computer at all times. He uses it to record the world and also to attend to the virtual world in parallel to the real. As odd as it sounds, he seems to have no problem with this level of ‘distancing’. He is actually very similar to the figure we described earlier, a visual apparatus walking around on two legs. While he seems unaffected by it, there does seem to be considerable anxiety around exactly this issue in the broader culture. In the same way that *Frankenstein* revealed anxiety about mechanization and our power to create machines, new stories such as *Neuromancer* (1984) and *The Matrix* (1999) reveal our current anxiety about digital technology and our power to make a virtual world. Is it really possible to recreate the world using digital technology? In the seventeenth century, Descartes famously worried that an evil genius, “supremely powerful and clever,”²⁸ was intercepting his perception of the world and confusing him as to its true nature. How, he wondered, would he ever be able to tell the difference? As we become increasingly adept at creating virtual simulations of the world, it is understandable that we would experience a similar sort of anxiety.

The influence of Descartes’ line of reasoning, which implied a clear split between the mind and the body, is well documented and he is often thus blamed for inserting this schism into the history of Western thought. It is common to observe the detrimental effects of this split. Despite the arguments of proponents of AI, like Marvin Minsky of MIT, the human mind simply does not exist apart from the body. Memory and cognition are contained and expressed within the body and through the body. Somehow, however, we continually forget this and think of them as being different. As Richard Rorty commented, “if the body were easier to understand, no one would have thought that we had a mind.”²⁹

However, despite constant philosophical criticism of this schism over the last century, new technologies seem to actually continue to reinforce it, supporting the dominance of the mind over the body. New technology is patterned after the logic of the rational intellect, attempting to interface directly with the mind, bypassing the body. Our networked technology emphasizes a particular form of communication – an intellectual and verbal communication, heavily imprinted by the logic of written language. Not only does this forget the body, but it also forgets the emotions. In such an environment, structured by the logic of clear intellectual communication, where does our emotional self take refuge?

In the priority of the mind over the body, and in the parallel priority of the intellectual over the emotional, there is an implication of dominance of one type of person over another, of one ecological model over another. As we have already noted, the dualities of Western thought are “systemic to the logics and practices of domination,”³⁰ and contemporary electronic technology designed according to a logocentric paradigm privileges the reason over emotion and the mind over the body. However, the way to escape these patterns of domination is not, as people have sometimes thought, to compensate through reactionary privileging of the body over the mind or the emotions over the intellect. Rather, it is to broker a merger between the two, a cyborg solution that depicts neither as being better or more essential than the other.

This is certainly the dream of the ‘new orality’ hoped for by Juhani Pallasmaa. In his book *The Eyes of the Skin* [2003] he links the domination of the body by the mind to the ocular-centricism that was born in the Enlightenment. In an ocular-centric culture, he says, “instead of experiencing our being in the world, we behold it from outside as spectators of images projected on the surface of the retina.”³¹ Our visual bias prevents us from being fully present in the world because we are so much ‘in our heads’.

While these prioritizations predate technology, they become nonetheless manifest in it. And so through much of our technology the wedge driven between us and World, what Kingwell has referred to as the ‘legacy of abstraction’, is driven deeper.³² We become alienated from the landscape of Being, from our own bodies, and from our immediate social ecologies. It is in this alienation that we lose rapport with things, a phenomenon that Heidegger, in his “Building Dwelling Thinking” associated with depression.³³ If the wedge gets driven

deeper we may be faced with an entire civilization that is in this sense ‘depressed’. Consciousness as we know it is embodied and it is quite reasonable to assume that any radical alienation from this embodiment would have serious psychological ramifications.³⁴

While Pallasmaa argues that the overwhelming surge of images that bombard us on a daily basis is causing us to retreat from our visual bias, the primary means of interfacing with most technology remains through our eyes. This too, however, might be changing with the development of ‘haptic’ interfaces like the Cyberglove. The promise held out by haptics, and other recent technological advances in physical simulation is that eventually our experience of information may involve our whole selves, including our skin and our less privileged sensory organs. Could one website be cold, for instance? Could another smell like peaches?³⁵ Maybe technology, so long structurally biasing the visual and the intellectual, will soon return some of its emphasis to bodily experience, engaging the body and mind in an integrated manner, perhaps saving us from alienation.

Additionally, there is further hope for the merger of body and mind in mixed reality, the correspondence between the virtual and real. As the real becomes increasingly mediated (our sense of place being determined as much by our GPS co-ordinates as the scent of the air), perhaps a new territory is being forged in which our minds and bodies can comfortably co-exist. Mixed reality holds as much potential for the spatialization of information as it does for the virtual augmentation of space. Maybe there is hope that we will not end up like those poor saps in the Matrix. Maybe we are not fated to remain ‘frighteningly inert’. As we learn to negotiate both the virtual and the real simultaneously, the cyborg body could end up as active as its mind, our rapport with the world augmented, not destroyed.

IRONY

Following our ecological metaphor, the self is hardly autonomous. It is deeply affected by the technology which frames its Being. Historically, the definition of the subject, as Dumit et al pointed out, “has depended on boats, trains, planes, typewriters, cameras, telegraphs, and so on.”³⁶ As we move into an era

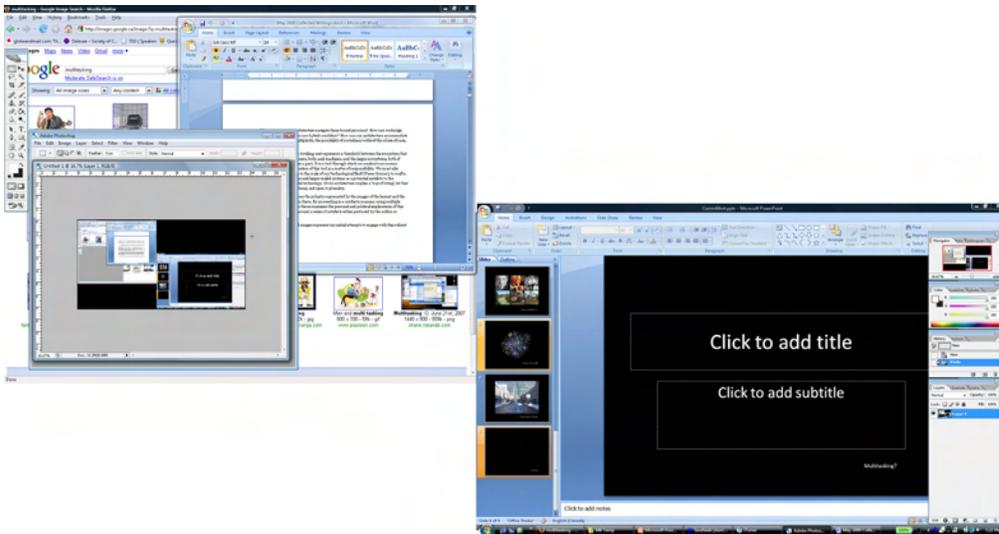


Fig. 19
Our interfaces structurally divide our attention.

of ‘electro-nomadism’ we become conditioned in entirely new ways. Our perpetual integration into networks may cause a process of disindividuation, a condition that we may be able to moderate through the degree to which we develop our technological flesh in relation to the technological field. Our electronic technology may also alienate us from the world, even from our own bodies. By layering the virtual and the real, the informational and the corporeal, and encouraging correspondence between these, this potentially negative quality may also be counteracted.

The cyborg subject may also be a fragmented subject. The structure of our electronic technology, from cell-phones to ‘window’-based operating systems to the anonymity of online exchange, appears to encourage the dissolution of the traditional singular model of the individual. Many of our contemporary tools such as cell phones, pagers, smart phones and other sorts of wireless networked devices allow us to operate simultaneously in (at least) two distinct contexts. The people on public transit talking on their phones are interacting with both the world about them and also another unseen world. If we take seriously the notion that we are different people in different situations, then what we are experiencing are increasing instances of people operating as different people simultaneously – a layering of different versions of themselves.

The structure of our computing devices and their relation to the Internet cause us to easily run several programs at the same time. This sort of simultaneity is made possible by the ‘windows’ of our operating systems. Because of this structural change in our tools, multi-tasking, the engagement with multiple concurrent tasks, has become the standard mode of operation for many of us. Although many of us have grown into this condition, many young adults and children (so-called ‘digital natives’) have actually grown up with, in, and through it as a normative condition.³⁷

Consider the following illustration of a student writing an essay: they are sitting in a room, at a computer. The sun has dropped outside and the room has grown dark. Their hands are connected to a keyboard, they are wearing headphones that are plugged into the computer, their eyes gaze intently at the screen. On the computer, in addition to the multiple programs running in the background, they are intentionally running four programs. Their word-processor is ‘open’ twice, once displaying the essay that they are updating and

once displaying their notes cobbled together from class and various sources on the Internet. They also have their Internet browser open – one tab displaying information from an on-line encyclopaedia and another set on the webpage of their email provider where they are perpetually awaiting correspondence. They also have open a media player through which they are streaming music from an on-line ‘radio’ station and an instant-messaging program allowing them to keep in constant contact with friends. In addition to an awareness of sensorial data from the environment around them, they also keep in constant awareness of the information being offered to them by their computer programs. Only a significantly fragmented state of consciousness makes this possible, what psychologists have called ‘continuous partial attention’.³⁸ As our attention gets spread out over various phenomena, the amount of attention that can be directed towards each element is diminished.

The fact that our minds are being so pulled at in different directions, fragmented by diverse interests and types of information, is worrisome. It is more worrisome that whole generations of citizens are growing up in this mental environment, their neural pathways adapted to it. Careful thought takes time and deliberation. How can a person be expected to make important and meaningful decisions when we can only find a few moments of half-powered cognition to devote to them? And not only does the individual’s thought process take on a scattered, staccato character, but the media by which we access information mimics this. Essays in magazines have progressively become shorter. News articles have shrunk to telegraph-like messages – in desperate attempts to vie for our shortened attention spans. In such amputated media, how can we possibly hope for the depth and complexity of argument that was once demanded of our journalists and critics? Ways of communicating that eschew brevity for complexity are being outmoded.

Freed of many of the traditional constraints, our minds drift on the Internet sizelessly. When ‘jacked-in’, we exist as information, flitting in the midst of other information. This phenomenon, the digital derive, is becoming increasingly similar to the hallucinatory vision of cyberspace described by Gibson in his novel *Neuromancer* (1984). Gibson’s vision of how cyberspace would evolve described a dream-like space in which disembodied intelligences float, drift and zoom freely. Although this isn’t exactly how we experience the Internet yet, there

is an element of it in the way people flit through clouds of sites following loose connections and memes, becoming what the psychologist David N. Greenfield has called ‘electronic vagabonds’.³⁹

In his work on the subject, Greenfield has often compared the use of the Internet to the use of drugs. As he has written, “the act of being online is in itself arousing.”⁴⁰ When interviewed about their experiences on the Internet, his subjects report intense intimacy, dis-inhibition, loss of boundaries, and feelings of timelessness, all contributing to a highly addictive phenomenon. One of the most addictive components of being online is the extensive array of possibilities, not just of action but of Being. Not only can you do a wide range of things, but also you can *be* a wide range of things.

As Sherry Turkle, has pointed out, “if, traditionally, identity implies oneness, life on today’s computer screen implies multiplicity and heterogeneity.”⁴¹ Based on her ongoing research in the psychology of cyberspace, she says that the Internet creates something like a ‘psycho-social moratorium’ in which individuals are free to explore many diverse aspects of themselves through various types of virtual interaction. She compares the online experience to adolescence when people traditionally explore different possible incarnations of themselves. By allowing people to explore all kinds of identities, the new technology plays, as she puts it, “a significant role in the life cycle dramas of self-reparation.”⁴²

But more than simply providing a forum for people to test out various selves en-route to finding a clearly articulated primary self, the online world is a place that accepts the perpetuation of the flexible, split self. “The notion of a decentered identity with multiple aspects,” writes Turkle, “is concretized by virtual experiences.”⁴³ But according to Turkle the multiple aspects of self nurtured in this environment aren’t truly autonomous – they are all related to each other. The difference between the split self that navigates the Internet and someone suffering from multiple personality disorder is that for the digital flaneur there are lines of communication open between their identities that encourage “an attitude of respect for the many within us and the many within others.”⁴⁴ The Internet age is one in which each person is populated by a multiplicity. More than this, though, it is one in which this multiplicity is allowed – in fact encouraged by our technology.

But what does it mean to allow for a multiplicity within – to think of the self no longer as germ, but rather as ecology or a series of simultaneous windows on a computer screen? Historically, multiplicity in a person was considered a negative trait – inconsistency keeping open the threat of ethical transgression. Inconsistency is a menace to a stable, structured society with clear hierarchical and moral institutions; our unpredictability makes us harder to be ‘plugged in’. Stories, such as Plato’s origin of love, or that of the Judeo-Christian Bible consistently depend upon an original unity which is splintered and is in search of reconciliation. Hegemonically these stories subtly imply a male-dominant heterosexual society.⁴⁵ Such stories, in Haraway’s words, are “ruled by reproductive politics – rebirth without flaw.”⁴⁶ In the 21st century new stories are needed to escape from this hegemony, like Haraway’s image of the cyborg which emphasizes flexibility and the blurring of boundaries: stories instilled with irony.

This sort of ‘irony’ plays an important role in Rorty’s work. His claim is that irony, which he defines as an attitude built on recognition of our own fallibility, has the power to keep us constantly retuning our values and thus to help us avoid cruelty. In this manner, irony allows us to accept difference and build a tolerant, pluralistic society free of domination.⁴⁷ Haraway uses a similar definition of irony. In the ‘Manifesto’ she states that, “irony is about contradictions that do not resolve into larger wholes, even dialectically, about the tension of holding incompatible things together because both or all are necessary and true.”⁴⁸

It may just be that this split self, encouraged by our technology, with its evolving ‘empathetic gaze’,⁴⁹ is actually perfectly suited to this type of ‘ironic’ thinking. Sherry Turkle thinks so. In her studies conducted at MIT she has actually found that “different children (who have grown up with computers) comfortably hold different theories, and individual children are able to hold different opinions at the same time.”⁵⁰ Maybe then it is wrong to mourn the sustained argument and thought structurally disabled by changes in our media. The type of thinking encouraged by our new technology – quick, flexible and plural – may actually be better suited to the ideals of a liberal and tolerant democratic society.

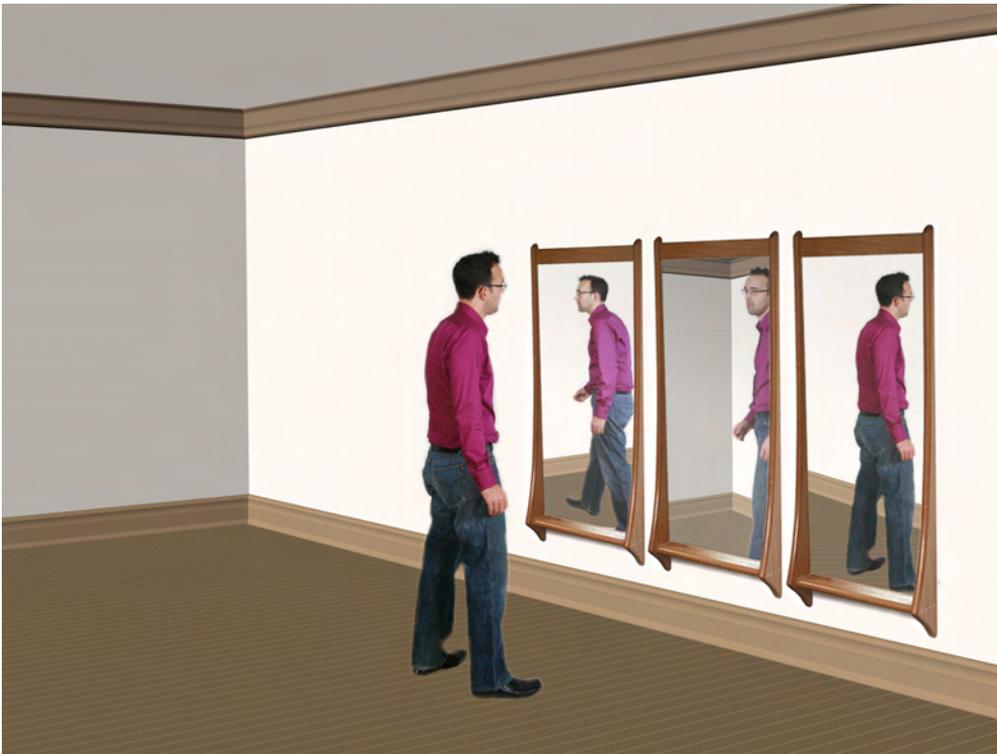


Fig. 20
What role do mirrors play in our understanding of our place in the world? Can our new highly accessible technology for recording and representing the world positively affect this?

HOUSE OF THE FUTURE | 4

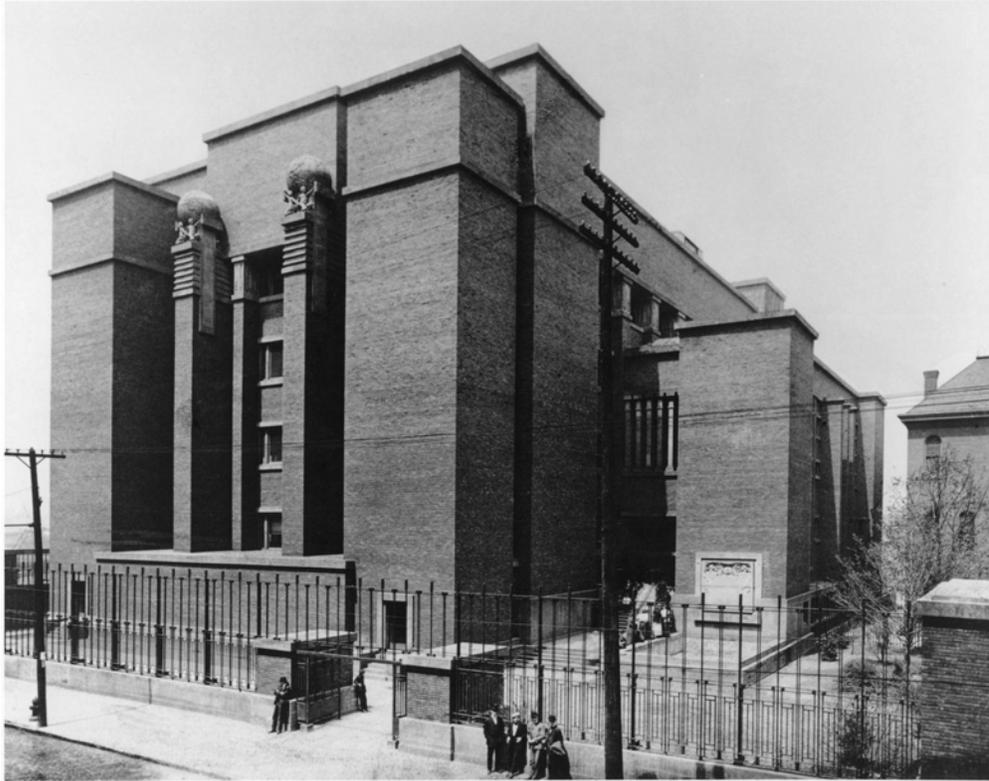


Fig. 21
Wright, Larkin Building, 1906
*Foreign mechanical systems may be formally
integrated into the architecture and remain
compositionally satisfying.*

Kevin Warwick approaches his office. As he gets close to the door, the mechanical click of the sliding bolt is heard. He enters, and the lights turn on. The gentle hum of a fan kicking into action is accompanied by a brief flash on the monitor of his computer. A soothing voice, disembodied and seemingly originating from nowhere in particular, says, “good morning Professor Warwick.” He doesn’t respond, but takes his seat at his desk. He has no need to key-in his password because the computer knows that it is him already.

If Warwick were to be wearing one of Steve Mann’s wearable computers, using a simple joystick-like ‘keyer’, he would likely be able to control certain things in his office remotely. Before he got there he could set the temperature to how he would like it that morning. He could maybe even set the coffee maker to begin brewing a cup of coffee for him, his specified roast and strength. Further, if the wearable device had built-in EEG sensors (and Mann *has* been working with these), he might not even need the finger-control. In order to set the mood right for watching the latest YouTube video of a silly cat doing something silly he could re-adjust the lights without having to get up from his chair.

Such a scenario takes the sort of extension of self through projected will far beyond the remote control. The professor is truly served by the world. Because he is recognized by the architecture, it is more personal. It would not respond this way for someone else. It is almost as if his entire office has become a part of him, a large, prosthetic second skin. When the blinds in the window adjust themselves to reduce the glare on his monitor, it is as natural as the hairs on his arm rising to protect him from the cold.

MECHANIZATION OF ARCHITECTURE

Siegfried Giedion and Reyner Banham have both admirably described the evolving mechanization of architecture in their *Mechanization Takes Command* (1948) and *Architecture of the Well Tempered Environment* (1969), respectively. The major territory of such technological change in architecture has been related to one of the primary purposes of architecture, the conditioning of the environment for human inhabitation. As Banham has observed elsewhere, we initially had at our disposal two ways of controlling the environment, the building of shelters, and “actually interfering with the local meteorology,” by lighting a fire.¹ It became long ago customary to combine these strategies by simply bringing the fire inside the shelter and as time went by, as is wont to happen, this technique became more and more sophisticated, first through the construction of the chimney and the hearth, later by clever techniques of ventilation, and then even later with the application of the boiler to the moderation of the environment. The technology of cooling the environment was not made applicable to the domestic interior until the 1930s.²

With heating and cooling and indoor plumbing, by the middle of the twentieth century, the house had become truly ‘invaded’ by the mechanical.³ Architecturally, such features were normally either hidden away entirely or tacked onto the architecture, what Banham described as the “let-it-dangle” approach.⁴ A crucial early break-away from this ad hoc mechanical augmentation of architecture lies in Frank Lloyd Wright’s Larkin Building of 1906. What distinguishes the Larkin Building is the way in which Wright actually incorporated the mechanical conditioning of the environment into his architectural vision. Al-

though it admittedly had not been a driving factor of his scheme from the beginning, the separation of the stairwell with integrated vertical plenum stacks from the main building plays a vital role in the building's final aesthetic composition,⁵ a strategy later to be adopted in Louis Kahn's design of the Richards Laboratories in 1957. This was really just the beginning of a theme that would always be present in Wright's buildings as he became increasingly deliberate in his mechanical systems, making them important visible aspects of his designs.⁶ As Luis Fernández-Galliano has described, this is entirely consistent with Wright's idea of the 'organic' unity of architectural design.⁷

Le Corbusier, of course, was a famous champion of the mechanical in architecture, pleading that the instrumental character of the building not be hid but instead be articulated. He held works of engineering in high regard for what he saw as their honesty. Their ability to perform a certain task was the key motivation in their design. How was a house any different, he wondered, than a steamship? Was it not just a "machine for living in," a machine for providing "baths, sun, hot-water, cold-water, warmth at will, conservation of food, hygiene," even a machine for providing beauty?⁸ And in this sense there was sympathy between these two Masters of the Modern Movement, both of whom recognized the difference between architecture and the mechanical as being one simply of sophistication⁹ and strove to make the instrumental aspects of their buildings legible.

Eileen Gray, a lesser known designer operating in Paris in the 1920s, while greatly influenced by Le Corbusier's ideas about architecture, was simultaneously dubious about his rigid, formulaic assertions. While sympathetic to the notion that function should be revealed in architecture, she felt that in all of his rhetoric Le Corbusier forgot about the people that were supposed to be dwelling in his buildings.¹⁰ Le Corbusier may have been designing machines for living, but he seemed to fall short of carefully considering the idiosyncratic particulars of this living, or at least making room for idiosyncrasies other than his own. When he did make gestures as to 'how' this living was to unfold (and he occasionally made them overtly), it was typically both phallogentric and restricted.¹¹ The people implied by his buildings seem disturbingly complacent and predictable, possibly the very people to be easily interfaced with his machines for living.

Gray on the other hand, while similarly influenced by the 'machine aesthetic' in her design, incorporated a high degree of flexibility in her work, often using



Fig. 22
Gandy, Sir John Soane's Bank of England
A historicist futurism?

‘mechanical’ means to do so. Her furniture and her architecture responded to the human inhabitant in their adjustability to our form and behaviour, and in this way her work can be construed as a precursor to so-called ‘responsive architecture’, architecture that responds to stimuli.

When Kevin Warwick’s office door unlocks for him and his lights turn on, this would be an example of responsive architecture, the paradigmatic example of which is typically identified as the thermostat. The thermostat constitutes, as Daniel Grünkranz has observed, “a cybernetic feedback loop placed in a building environment in which the actual output is affected in response to an input.”¹² The thermostat senses the temperature of an environment and adjusts the mechanical heating or cooling system accordingly. This must have seemed very strange when thermostats were first introduced into dwellings half-way through the last century. Not only was the landscape of Being becoming invaded by the mechanical, it was also becoming automated, able to act on its own in the background of life, the technological field sparking into action, almost as if it were itself imbued with the spark of life.

A canonical example of responsive architecture is Cedric Price’s Fun Palace project of the early 1960s. Price conceived of his architectural environment as a large open framework into which pieces, largely boxes, could fit. These boxes could be connected together by bridges and stairs etc., all of which would be put in place by a large crane, in response to the needs and desires of the ‘users’. The building thus took form in response to us. It was architecture with flexible canalization, and thus it was intended to be open to appropriation and experimentation rather than forcing particular patterns of use and even values upon us. Analogous projects, albeit at much smaller scales were also experimented with by Nicholas Negroponte and his Architecture Machine Group at MIT in the late 1960s, and today there are many examples of designers developing increasingly elaborate responsive environments.¹³

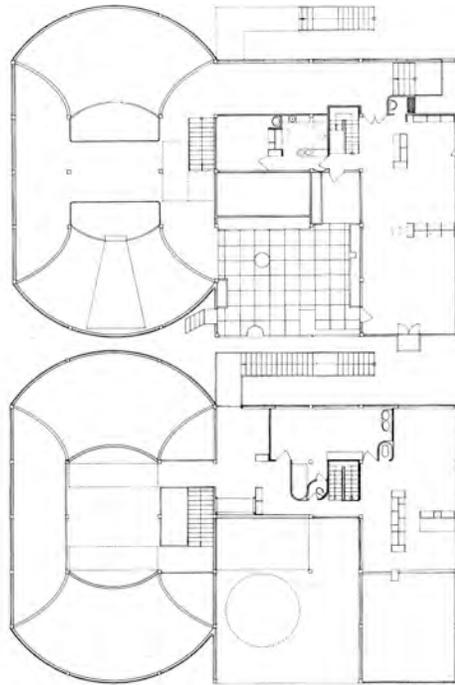


Fig. 23,
Le Corbusier, Photograph and Plans of the
Pavilion de l'Esprit Nouveau
An early house of the future.

DESIGNING THE FUTURE

One of the peculiar things about. Along with the historicism of the eighteenth and nineteenth centuries then, it is interesting to see a displacement of 'utopia' from the 'distant land' of Campanella's *City of the Sun* (1602) and More's *Utopia* (1516) or the ambiguous transcendental location of the *Hypnertomachia Poliphli* (1499), to a distant future instead. During this period, the shift towards a historicist paradigm was accompanied by a utopianism that projected the imagination less to removed places as to a removed time. This can be observed in the revolutionary spirit in the British colonies and in France in the eighteenth century as well as in the philosophical work of Hegel and Marx in the nineteenth century. It can also be seen in the literary endeavours of William Morris and H.G. Wells, who initiated a trend of future-oriented fiction that would then truly proliferate in the twentieth century. In architecture a similar phenomenon occurred. The historicist attitude that had been evident in Laugier's and, later, in Semper's notions of the origins of architecture, as well as in the revivalist styles of the early nineteenth century, thus can be seen flipped into a form of futurism in Joseph Gandy's depictions of Sir John Soane's Bank of England (1830) ravaged by time.

While Gandy's future looks a lot like the archaeological finds which had excited such a fervour of curiosity at the time, they were in fact forward-looking renderings. In that sense they can be thought of as antecedent to the future-leaning architecture of the later nineteenth century most notably manifest in the structures designed as national showcases for international exhibits. Noteworthy examples of this sort of avant-garde building are Joseph Paxton's Crystal Palace (1855) and the Eiffel Tower (1889), on the monumental scale, and Bruno Taut's Glass Pavilion (1914) and Mies van der Rohe's Barcelona Pavilion (1929), on a more intimate scale. Quite different in many ways, what all of these projects have in common is that they represent bold visions for the future of architecture; in a sense they are futuristic architecture. These buildings were like laboratory experiments for architects. More than most architecture, they can teach us much both about architecture and desire, about how architects fantasize about the future.

A notable moment for domestic architecture within this trajectory was Le

Corbusier's Pavilion de l'Esprit Nouveau built for the French International Exposition of 1925, described by George Baird in 1995 as "one of the half-dozen most influential designs in the whole of modern architecture."¹⁴ In addition to housing displays, including his provocative urban plan for Paris, Le Corbusier's pavilion represented a radical rethinking of what a house could be. Influenced by his stripped down *Maison Dom-ino* design (1914) and his published manifesto *Towards a New Architecture* (1923), the pavilion was a prototype for his later houses including most famously Villa Savoye (1928). It constitutes his vision of the house of the future. White and mostly orthogonal, the design featured a few carefully calibrated curved walls framing bathroom fixtures such as sinks and toilets. The design is most notable for the openness provided by the large double height living room, adjacent to the semi-enclosed courtyard, and looked over by the second floor boudoir. It is also notable as a provocative, and at the time controversial, statement about the possibilities held by Modernism for the house of the future. The controversy was two-fold: first the radical stripping down of the architecture, and second Le Corbusier's insistence that it be furnished with industrially prefabricated furnishings. No Morris-like appreciation for the hand-made artifact was present here! This architecture, a cool, static frame for dwelling, had no room for the sort of gentle, daydreaming dwelling that Bachelard had in mind. Unlike Eileen Gray's houses, Le Corbusier's machines for living lack ambiguity. They lack crevices. As Pallasmaa would complain about Modernist houses in general, "they do not contain secrets; their structure and contents are conceived at a single glance."¹⁵

From the outside the pavilion looked very much like an anonymous white box, with square windows punched out of it, quite different from the traditional French *maison*. Thirty years later, the House of the Future, designed by Alison and Peter Smithson for the Daily Mail Ideal Home Exhibit of 1956, also looked very much like a white box from the outside, only this time the windows had disappeared entirely. Like in Le Corbusier's pavilion, this outward anonymity was conjoined by an internal focus upon a courtyard space of framed 'nature'. These features distinguish these houses from other examples of houses attempting to manifest an ideal type such as Mies' Farnsworth House (1951) and Frank Lloyd Wright's Robie House (1908) for which the centre was solid and strong and the perimeter was eroded for the purposes of gazing out at nature. Le Cor-

busier and the Smithsons were both designing for a crowded urban future. The Smithsons imagined their house as being part of a large “dense mat of similar dwellings,”¹⁶ lined up next to one another, making a continuous long blank white wall, periodically punctuated by front doors.

Within the Smithsons' anonymous box, however, the interior was to be molded plastic. It was to be white, like the pavilion, but now curved ‘organically’, similar to the Monsanto House built at the Epcot Center the following year. Despite the strangely cool attitude towards the space of the public domain, the design of the interior was actually far more engaging. The living space was gathered next to the perimeter wall of the box, leaving an amoeba-like area in the centre for some grass and a few trees, cordoned off by a continuous glass wall that wrapped around it. The living space around this courtyard was then strategically interrupted with a series of curvilinear ‘objects’ including the bathroom, the shower, and a handful of closets. This loose division of space was then ordered further by oddly shaped walls jutting out from the perimeter wall. None of the walls met the floor at right angles but were rather filleted with a slight radius so as to give the impression that maybe you were inhabiting the interior of a cave or maybe the innards of a large plastic animal.

Taking Le Corbusier's indications a step further, not only was the furniture of the House of the Future to be mass-produced, the whole house was to be so. As Beatriz Colomina has observed, with its molded plastic the building resembles a plastic consumer product.¹⁷ Even the food displayed in the kitchen was all sealed up tight in plastic containers. Obviously this house of the future was intended to be seen as a facet of a much larger industrial and economic machine. The land kept on display in the centre of the house was evidently not intended to contain a vegetable patch but was merely a visual relief from the pure artifice of the house. All products including food and entertainment (consumed as images projected on a wall in the living room) were produced elsewhere in their respective sectors of a massive and tightly coordinated industrial economy and delivered to this smaller machine for living in. Evidently, in addition to being white, insular and curvy (at least on the inside), the house of the future is also an atomic element of a larger machine.

While much of the furniture of the House of the Future was built-in, giving the impression of a pre-conceived and static ordering of dwelling, suitable to an

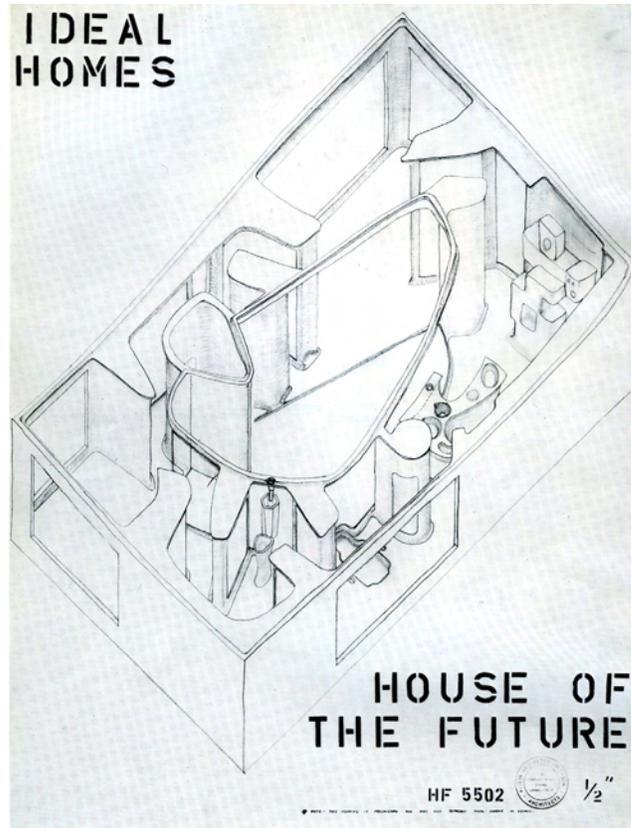


Fig. 24
Alison and Peter Smithson, axonometric
drawing of the House of the Future at the
Daily Mail Ideal Home Exhibit, 1956.
A canonical house of the future.

unchanging social ecology, there were also moveable elements. The dining-table for instance could be reduced in height to become a coffee table or collapse entirely into the floor. The bed was supposed to perform a similar trick.¹⁸ Further, there was a portable food trolley that could be moved from kitchen to living / dining room or potentially to other parts of the house. This portable trolley contained dishes and cutlery as well as would serve as a side-board to hold food if needed. Thus, despite the static and frankly controlling implications of much of the house, these aspects of the technological field actually manage to open up different possibilities of use allowing for different ways of living.

ANXIOUS HOUSES

While the Pavilion de l'Esprit Nouveau was deliberately utopian in its political agenda, the Smithsons' house cannot be read in such clear terms. Given the packaged food laid out aseptically on the kitchen counter and their rather ominous vision of the urban implications of this sort of housing, especially viewed in contrast to other projects of theirs such as the Upper Lawn House (1962), and the Hexenhaus (1986-2002), it is difficult to imagine that they saw the H.O.F. as an 'ideal house'. The house was certainly viewed with some trepidation by the media,¹⁹ inspiring many references to George Orwell's dystopian *Brave New World* of 1932. It is quite possible that the Smithsons viewed the whole endeavour, at least partially, as a satiric exercise. This would align it, rather than with Le Corbusier's pavilion, instead, with another, less optimistic, tradition of houses of the future including the one imagined by Jacques Tati in his film *Mon Oncle* of two years later. This alternate tradition of houses of the future is fertile ground for the present study, as we should not be concerned only with pleasant dreams of the future, but also with nightmares.

Tati's *Mon Oncle* is a vehicle for his charming character Monsieur Hulot, the bumbling embodiment of the French everyman. Hulot himself lives in what might be termed a 'house of the past', a complicated old palimpsest of a building with a seemingly labyrinthine series of corridors connecting his apartment to the front door. Tati uses Hulot's house as representative of a more natural, easy-going way of life, juxtaposed against the Modernist, aseptic 'white box' house of

the future owned by his sister, presumably located in the suburbs. In her house, exposed through the foil of Hulot's bumbling follies, everything is mechanized, including the front gate and the fountain that she turns up when visitors come by. In the kitchen, the housewife (Hulot's sister, who is the wife of a wealthy industrialist and who seems literally to belong to the house) carefully puts on scientific-looking rubber gloves before making breakfast for her son. She cooks an egg for him with a heat-gun attached to the kitchen counter by a hose.

This house is far from pleasant. The carefully winding path that leads up to the house forces visitors to comport themselves in a very awkward manner. The sculptural radiator causes Monsieur Hulot to burn himself. A cupboard controlled by a motion sensor causes him no end of trouble trying to put away a water pitcher. Tati's vision of the house of the future is blatantly satiric, pointing out the frequent uselessness of gadgetry and the potential of design to limit and impoverish our experience of the world through its scripting of behaviour. Tati deliberately associates the Modernist vision of the future house, lifted from such examples as the *Pavilion de l'Esprit Nouveau* and the *House of the Future*, with a conservative, controlled, sterile, and ultimately empty way-of-living exemplified by Hulot's sister and her husband (who are, remember, associated with industrialism).

An even more sinister vision of the house of the future can be observed in a number of stories by the science fiction writer, Ray Bradbury. The most notable example, that depicted in his "There Will Fall Soft Rains" (1948), is an illustration of what a fully automated house might be like, taking the idea of the 'machine for living' to its logical extreme. This house wakes you up in the morning, cooks meals for you, instructs you as to the important things that have to happen that day, cleans itself, and will even read you poetry if you like.²⁰ In Bradbury's house of the future it is hard to imagine the 'user' being anything but sedate, even inert, as Haraway had fretted. They barely have to do anything themselves, so complete is the transference of their will to an automated technological field ready to serve them robotically. In such an environment of complete technological coddling, in which the users have everything they want provided for them, it is easy to imagine that the users might, as Arthur Schopenhauer once suggested "either die of boredom or else hang themselves."²¹ In this story, the users, however, are already dead. The humans for whom Bradbury's automatic house of the future persists in its chores have been obliterated by a nuclear disaster. The house continues on, oblivious, until, eventually, it too goes up in smoke.

As signaled clearly by the fact that the humans have died due to a nuclear disaster, this

story is about technological hubris. Nuclear holocaust is a common symbol of mankind’s ability to produce massive and disastrous change through our vast technological apparatus, and in the 1950s this symbol was even more potent due to its freshness. Bradbury’s house is a veritable tower of Babel, so removed from the earth that if so much as a sparrow lands on its window ledge the shutters protectively close; passwords are demanded of stray dogs that wander near. Bradbury’s robot house represents the technologization of the landscape of Being to a caricatured extent. By the 1950s the bourgeois American housewife, left alone without her slaves or her servants, was increasingly being joined by labour-saving electric appliances. Bradbury is simply continuing this trajectory – if the fulfillment of needs such as heating, cooling, moisture control, the cleaning of dirt from clothes and from dishes can all be removed to a field position, why, Bradbury wonders, would people need to do anything at all besides important work of the sort characterized by Arendt as ‘action’, or activities of a leisurely nature? While in Tati’s house of the future it is the housewife that dusts off the man’s valise before he heads off to work and sets the table for afternoon drinks, in Bradbury’s vision it is the house that performs these tasks. Thus at cocktail hour bridge tables unfold “like great butterflies” out from the wall. This house even makes egg-salad sandwiches and mixes cocktails for the bridge-players.²² As in the industrial revolution how the movement of the labourer was replaced by the movement of the machine until eventually in many cases the labourer was replaced entirely, in Bradbury’s vision this same process has occurred in the house as well. In fact you could say that it has occurred so effectively that there is no need for the people at all. They have disappeared entirely, leaving behind their image mapped by the behaviour of the technological field.

Bradbury’s house of the future is insular and fully automated. While it doesn’t seem to curve literally around its inhabitants in the manner of the Smithson’s house, it does wrap around them functionally. In contrast to the Pavilion de l’Esprit Nouveau, Bradbury’s house is about our own repulsion at technology, our fear that it will take over our lives and perhaps even eliminate us. We can also learn from it a warning about what Marvin Mengeling, in his commentary on Bradbury’s work, has referred to as “technological gluttony”²³ – an emotional and physical over-dependence on machines. A character in one of Bradbury’s other stories, “The Murderer” (1953) describes this genre of robot house as “one of those talking, singing, humming, weather-reporting, poetry-reading, novel-reciting, jingle-jangling, rockaby-crooning-when-you-go-to-bed houses.”²⁴ In addition to the moralistic warning about technological hubris, there appears also to be an element of



Fig. 25
Screen shot from the film, *Brazil*, 1985
Mechanical systems like a forest of intestines.

claustrophobia to “Soft Rains”, a claustrophobia similar to that depicted in Terry Gilliam’s 1985 dystopian film *Brazil*. In *Brazil*, the protagonist’s apartment is represented as a dense, service-providing field of technology. While it generally looks like a regular apartment, upon malfunctioning the walls are revealed as containing a thick jungle of wires and tubes. When a piece of the wall is removed these tubes spill out like intestines cut free of a body. Technology has invaded the walls of the house and made it ‘sort-of alive’; repairing the house begins to resemble surgery.

One of the more interesting aspects of Bradbury’s house of the future, and a quality it shares with many other depictions of future architecture such as that of the television series *Star Trek*, is its ability to talk. The house wakes up its inhabitants by saying “tick-tock, seven o’clock, time to get up, time to get up, seven o’clock!”²⁵ It also reads poetry to one of the absent members of the house. In *Star Trek* (regardless of which generation), the computer’s voice is likewise omnipresent. If a character wishes any piece of information, they simply need to vocalize their quandary and the disembodied voice of the spaceship responds. Could anything resemble more the magical conception of the world common to humanity in its early stages of civilization in which the self was deeply entangled in the world and the gods were in everything? This pervasive vision of an architecture at our beck and call through voice recognition demonstrates the trend in technology that we referred to earlier as disindividuation and re-enchantment.

Individuation occurs on the societal level, as we’ve discussed, and is also enacted in the personal life of each individual as we begin to recognize our selves as separate from world. It is interesting then that we would seem to want to reverse this process, and it is hardly surprising that Bradbury would be skeptical of it. We want to be served by our technology, for our houses to sing us lullabies until we fall asleep, even to brush our teeth. There seems to be something regressive in all of this. While the tendency of houses of the future to be curved is often explained as being more responsive to the human form, this is not quite true. While the human form is indeed curved, there is no evident reason why we would want our architecture to resemble our flesh except for the observation that in curving around us it is sort of like the primal form of the womb. Curved forms are actually generally less conducive to dwelling as they are harder to set the things of our dwelling in. Walls that curve into the floor create a zone next

to the wall that is practically unusable. The desire for our architecture to curve around us is not simply because it renders it more anthropocentric – there is something more at work here. Is it a coincidence, furthermore, that the voice of the computer in all of the *Star Trek* generations was that of a woman? To further drive the point home what shall we make of the fact that the actress responsible for this voice was none other than Majel Barrett, wife of the creator of the series, the ‘First Lady of Star Trek’,²⁶ the mother figure of the *Star Trek* franchise?

A recent hotel room developed at the Fraunhofer Institute for Industrial Engineering in Germany, especially designed to help people relax, can help us further this line of reasoning. The room has no straight lines, but instead curves around you. It speaks to you. You can, for instance tell it to change the colour of the lighting, or to turn the window into a television screen. You can also tell it to make your bed rock back and forth like a cradle while you drift off to sleep. Seemingly, dreams of the house of the future tend to resemble in one way or another a return to the past, and more pointedly a return to childhood, even to the womb. As Colomina pointed out about the Smithsonian’s House of the Future, in her essay “Unbreathed Air”, “there were no children in this house because the adults themselves had become children, playing with their toys, with their new electric gadgets.”²⁷ What is revealed by these visions of the future would appear to be a desire in fact to be ‘babied’ by the architecture, an architecture that seems to become like a large mechanical mother, brushing our teeth, feeding us, singing us a lullaby, even rocking us back and forth.

It would appear that the house of the future is white, insular, and probably curvy, at least on the inside. It is part of something larger, and it is automated in order to serve us better. Evidently, a fully mechanized, responsive house of the future inspires both attraction and anxiety in us. As technological field it both serves us and threatens to absorb us, to both make sure we take our medication, as in the case of the recent Microsoft Home exhibit²⁸ or MIT’s House_n,²⁹ and to, well, make sure we take our medication, the Orwellian possibility that both Bradbury and Gilliam were responding to and against which Steve Mann pits his model of wearable computing. For Gilliam, however, it is worth recalling that the dense technological field was a representation of the totalitarian state. The threat of domination by technology depends greatly on who is steering it. While the increasing complexity of this field does offer the possibility of greater

control of the individual, it also offers the possibilities of increased liberation and extension of will.

Heating and cooling, mechanical ventilation, appliances for cleaning and for cooking, television, telephones, computers, home networks, and such futuristic devices as toilets that play music and refrigerators that plan meals all alter our experience of the house. Our phenomenological encounter with the house changes. There is indeed a ‘technological invasion’ that must be understood if we agree with Bachelard and Pallasmaa that the house as intimate landscape of our Being bears a cosmological importance. Given Pallasmaa’s assertion that the house is structured around a series of “foci of behaviour and symbolization,”³⁰ we must consider what then happens to the phenomenology of the house as these ‘foci’ change. Thus Part Two of this thesis shall proceed to explore a select series of these foci in detail, discussing their value in terms of behaviour and symbolization, their evolution thus far, and their potential transformations in the future.

PART I
THE HOUSE IN DETAIL



Fig. 26

HEARTH | 5



Fig. 27
JMW Turner, *Burning House of Lords* (1835)
Fire destroys and also makes room for the new.

Words are an important repository of shared meaning. They have evolved through use over very long periods of time. Unpacking etymology can hence prove a rich exercise for the phenomenologist. The English word ‘hearth’ comes from an old Germanic word meaning ‘place of fire’. In more or less its current form, in Old English, it dates back as far as circa 700 AD¹. The word ‘fire’ comes likewise through German roots, traceable, it appears, through the Greek back to a Sanskrit word, *pavaka*². Fire is so primal, has been with us for so long, and in such an intimate way, that it is no surprise that it did not come by its name by way of metaphor. It wasn’t called ‘fire’ because it resembled something else; fire is at the beginning of things. The sun is fire.

When I was in high school I remember a teacher once asked the class to give the characteristics that define ‘life’. Amongst the responses given, ‘movement’ was definitely key. Living things, it was decided, also ‘breathe’, and produce ‘warmth’. Interestingly, everything that we had described: movement, gas exchange, and heat production also applied to fire! And indeed, when you let your mind slip into a more poetic vein, the childish, dreamer’s spirit advocated by

Fig. 13.

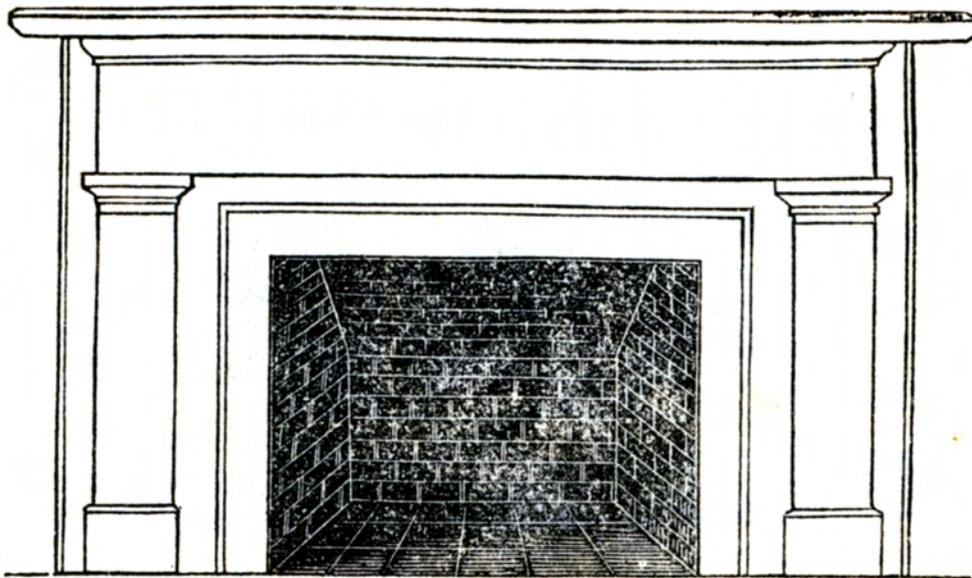


Fig. 28
Fireplace illustration from Beecher
Treatise on Domestic Economy (1841)
A typical illustration of the Western hearth.
The doric columns denote its importance.

Bachelard, fire does seem to be alive! It devours; it aspires towards the heavens; it dances! How could something *dance* that is *not* alive?

But here is one of the contradictions of fire: fire is also the opposite of life. Fire is the rapid degeneration of energy from stable chemical bonds to the lower forms of heat and light. In a typical trick of scientific language, the *higher* forms of energy are the stable ones, the ones that can be stored, while the dispersed and not very useful forms of energy we call the *lower* forms. Fire is entropy; it de-structures. It is, in the typically astute words of David Byrne, ‘things falling apart’³. Life, on the other hand, is actually that which directly opposes entropy⁴. Life is the ordering principle, taking free, disordered energy, and using it to create ordered systems. It is interesting then that fire, which appears to be the opposite of life, to be the very usher of disorder, would actually seem alive. This is one of its contradictions.

Fire also has the twin power to give and to take away. Fire, controlled, can keep us warm; it can also help us to keep clean, and to cook our ‘well-aged protein’⁵. On the other hand, it devours, too. Although the Promethean harnessing of fire, the incorporation of fire into our world, is clearly one of the first great achievements of civilization, fire has always also been one of our greatest dangers, threatening to escape from our control and devour the world.

These contradictions show us the complexity of the image of fire. Fire is both life and death. Fire both gives and takes away. As Bachelard has put it, “among all phenomena, it is really the only one to which there can be so definitely attributed the opposing values of good and evil.”⁶ Further, fire’s very destructive appetite, in the form of *wild-fire*, can actually allow for life to thrive. Fire is a natural part of the life-cycle of forests, clearing away the old-growth, turning it into fertile soil for new waves of vital growth to thrive on. Which would seem to be why many ancient fire rituals were actually associated with fertility⁷. Fire’s destructive qualities are both associated with death and with life. The cross-cultural myth of the phoenix distils this perfectly. When it felt like it’s time had come, the phoenix would intentionally light itself on fire. Out of its ashes would be born another phoenix⁸. Fire is an image of rebirth and of change. The word ‘entropy’, coined in the 19th century, is notably derived from the Greek word for ‘turning’ or ‘transformation’, *entropia*.⁹

Initiating the path of a projectile is to *fire* it. To be in danger is often referred



Fig. 29
Paul Peel, *After The Bath* (1890)
Hearth as symbol of well-being.

to as being in the *line of fire*. You *fire* someone when you dismiss them from their occupation. *To get fired up* is to get excited, to becoming impassioned, and the word we use for becoming angry, *incensed*, also has its root in fire. Literally to become incensed means to catch on fire. ‘Fire’ carries the connotations of danger, of aggression, and of passion.

Fortunately though, fire can be rendered useful when controlled by the hearth and thus its dangers quelled. The hearth and the stove are technologies that have given us control over fire. Fire itself is a technology, we must remember, perhaps even the paradigmatic technology. Fire both extends our capacity in the world and also endangers us; fire’s existence as a technology necessitates further technology in order to use it. The fire necessitates the hearth.

Likewise, the hearth, as the receptacle for the fire, allows the fire. It contains and it structures the fire. The hearth is a womb for the fire. While to the ancient Greeks the hearth, represented by the goddess Hestia, was virginal, if you were to dream of a fire in a hearth it symbolized the coming of a child.¹⁰ The hearth holds the fire and through their union they heat the whole house. Thus it is no surprise that in Cirlor’s voluminous *Dictionary of Symbols*, he finds the hearth to be a sign both of home and of love¹¹. In the context of a nuclear family based upon a heterosexual union you can see why this would follow: the fire represents the masculine principle while the hearth, the enclosure, represents the female – their union, producing warmth that spreads out and fills the house, literally *makes* the home.

In Greek mythology, Hestia was pure and sedentary. When in Plato’s *Phaedrus* he described Zeus leading the gods across the heavens, Hestia stayed behind. Her virginity should not be confused with barrenness, but rather it is a reserved fertility. The womb-hearth umbilically connects the house (and thence household) to the earth below.¹² The Roman Vesta played a similar role, and, like Hestia, was goddess both of the household fire and the city fire. Vesta tied, as Joseph Rykwert has explained, “the household to the house, the people of the city to its soil.”¹³

Ever since fire was moved indoors, the hearth has always played a communal role in life. It’s easy to imagine why this might be so, providing heat and light during the cold and dark night. While the hearth may have originally served the purpose of keeping indoor environments warm while outdoor temperatures



Fig. 30
Philip Johnson, Canaan Glass House, 1949.
Two flat planes and a hearth.

dropped, it has also always been a gathering-spot for the group, a point of connection and being-together. The Latin word for the hearth was actually *focus*, from whence we actually get our contemporary use of that word¹⁴ - the hearth was a communal focal-point, a concentrated zone of acculturation. For oral cultures this would have been entirely true. At night the hearth would be the place to gather, a place where stories would be told. Still story-telling, both in the form of the ghost-story, and in the form of song, is one of the primary activities to be enacted around a bonfire. In an oral culture, the fireplace would have been where common narratives were created and propagated. It was a place of solidarity, a 'focal' point for families and the immediate community. Many simple dwelling structures, such as tents and yurts by necessity are constructed with the hearth directly in their centre, with everything else organized around it and a hole above to let the smoke out¹⁵. In these cases the hearth was thus literally the centre of life in the house.

This is why when Carl Jung went to build his house at Bollingen he also wanted to structure it around a central hearth, with bunks around the perimeter. "Primitive huts concretize an idea of wholeness, a familial wholeness," he recounts in his autobiography¹⁶. Jung's construction was a conscious attempt to gain something of this wholeness for himself, a goal consistent with his idea of life as a continuous process of balanced individuation. His placement of the fire in the centre of his tower was thus an acknowledgement of the role that fire plays in our psychic life and the hearth as a focal point. Philip Johnson's house too, which is about as stripped of detail as they come, has as its central focus a large brick hearth that seems to hold the house in place. As Banham pointed out, it's like he has recreated the classic American campsite with a fire at its centre for gathering about.¹⁷

But before we move on we must also notice that the hearth is not only the focus for communion but also for individual reverie. We can probably all attest both to the fixation caused by sitting in front of a fire and also the look in the faces of others in a similar situation, a sort of gentle hypnosis sets in as the fire leaps and shuffles and sings. The hearth is not just a place of sharing between, it is also a place of individual, concentrated thought. As Bachelard has insisted, "the fire confined to the fireplace was no doubt for man the first object of reverie, the symbol of repose, the invitation to repose."¹⁸ It is a traditional



Fig. 31
Jack Chambers, *Sunday Morning No. 2* (1970)
*The old hearth can just be made out at the
edge of the painting.*

site of pleasant meditation. We can think for instance of Descartes in the 17th century, conducting his *Meditations* in front of his fire. What world-changing ideas were forged at that hearth! Sitting there in repose on a cold evening, quite almost *lost* in thought, the heat of the fire emanating out at him and melting the wax in his hand assured him of the reality of things, of the trueness of his ‘emplacement’ in the world¹⁹.

The hearth is the supportive and controlling receptacle of fire, an ambiguous technology which provides us with the heat and nourishment necessary for life and yet threatens death. Together the fire and the hearth form a symbolic aggregate, a focus for the individual in reverie and for the community. And yet most of us no longer have this in our houses. Some of us now have cold and empty hearths, mysterious cabinets of darkness in the corner of our rooms; many of us don’t have hearths at all.

TECHNOLOGIZATION

As technology has marched along, the hearth has changed. The evolution of more efficient indoor heating, gas and electric stoves and ovens in the 20th century made the hearth obsolete in its original capacity of providing warmth and nourishment. Largely because of its social function (I think it’s fair to propose that its aesthetic value is linked to its social function), however, it remained a feature of buildings up until the end of the 20th century. Often, it was the custom for fireplaces to be replaced by simulations of themselves such as gas fireplaces, the ‘cold fires of the modern home,’ as Pallasmaa put it²⁰. However, the 20th century also succeeded in mainly replacing the social function of the fireplace as well. At the end of the 20th century it was no longer the leaping and dancing fires of old that captured our fixed gazes and brought us together in groups. With the invention and rapid popularization of the television, families and friends were soon choosing to gather around it instead of the fireplace. By the end of the 20th century, the television had become a new sort of *electronic* hearth, a phenomenon clearly highlighted by the sudden availability of video-tapes depicting fire that you could buy to play on your television.

As with the fireplace, common narratives were still created and propagated

around the television, although these new narratives were being shared on a much larger scale. Also, our engagement with the narratives being spun had lost a lot of their capacity for reciprocity. These new narratives were point-sourced; they were top-down and singular rather than distributed and multiple. And the bodies of television viewers were indeed *inert* compared to the bodies of those gathered around the fireplace. While the body of the contemplative fire-watcher may have been in repose, this new body, the body of the television-watcher, of the ‘couch potato’, was something new entirely.

This transformation of the hearth can be illustrated by the work of two painters incidentally both from London, Ontario: Paul Peel, painting in 1890, and Jack Chambers, painting in the 1960s. Peel’s painting, shown earlier, depicts two children fresh from the bath warming themselves up before what seems to be a raging, golden fire. Everything about this painting seems to be about well-being. The two children look contemplative and at ease; their skin is literally glowing with the warm-looking reflected light of the fire. The fire, which seems to hold their attention, is out of view, suggested only by the light it emits. The hearth in which the fire is held is softly rendered, almost as if it, too, was made of skin rather than stone.

The Chambers painting also depicts two children, this time wearing house-coats, seated in chairs, watching a television. Off to the left of the painting is the corner of a fireplace. This hearth is painted white. It looks sterile and insubstantial compared to the hearth in the Peel painting. A typical fireplace for a late 20th century house, it looks like it is primarily decorative. And the reason for this seems to be depicted quite clearly in the rapt expressions on the faces of the children. Their attention seems to be totally absorbed by the television. They look less contemplative than fascinated. Lying on the carpet a short ways off from the children is a stuffed animal. It seems to have been discarded by one of the inattentive children. The two paintings have many important differences. While in the Peel painting the fire is only suggested, Chambers has given us the television straight on – it looks at us, while the children look away. We are a spectator along with the children, a feeling reinforced by the very unengaged manner in which the painting is rendered. While the Peel was highly emotionally involved, the later painting is very flat and observational. Another key difference between the paintings is the presence of a window in the Chambers. In the earlier paint-

ing we are led to believe that it is nighttime, but in the Chambers it is clearly daytime. You begin to wonder, why are these children indoors? Why are they not doing something instead of sitting, inert, before the television? There are three portals in the Chambers painting, providing three options. The children are entranced by the television.

Today, the television too is becoming obsolete, with people choosing to go to their computers (and the Internet) for entertainment and communication. For a brief period, as desktop computers complete with large monitors and ‘towers’ became commonplace, they started to become a new sort of hearth. However, with the progressive miniaturization of technology and the ability for machines to connect to networks wirelessly, desktop computers too are fading away. The hearth, which at one point had been a stabilizing focal point of architecture, has disintegrated. We carry our hearths around with us in our pockets.

The hearth had served a cosmological purpose, anchoring the immediate community to a place. Solidarity was focused around the hearth, with our networks radiating outward from it. The ecological metaphor of the self as an ecosystem nested within other ecosystems is complicated by the nomadism of the cyborg at its centre. Now, for an electro-nomadic cyborg, it is as if the world were truly “an infinite sphere of which the center is everywhere and the circumference nowhere,” as Pascal once said. As with the fireplace, our new miniaturized electronic technology, our cell phones and our smart phones, allow for communication and communion, and the sharing of common narratives. Maybe then our large communication network is actually like a world-sized fire accessed through 6 billion tiny hearths. In comparison to the television it encourages a far more active body. But in terms of providing either a place of reverie or a focal point of solidarity for the local social ecology, these new hearths fail. This new technology can be very alienating, separating us from our immediate environment and the people for the sake of connecting us to larger networks.

As Guattari reminded us, “it would be absurd to want to return to the past in order to reconstruct former ways of living.”²¹ We cannot expect the world to be as it was. It may just be nostalgic to mourn the quiet reverie in front of the fire available in the 17th century. If our local communities are no longer anchored and focused by the hearth, and it is still important to have this anchoring and focus, we must find new ways of achieving these ends. The introduction of the

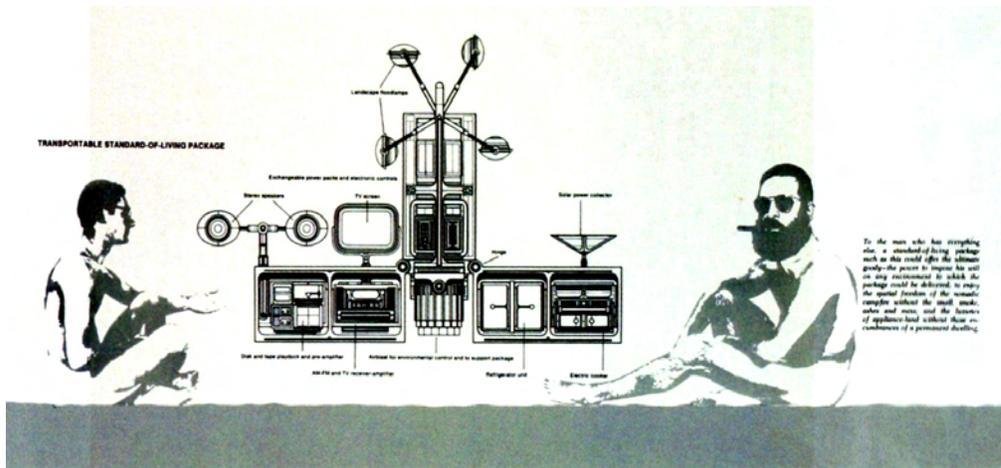


Fig. 32
Dallegret, Francois, *Un-House: Transportable
Standard of Living Package*, 1965
A new portable technological hearth.

fire into the house did not cause communal gathering; to think so would betray an excessively materialist perspective on history.

Banham saw his stripped down standard of living package, complete with stereo system, as a sort of mobile hearth, for instance, and there is something appealing in Mitchell's notion of the electro-nomadic cyborg exemplified by Steve Mann. The nomad does not fetishize the land and thus is non-territorial, escaping from fascisms attendant to 'belonging'. The nomad is always home and thus has nothing to protect.

HEARTH OF THE FUTURE

Following the trajectories of miniaturization and connectivity, we are all becoming nomads. Not just the hearth but all of the material purposes served in the past by the house become obsolete. This is one potential future. Many science fiction writers in the past (Gibson, Asimov) have also imagined interior space maximized, expanding outwards such that almost everything becomes incorporated into its conditioned sphere. In such a world we all live in the same house. It also seems as if large-scale geo-engineering may not be as far-fetched as it has always seemed. After all, we seem quite capable of geo-destruction. Guattari, writing in 1989, saw this not just as a possibility but as an inevitability.²² In such a case, climate-control will have moved from the cozy hearth heating a room all the way to the large-scale heating and cooling of the entire planet.

Scaling back from these hallucinatory visions of modern science though, we must ask a serious question. What happens to the focal and meditative qualities of the hearth, the occasion it allowed for thought and for shared narrative? If these things are important we must hope that they find a way. A recent design by a student at Goldsmith University in the UK may point in a valuable direction: a luminescent router. As the fireplace was the heart of the home, the router is the heart of the 'home-network'. In making the router visible, pulsing in relation to the amount of data passing through it, this new technology of solidarity may point the way towards the development of a new focus for socialization and reverie. Perhaps this blinking of the router in response to gusts of information

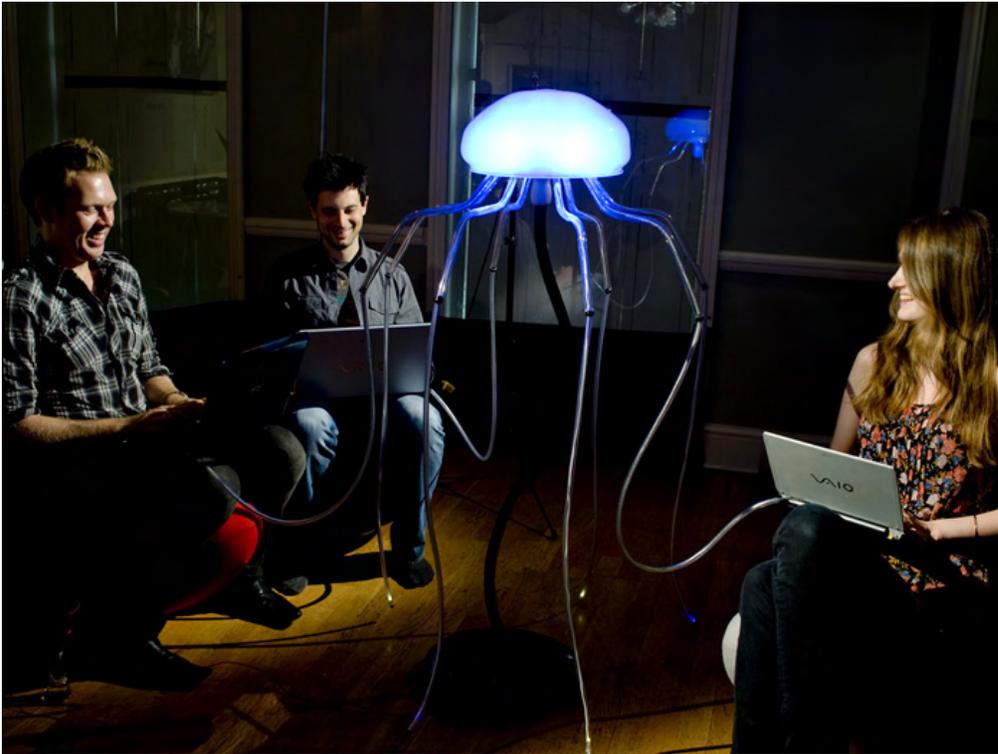


Fig. 33
Stephan Bischof, Jellyfish Broadband Router, (2009)
A focus for reverie and socialization?

passing through it is not sufficiently similar to the flickering of a fire contained in the neutral hearth, but some similar arrangement does seem to be a possible replacement.

The value of the hearth seems too important to lose. Maybe the hearth could be mobilized, carried on (or in) the individual like a mandala. But if this were to happen, two considerations are important. First, these technological things must be conducive to reverie and active socialization; i.e. they must encourage peace and thoughtfulness and facilitate engagement rather than acting merely as an access point for media consumption. Second, maybe these hearths could be fragments of a larger hearth that remains at the centre of the house. If these hearths were yielded at the threshold of the house they could be exchanged for a hearth that was still conducive to localized socialization and could then be accessed communally.



Fig. 34
Perhaps the hearth of the future could map your IP address on a dynamic diagram of the Internet, a 'Hestia' counterpart to a 'Hermes' communal information access point.



Fig. 35

TOILET | 6



Fig. 36
Film still from *Ghoulies* (1987)
Guilt and abjection.

While the last chapter dealt with vessels for holding fire, this chapter is about closets for water, or as we commonly say in North America, toilets. My use of the word toilet here is consistent with that of the popular web service Dictionary.com: “a bathroom fixture consisting of a bowl, usually with a detachable, hinged seat and lid, and a device for flushing with water, used for defecation and urination.”¹ The word toilet itself, as we learn from the Oxford English Dictionary, actually derives from an Old French word for ‘small cloth’. In a 16th century use of this word in Old English it referred to the cloth that you would wrap around a bundle of clothes. Later, the word appears to have referred to the cloth that you would lay out over your dressing table, following which it came to refer also to the things on the dressing table, and eventually to everything associated with dressing, washing and grooming. By 1819 the word was being used to refer to the dressing room itself. The word toilet-paper is first in evidence in the 1880’s with the phrase toilet-training appearing in 1940. It is thus really only very recently that the word came to acquire its current connotations. Amongst other ways that you could refer to this fixture are ‘lavatory’ or ‘latrine’, both of which come from the



Fig. 37
Mesopotamian 'Humbaba' Sculpture, (ca. 1700 BC)
*Humbaba was often depicted in this manner, with a
face composed of intestines*

Latin, *lavatrina*, meaning ‘place of washing,’ and also ‘privy,’ coming from the Latin *privatus* for ‘private’². The toilet thus is both a place of *hygiene* and a place of *secrecy*. It is a *water-closet* after all, and what is a closet but a place for hiding things?

There are a number of things that can be said about toilets that qualify them as important and loaded cultural sites. To illustrate the first I can think of few things more appropriate than a scene from the 1987 comedy/ horror flick, *Ghoulies II*. In this scene, the villain from the early part of the film enters a bathroom. He is a suave-looking young businessman, and as the movie has established, an enemy of small-town American commerce. Frantically, he locks the door, securing the privacy and safety of the space. He looks in the mirror, assessing himself. “It’s not your fault,” he says, “you had nothing to do with it.” In the background we hear a ghastly sound. A green, scaly monster emerges slightly from inside the toilet. We see the monster lift the seat enough to get its head out. It looks around, and then retreats, letting the lid close. The man is none the wiser and seems to have temporarily calmed his guilt. But we know he’s done for. With the Apollonian view of the audience we know his attempts to avoid guilt and shame are futile. He pops the lid to the toilet and, breaking a fundamental rule of toileting, he sits without looking first. The camera shifts away as we hear his mortal scream. Justice has been served. The guilty have been destroyed by the effect of their own transgression³.

You could hardly hope for a clearer example of the relationship between the toilet, abjection, and guilt. The toilet is the depository for the product of our digestion system, a hideous embarrassment and constant reminder both of our animalness and of our primitive relationship with the material of the earth. For, fittingly enough, the beast lurking in the toilet bowl is the product of the businessman’s evil ways. He summoned this demon from the depths of hell, and now he must pay. No matter how hard he tries to separate himself and his actions from this thing, it is futile. He will be destroyed by his own creation.

Fear of our creations is one thing and constitutes a vital narrative theme easily traced through from such examples as Zeus’ slaying of his father, Chronus, in Ancient Greek mythology, to the difficulties undergone by the young tortured protagonist of Mary Shelley’s *Frankenstein* (1818). But in addition to referencing the anxieties of fatherhood (this monster is baby-sized after all), the scene also

references our anxieties around our waste.

In the Mesopotamian epic, Gilgamesh, the oldest recorded story passed down to us from antiquity, the hero and his brother Enkidu manage to conquer the evil demon Humbaba, guardian of the murky forest beyond. This is a key scene in a story that is essentially all about the ‘rising-above’ that the birth of civilization entails. Gilgamesh and Enkidu depart the city with the goal of taking on the worst thing that they could imagine. Upon reaching the forest, age old symbol of mystery and the unknowable, they immediately set about felling trees, an act of clearing, of settling. Humbaba emerges, only to be slain.⁴ ‘Humbaba’ being traditionally associated with the intestine,⁵ it is notable that his domination is depicted as an essential moment in the birth of civilization.

Which, of course, is entirely reasonable. Our intestines need taming. Our digestive system is our point of contact with our human waste. And our human waste, our feces and our urine, is ‘gross’ for a reason. The whole reason why our body is rejecting it after all is because we don’t want it. It is filled with contaminants and is a primary breeding site for things that are dangerous to our health. The slaying of Humbaba, a central moment in the story of the birth of civilization, refers to the control of all of this, of the birth of sanitary ways of controlling our human waste. In Jungian terms we could speak of the toilet as being the technological means of hiding the anima. That within us of which we are fearful is thus shielded from us, disposed of and sent away. After flushing, we are left only with the pristine, clean whiteness of the porcelain, holding only a small pool of clear water. Which is why properly sanitized bathrooms are seen as being such a sign of civilization, or inversely, unsanitary facilities such a sign of depravity. Anybody witness to tourists returning from some far-flung region of the world knows that the quality of the bathroom is one of the most important things to report on. All of us in North America have heard earnest and wide-eyed accounts of holes in the floor, footprints on toilet seats and other such oddities. Our own experience of toilet use being so controlled and ritualized by that fascinating process of body-discipline, ‘toilet-training,’ from day-one, aberrations from our established practices stand out in striking contrast.

Although variants on the water-closet have been available since at least 2000 BCE⁶, indoor plumbing did not become available to anyone but the absolutely most wealthy until the 19th century. A brief review of literature on domestic

economy from that era however reveals a mixture of enthusiasm for and mistrust of these fixtures. As they were slowly incorporated into buildings, initially public buildings and then later domestic residences, one of the major issues faced was how to get people to use them properly. One concerned writer in mid-nineteenth century France is quoted as prescribing that “there must be a niche or some sort of obstacle over it (the seat) to prevent visitors from climbing up on it and taking up any position other than that indicated by its name.”⁷ And in addition to the sort of confusion they seemed to cause, water-closets were unpredictable and the danger of disastrous spills was no doubt high. Mrs Isabella Beeton for instance, in her *Housewife’s Treasury of Domestic Information* (1865), insisted that the water-closet’s position “demand most careful consideration”, and that it be preferably separate from the rest of the house, “in a side wing, as it were, projecting from the house, instead of letting them be within the house itself . . . which might suffer more damage in any unexpected overflow of water from the bursting of a pipe, &c.”⁸ Despite her enthusiasm about the wonders of indoor plumbing, Mrs. Beeton seems to have been quite worried about the dangers it posed. Another suggestion she offered for avoiding the dangers of surprise bursts of water was to use what she called an ‘earth-closet’ instead, a similar sort of device to the water-closet except that it uses soil instead of water.⁹

Patricia Cooper and Ruth Oldenziel’s work on post-war bathroom conditions of female railway workers and the institutional reporting on these details gives a good entry point into the second important aspect of the toilet as a cultural site and psychological focal point. As they’ve pointed out, “the bathroom may be the most absolute and unambiguous locus of gender segregation and difference left in our society.”¹⁰ Emotion with regard to the sanctity of gender-specific bathrooms is strong – so strong indeed that the very threat of the possibility of mixed bathrooms managed to sway voters away from ratifying the Equal Rights Amendment to the US Constitution in the 1950s and 60s. Although mixed bathrooms were by no means explicit in the amendment, it seems that anti-feminist campaigners were able to make very efficient use of associating them with it¹¹.

During WWII and in the post-war years, out of necessity there was a general diversification of the workforce in the US while jobs that had traditionally been held by white males were filled by both female and black workers. In these



Fig. 38
Nineteenth century toilets
Attempts to incorporate the toilet into the décor
of the domestic interior by reconceiving it as an
objet d'art

changed conditions, Cooper and Oldenziel have found, bathrooms became a potent site for maintaining traditional boundary zones between binary categories. While the construction of bathrooms for the new workers indicated inclusion, these bathrooms also reinforced “segregation, separation, and difference.”¹² Drawing upon reports prepared by a female ‘adviser’ on working conditions, Cooper and Oldenziel have shown that bathrooms themselves were ‘battlefields’ for the preservation of order, separating the clean from the filthy, the white from the black, and the men from the women. Interestingly, a similar use of the bathroom as a site of population-sorting is revealed in the Beeton text. While Mrs. Beeton herself appears to have been a very strong and wilful woman, she declares nonetheless that if a water-closet is to be situated in the house it should be reserved for use by children, invalids and women. The facilities for the presumably hardier men and for servants, on the other hand, were to be located outside. This outdoor facility should furthermore, by her recommendation, be divided into two: one side for the servants, one side for the ‘inmates’, separated by a party-wall.¹³

While toilets may no longer be a primary site for reinforcing categories of class and race, they remain a site of battle with filth. As Cooper and Oldenziel put it, the bathroom is after all the “pre-eminent place of dirt and filth, where its elimination takes place, and where cleanliness is both disrupted and restored.”¹⁴ Bathrooms are used as the principle location of personal hygiene maintenance. It is there, especially in household bathrooms, that we engage in our never-ending rituals of ablution, of body purification. Because of the necessity of hygienic conditions for these rituals it of course follows that the bathroom would also be a principal site of environment-cleaning. We scrub the sink and the tub; we employ whole arsenals of detergents and cleansers. The bathroom is thus a site both of self-cleaning and of world-cleaning.

At least when it comes to public restrooms, toilets also remain a site of gender organization and identification. Almost always when we go to the bathroom in a public location we are faced with the decision: male or female. Which of these symbols do you identify with more: the one with the triangle or without? The fear exemplified by the ERA example around mixed bathrooms shows clearly that segregated facilities remain a spatial symbol for the inviolability of gender boundaries. We are frightened of blurring these boundaries, and segregated

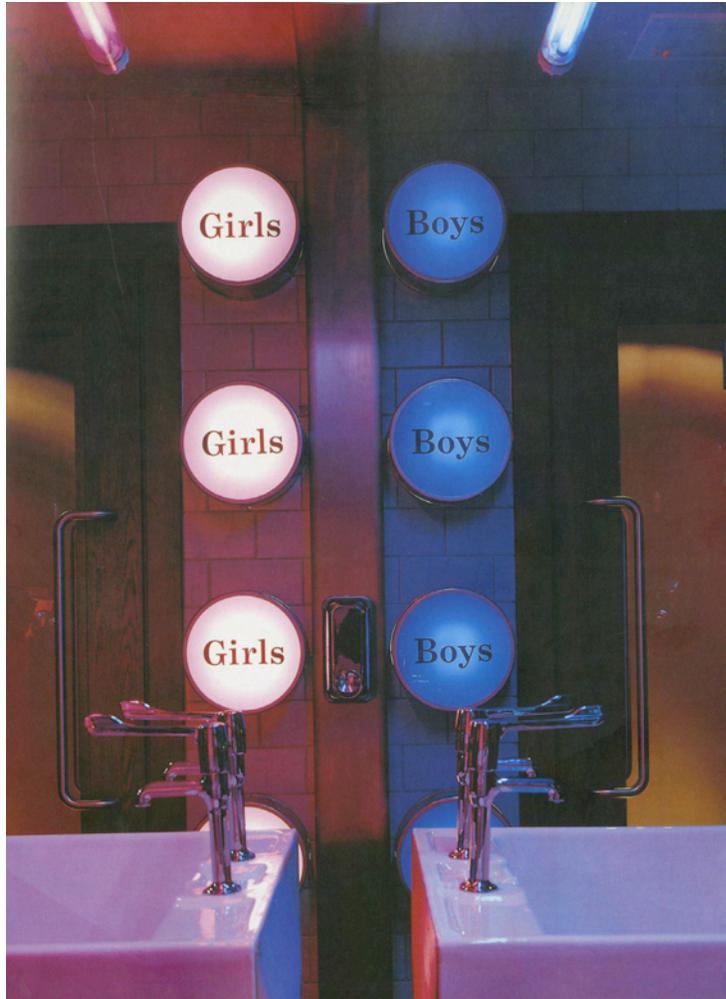


Fig. 39
Buck Gray Yeoman, Bathroom of Joe Shmo's,
London, UK (2007)
*Division between male and female can be a
blurred edge.*

bathrooms remain as a steadfast institutionalized protection of them. They are a zone of permitted genital touching moreover, but only in a de-sexualized way. As in the case of the post-war railway workers, female washrooms are a means of protection from male violation, either visual or physical, however, it is notable that this very desexualisation through segregation blatantly disregards any possibility of same-sex sexuality. Thus not only do public bathrooms reinforce binary notions of gender, they also, in their attempt to provide potential locations of desexualized intimacy, deny the possibility of homosexuality.

When we make a decision of which door to go through, we self-identify our gender. As William Mitchell has pointed out, giving particular information about oneself is generally a pre-requisite to engaging a system, just as a computer assumes an IP address in order to access the internet. To better serve us, bathrooms are differently equipped. However, when Mitchell wrote that “when I stop to pee at a urinal, I engage a gendered network node and thereby make a declaration of gender,” he probably wasn’t thinking of female urinals. Urinals have traditionally allowed men to urinate indoors both quickly and without requiring as much space as a regular water closet takes up. This has allowed male bathrooms to fit many more fixtures in them than bathrooms intended for females. Because of this, and also because of the time-saving benefits of urinals, usage cycles for men have generally been much shorter and thus line-ups much shorter for high-traffic gendered public bathrooms. In this context urinals designed specifically for females can seem very attractive, promising to increase the efficiency of female bathroom usage. But it is hard not to imagine also a political dimension to female urinals, allowing, as they do, females to do things that hitherto only men could do (with any ease anyway). We may see this as an example of technological enabling. While often female-specific urinals will have a protruding lip that will slip between the user’s legs in order to better line up with her genitals, other models have a specially designed funnel attached to a hose that the woman can manipulate as they need to. These urinals thus, while in one sense levelling the playing field, accentuate gender differences in their specificity. While it would be nice to imagine otherwise, when a woman stops to pee at a urinal, they are also making a declaration of gender.

This difference in efficiency of public bathroom usage between the genders has long been a topic of controversy. Who hasn’t witnessed the long lines

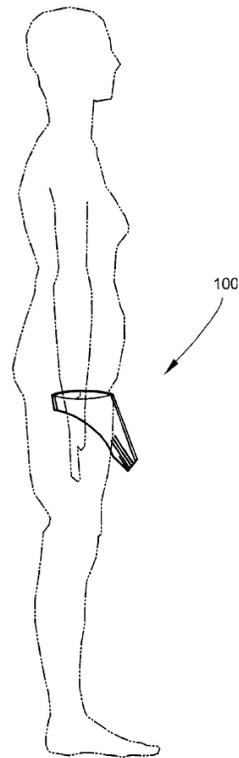


Fig. 6

Fig. 40
Diagram from US Patent application,
#6434757 B1 (2002)
*A technology for softening the gender
distinctions implied by toilets.*

outside of women's bathrooms while the men easily waltz right in and out of their facilities? Traditionally, in North America, organizers and designers have thought it fair to provide an equal number of facilities for men and for women, completely disregarding their difference in needs.¹⁵ While seemingly a gesture of equality, this has often resulted in much longer wait-times for women needing to use public bathrooms than men. More recently however, in addition to the introduction (mainly in Europe) of female urinals, laws have been passed (so-called potty parity laws) obliging facility operators to provide a higher ratio of female toilets to expected female spectators than male toilets to anticipated male spectators. New York City for instance recently passed a law requiring two female fixtures for every one male fixture at public assembly spaces.¹⁶

Bathroom facilities remain a symbol of binary gender distinction. There is male and there is female and this clear division is written spatially in public bathrooms. The political tensions around potty parity just go to illustrate that this is indeed uneasy and loaded territory. Another pretty clear indication of the potency of this spatial division is the glee with which people seem ready to play with it. The recent design by Buckley Gray Yeoman of a bathroom for Jo Shmo's restaurant in London, UK, for instance, has just one large space in which both male and female stalls are located. The room is divided into two by lighting: one side lit blue and the other pink, in conformity with culturally-enshrined colour-gender associations. All of the stalls intended for women are on the pink side of the room, while stalls for men are on the blue side of the room, but the spatial division is achieved purely by the rather fuzzy instrument of light. The distinction is present, but the two spaces interpenetrate one another both visually and by the inevitable bleeding of light across the boundary.¹⁷ Similar examples of this spatial play with male-female boundaries can be found in many recent bathroom designs for restaurants and clubs, sometimes taking the form of controlled visual connections into and out of bathrooms, sometimes playing with the transparency and translucency of surfaces.

Probably more fascinating than the female urinals spoken of above in terms of blurring the distinctions between the genders, are the much older 'female urination devices', literally prostheses to aid the female in using urinals and water closets without designing specific fixtures. The first such instrument was patented in the US in 1922 by the inventor Edyth Lacy.¹⁸ She intended it to



Fig. 41
Photo of Miss Edna Cowan as Basin Girl (1931)
*Amongst 44 men wearing sky-scraper outfits, Edna Cowan
was asked to carry a sink.*

be made of a hard paper and to be carried by women on long trips in which they would have to use public facilities. Since then, although many different versions have been developed, none of them seem to have ever really caught on. Although it has never been their stated purpose, devices of this sort allow women to appropriate male-specific infrastructure, effectively de-gendering the urinal. Indeed, this sort of paper appendage, by allowing women to use the same urinals as men, could allow them to ‘plug in’ to the system as Mitchell describes, without having to make any overt statement about their gender at all.

Toilets are thus deeply loaded, and very personally at that. They are the site of our relationship with our own waste, the primary site of personal hygiene, and also the site of gender identification and sexual taboo. These resonances are true both of public and household toilets. Specifically when it comes to gender, the associations in the household are less intense, but they are still there. The seemingly ceaseless stream of gendered references in popular culture would seem convincing enough evidence of this. Gender never seems to be very far from people’s minds when it comes to toilets: women spend ‘forever’ in the bathroom; men use the ‘throne’ as a place of relaxation and thought; men leave the toilet seat up and women get mad.

But there might be an even deeper connection here with gender, the connection between water and the feminine. This is highly contentious territory as such binary modes of understanding are far too simple, and we must always be cautious of Haraway’s ‘systematics of domination’, but I nonetheless feel it helps us better understand the toilet as a symbol. The association of the female not just with water but with plumbing is illustrated clearly in an anecdote revealed in Rem Koolhaas’s *Delirious New York* (1978). In his book, Koolhaas describes a very unusual ‘ballet’ performed in 1931 by New York’s elite architects. Each of the 44 star elite players, all men, were to dress up as their most recognizable building, primarily skyscrapers. Amongst this crowd of men stood only one woman, the so called ‘Basin Girl’. Instead of a silly building-shaped hat, the Basin Girl was outfitted with a sink. Koolhaas describes the scene well:

She carries a basin as an extension of her belly; two taps seem even further entwined with her insides. An apparition straight from the men’s subconscious, she stands there on the stage to symbolize the entrails



Fig. 42
Collins, *Bathroom of Kabaret's Prophecy*,
London, UK, 2004
*Puerile wall paper underlines the bathroom as a
site of sexual taboo.*

of architecture, or, more precisely : she stands for the continuing embarrassment caused by the biological functions of the human body that have proved resistant to lofty aspirations and technological sublimation¹⁹.

Koolhaas's relation of the belly with the basin seems like an astute observation, as does the 'fallopial' nature of the taps. As we explored in the first chapter, within a patriarchal iconography the whole house is associated with the female. The kitchen and the water-closet are even more so, though. The basin reminds Koolhaas of the anatomy of a woman; the water-closet has the same type of connection. The toilet bowl after all is a wet, cavernous space, a uterine space, a connection point to a mysterious wet system of unknown depths²⁰. And not just mysterious depths but dangerous depths: remember Mrs. Beeton's uneasiness around the water-closet. She far preferred the predictable dryness of the earth-closet which would never spring a leak and sully the cleanliness of the house.

What is doubly interesting, however, about Koolhaas' anecdote and this connection between the female and plumbing is not just the gendering but also the implicit parallel drawn between our inner organs and the organs of the house. Our internal and our external plumbing are actually kind of similar. They can even be seen as extensions of one another. In incorporating plumbing into our houses, are we not in fact simply constructing extrusions outwards of our internal digestive system? This is not unlike Deleuze and Guattari's observation that in the act of puppeteering there are in fact two puppets, the puppet without and "the multiplicity of nerve fibres, which form another puppet in the other dimension connected with the first."²¹ Likewise there are two sets of plumbing connected together through the interface of the toilet which reveals itself as simultaneously a disciplinary point of body-conformity and also a location of sublime extension of our secret inner canal system. There is a level of complicity and understanding reached between the individual and the toilet, where two labyrinths meet. Together with the technology of the toilet, we dominate the guardian of the labyrinths, Humbaba, a requisite for our participation in society, first on the scale of the household, as small children, and then on the scale of the larger political body. We conform to the rule of the toilet, we submit ourselves to its form and procedure of use. And in so doing, we make ourselves 'network-ready'. We extend our biological waste-disposal system into one that is much

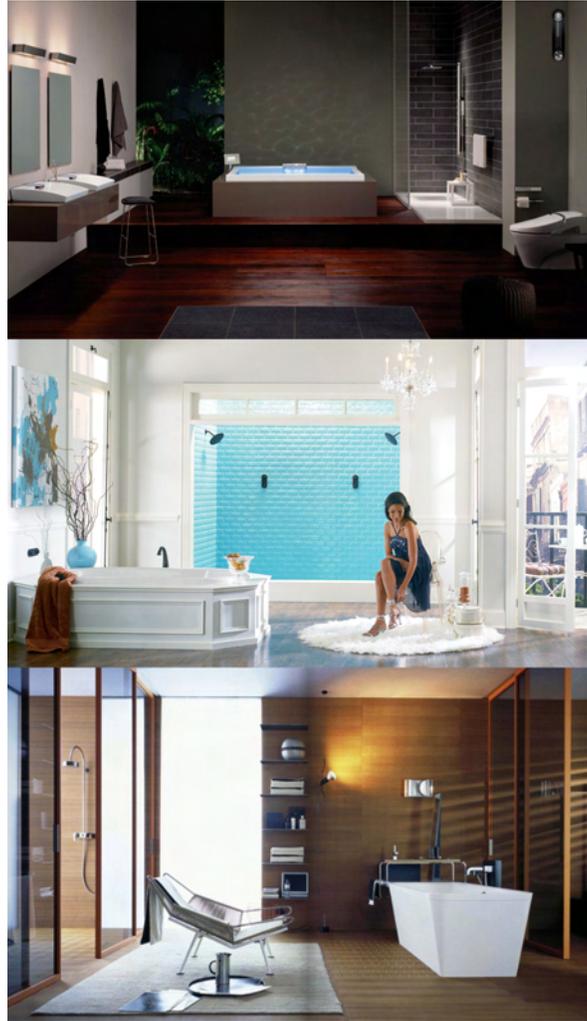


Fig. 43
Promotional images for bathroom fixtures
top to bottom: Toto, Hansgrohe, Axor
Visions of the Good Life,

larger and more effective than what we had to begin with. The toilet, like the hearth, can be a cosmological grounding point. The central object in Johnson's house wasn't just a hearth, but also contained a toilet too.

These vessels, for fire and water, are likewise both sites of reverie. While it is easy to conjure up the romantic image of the poet musing by a placid pool, it seems to be harder for us to conjure the image of the poet musing *atop* the placid pool, but this is no doubt more often the case! As Tanizaki declares in his *In Praise of Shadows* (1977), "here I suspect, is where haiku poets over the ages have come by a great many of their ideas."²² Indeed, he continues, "one could with some justice claim that of all the elements of Japanese architecture, the toilet is the most aesthetic." And so he lauds the wooden seats, the tatami floor and the dim lighting of the traditional Japanese toilet as conducive to reverie. In direct contrast to this Tanizaki thinks modern Western toilets clean but soulless, maybe a bit too purposefully clean. Certainly the site of Bloom's reverie, newspaper-in-hand, "asquat" the porcelain pool, in Joyce's *Ulysses* (1922) is hardly aseptic. "Leaving the door ajar," Joyce writes, "amid the stench of mouldy limewash and stale cobwebs he undid his braces,"²³ but this is probably hardly what Tanizaki has in mind when he recommends that the "distinction between the clean and the unclean is best left obscure, shrouded in a dusky haze."²⁴ He simply questions the conduciveness of the fluorescent-lit white bathroom to what Heidegger called 'dwelling'.

TECHNOLOGIZATION

So we can see from all of this that the assemblages we form with our toilets are of a very intimate and complex nature. In addition to how complicated this already is, increasingly, public toilets have the intelligence to participate in the process with us! Sinks turn on and off in response to our presence, hand driers the same, and now the toilets themselves have gotten in on the game. Flushing used to be an essential aspect of the experience, a conscious act of disposal, perhaps of rejection: a very intentional act. But now the toilet senses our approach, it senses our activity, and decides, from this, when it is appropriate to flush. The toilet becomes a partner in the process. We initiate the process and

the toilet does the rest.

By this point in North America we are quite used to this phenomenon in public toilets, what is new is that it is beginning to creep into the private market as well. And motion-sensing is just the beginning. As a promotional video from Moen Incorporated, a prominent manufacturer of bathroom fixtures puts it so seductively, “digital technology is everywhere, making life easier: in your car, laundry room, kitchen, bedroom, and NOW your bathroom.”²⁵ Why? Well, if one listens to Moen’s advertising, anyways, the qualities that we are at least supposed to be attracted to here are ‘ease,’ ‘precision,’ ‘simplicity,’ ‘innovation,’ ‘sleekness,’ ‘personalization,’ and ‘repeatability.’ According to a press release from the company, using Moen’s IO digital system for controlling your bath and vertical spa (read fancy shower), is “like having your own personal digital ‘butler,’”²⁶ which only re-enforces the sense that the purpose behind most of our technology is in fact the ‘enslavement’ of the world for our purposes. With the Moen system in place, the company’s video assures us, you could “relax with a cup of coffee,” or “read the paper,” or maybe there will be “no need to get out of bed” at all. Which, frankly, all seem like strange claims for a digital thermostat that remembers your personal settings and can be operated with a remote control. Hansgrohe, another prominent manufacturer of bathroom fixtures one-ups this system by also playing music for you, getting mp3s wirelessly from a portable electronic device such as an mp3 player. It seems as if the shower is no longer simply a means of cleansing (whether physical or metaphorical), but the site of a carefully calibrated aesthetic experience. This of course seems purely frivolous and not really that useful. What this innovation points to, however, is the capacity for even your shower to be networked. Incorporating electronic technology into your shower helps it to serve you better (like a butler even), personalized to your individual needs and wants. Networking the shower will allow it to access information about you so that it can, presumably, serve you even better.

More to the point, however, water-closets are also beginning to incorporate similar technologies as well. A case-in-point is a small device called the Sound Princess offered by Japanese toilet manufacturer Toto that upon sensing your approach will immediately begin to play the soothing sound of running water²⁷. This no doubt is intended to mask the supposedly repulsive sound of your

own bodily functions, a technique of avoidance underscored by the device's euphemistic name. One step further, the Bottoms Up automatic toilet seat will either lift or lower itself depending on its interpretation of your needs. Not only does this product claim (as of this point it has not gone into production) to sense your presence, but it actually claims to sense your 'intentions' as well²⁸. Meanwhile, another product from Toto, the Apricot toilet seat actually has a port for a memory card built into it, as well as speakers so that it can play not only soothing nature sounds but any music you like while you are using it. In addition to playing music, the Apricot also emits synthetic fragrances, is self-cleaning, and even boasts a seat warmer²⁹.

But the Apricot itself is only a more popularly available version of Toto's most advanced toilet product, the Neorest. The Neorest is so advanced in fact that Toto claims that it isn't even a toilet anymore. As their promotional material has it, the Neorest brand is "about elevating every experience to the highest level"³⁰ the highest level apparently being somewhere 'above' the toilet. Thus the toilet, like the shower, is being marketed no longer as a simple means to an end but as an aesthetic 'experience'. In this case the toilet doesn't just have a seat that raises and lowers itself automatically, plays music, and cleans itself. It also cleans *you* with a bidet wand that you can adjust wirelessly from the wall-mounted control panel. And after you are clean, the Neorest also dries you with a directed shot of warm air. This goes way beyond having your 'own personal butler' and takes us into all new territory. At this point the world isn't just being enslaved but actually starts to become incorporated into the individual. If the toilet not only senses your presence but guesses at your intentions as well, the toilet in effect participates in a delirious extension of consciousness. The Neorest not only provides you with the opportunity to clean yourself, it cleans you. But even the Neorest pales in comparison to another product that Toto currently has in development, a toilet that apparently has a built in 'health-check system.' This 'intelligent' toilet will take urine samples from the bowl and also has a blood pressure cuff, a weigh scale, body fat meter, and glucometer thrown into the deal. This all essentially falls into the category of surveillance and is thus not entirely dissimilar conceptually from a toilet that senses your presence or analyses it to know what seat position you want. What is truly revolutionary, however, is that, like the shower we saw earlier, this toilet is networked. It sends



Fig. 44
Adjustable toilet developed by Vienna
University of Technology
*We could develop an entirely new relationship
with this sort of toilet.*

all of the information it has collected from you through your ‘home network’ to a personal computer. There, the information is collected and analyzed with the eventual purpose of providing you with medical / dietary advice³¹. Recalling the way that Joseph Cevetello’s glucometer became ‘coextensive’ with him in the intimate relationship that he developed with it, can we imagine a similar sort of phenomenon occurring here, not just with the toilet but with the home network as well? Something profound happens when we give over responsibility for our health to someone or something else. Could we work this sort of added layer into our already heavily loaded relationship with the toilet?

The assemblages we form with our toilets are intimate, and psychologically and politically loaded in deeply complex ways. With the advance of the technology, as toilets become more sophisticated in their abilities to ‘sense’, to ‘remember’, and to ‘think’, these assemblages become even more complex. If a toilet can sense how I am planning on using it, then presumably somehow it is also sensing my gender. My gender is thus in fact infrastructurally enshrined. The customization of technology to specific needs affirms and concretizes those needs – it crystallizes the world. The newest of toilets also take cleanliness to a whole new level, whether in choice of materials, in self-cleaning systems, or in the many different ways that the toilet can save you from touching it with your hands. These developments together with devices like the Sound Princess give evidence that we are still very far from being at peace with Humbaba, trying harder than ever to banish him forever and completely from our world. The ability of a machine to sense my presence essentially feels like an extension of my presence forward into space. If it can sense my intentions too, then it is also an extension of my mind. The machine in fact becomes part of my being. World is not just enslaved by the individual, World *is* the individual. We said above that the linking of internal and external plumbing systems is like a sort of sublime, delirious extension of self out into the world. Interestingly this full automation of going loo, this neutralization and sterilization of the process, is coming close to removing it from the equation entirely.

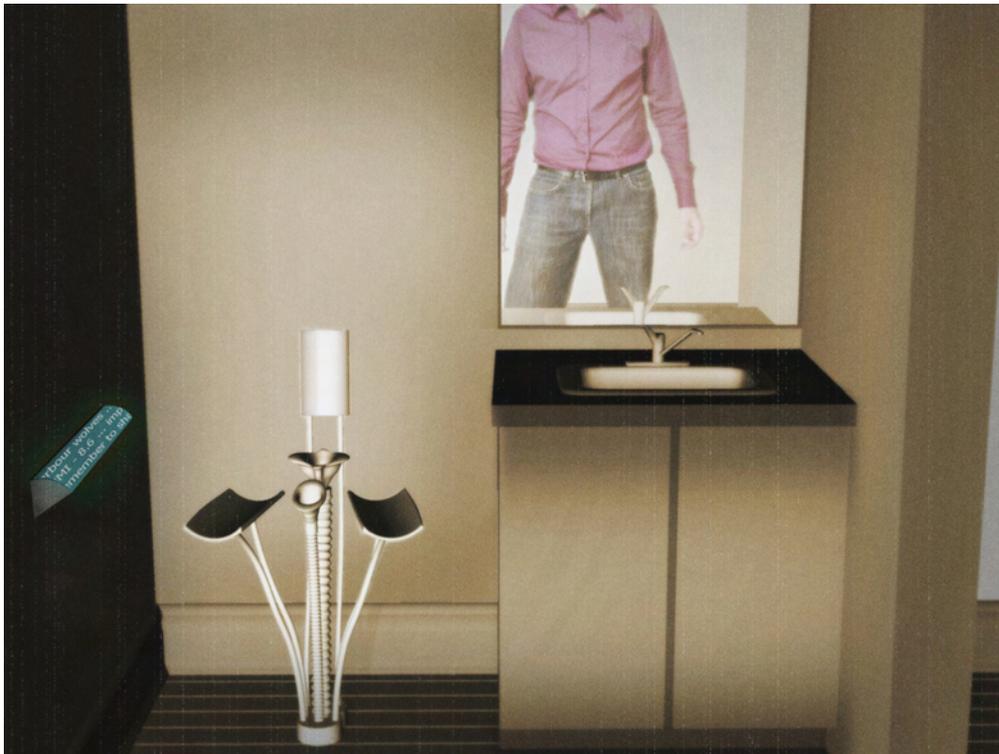


Fig. 45
Perhaps the toilet of the future could be reduced to some basic elements such as support and 'evacuation receptacles. Maybe it will recognize you and respond to the particulars of your habits and physiology.

TOILET OF THE FUTURE

Does a cyborg not defecate? The cyborg myth conceived by Donna Haraway would have no such hang-ups. Her monster is the opposite of purity. The toilet of the future does not need to be white and sterile. It should not embody queasiness but, instead, the rejection of Humbaba should remain an active ritual. If we are giving our waste to the system, why not let this gifting be articulated, not concealed. Perhaps it is not a bad thing that the toilet reach out to us in the manner of female urinals and form an active assemblage, but we should be wary as always of ceding too much of our agency to the technological field.

It seems suitable that the toilet become more than just a receptacle but also take on some of the character of a home health station. As long as this is clearly a service and not an enforcement of conformity, it seems fitting. This augmented fixture, with miniaturized sensors, processors, memory, and actuators, creating a virtual profile of us and sharing it with a home network, why not let it respond to us? Rather than our conforming to its shape, it should conform to our shape. If cybernetics is about steersmanship, we must make sure that we have our hand on the tiller, that we ride the train and not the other way around.



Fig. 46

TABLE | 7



Fig. 47
Richter, *Tisch*, 1962
*Richter's painting demonstrates the emotional
value of the table and its potential for
disruption*

Here we use the word ‘table’ to refer to any piece of furniture which has a flat top, for doing something upon or holding things, and a number of vertical supportive elements underneath, except for beds which we shall treat later. The Latin word for this item was *mensa*, a word in English which we now use to refer to the top of an altar and which also gives us the word ‘mesa’ referring to a flat-topped mountain. The word ‘table’ actually derives from another Latin word, *tabula*, which simply meant a board or a plank, apparently mainly used for writing on and playing games. No doubt deriving from this original Latin meaning of a ‘tablet’ on which things can be written, numbers and such figures are often arranged in what we call ‘tables’¹. In French, *tabula* produces the word *tableau*, meaning picture or painting, a word which we have since co-opted in English to mean a particularly vivid and representative image².

The Old English word for what we call a ‘table’ was *bord*, which of course gives us the word ‘board’. Because we used to eat our meals on *bords*, paying for your food is still often referred to as paying for your ‘board’ (normally when you also pay for your room)³. An issue can be ‘tabled’ when it is presented



Fig. 48
Screen shot from *The Cook, The Thief, His
Wife, and Her Lover* (1990)
*The table is a site of 'incorporation', of
negotiation and social ordering systemized by
a complex set of rules.*

for discussion; often this is done in ‘board rooms’ (where the ‘board’ meets to discuss graphs and tables, around a table). When something is done out of view, illicitly, we will say that it is done ‘under the table’; when, in a competition, favour is shifted, we say that the ‘tables have turned’.

The table has strong connotations of authority and legitimacy. That which is on the table is in plain view, that below is less so. Strategy games are played out on tables, a flat surface on which an evenness can be assured. Everything is ‘on the level’ on a table. No clear advantage means no clear disadvantage. If I were to send soldiers into battle I’m sure I would prefer the space where the action was to take place to be clear and flat, like a table, rather than have the action be complicated by an irregular topography. Games like soccer and football, etc are similarly thus played on fields that amount to giant-sized tables. Games like checkers and chess are battles in miniature played out on gridded tables, abstractions of idealized battle-fields. The table is a place of legitimate, open and even encounter. Cowboys used to lay their guns on the table when they would sit down to play cards. In today’s boardrooms people lay down their peripheral electronic devices⁴.

When we sit at a table it intersects our body at the waist. When we sit this way around a table, that which is above the table is seen: our heads, our arms, our hands are in the realm of legitimate action. There is a great deal of apprehension and curiosity about what goes on below. Under the table is the realm of secret things. The collision of feet in this shadow territory is a familiar form of flirtation and occasional source of embarrassment. When a newscaster, trusted truth-teller and arbiter of right from wrong, sits at his authoritative table (depicted on our electronic hearth), who can tell if he is wearing any pants? This notion, that such a figure of authority could be so human and vulnerable is a common idea in comedy and the image of the pant-less newscaster is a common image. And also consistent with this notion of the secrecy of the space below the table is its role as a hiding place in the imagination of children. Who hasn’t turned the secret space under a table into an intimate fortification, lying amongst the table legs, the hem of the table-cloth lending a perimeter to this temenos of safety?

In *The Order of Things* (1966), Foucault uses the analogy of the ‘operating-table’ aptly to refer to that space of objectivity which science must produce in



Fig. 49

Mantegna, *Lamentation over the Dead Christ*,
1501

The table has connotations of sacrifice, which in Christianity has strong ties with incorporation, in which the body and the blood of the sacrificed are taken into the body of the devotee.

order operate effectively. It is this 'tabula' that he seeks to unveil in his work as the uncertain thing that it is. It is a site where things can be laid bare and can be easily compared, which "enables thought to operate upon the entities of our world, to put them in order, to divide them into classes, to group them according to names that designate their similarities and their differences." He describes it as "the table upon which, since the beginning of time, language has intersected space."⁵ Foucault's goal is to show that this table does not pre-exist and does not float freely, but rather has mechanisms underlying it which are continuously produced. And in this the analogy of the operating-table serves him well. A table is an artificial thing that opens up, on its top, a realm of free and clear encounter, a realm, as Foucault points out, that can afford the chance encounter of a typewriter and an umbrella, and holds below it a realm shrouded in mystery. This is an interesting way of talking about the table, revealing it as a plane separating the realm of the scientist from that of the dreamer⁶. That which is on the table is the 'knowable'; that which is below is in shadow.

Le Corbusier's Maison Dom-ino project, and the villas that followed from it, imagine the house, in effect, 'as table'. His notion of a series of open platforms held up from the ground and from one another by columnar legs is a radical rethinking of the house, which in Europe in the early 20th century was still struggling, as it still is, with its 17th century image as a carefully partitioned shell. Given our insight into the table-top living in our imagination as a figure of rational clarity, this depiction of the house-as-table is highly evocative, representing a veritable exorcism of the emotionally loaded mysteries of the home. In the Villa Savoye, the living quarters on the 1st floor are truly an image of serene calm. The open and carefully laid-out living room seamlessly spills out through the large sliding glass wall, the Cartesian grid of the tiled floor hardly registering any break in program. Below this 'table' is the realm of the cars and the servants. When the inhabitant leaves her automobile she may wash her hands at the prominently placed pedestal-sink, a ritualistic cleansing before her ascent to the higher plane.

Peter Greenaway's *The Cook, The Thief, His Wife, and Her Lover* (1989) is a film that revolves around tables, and again there is a counterpoint between 'seen' and 'unseen'. In this case however, the division is not drawn by the plane of the table, but rather exists between the official zone of consumption (at

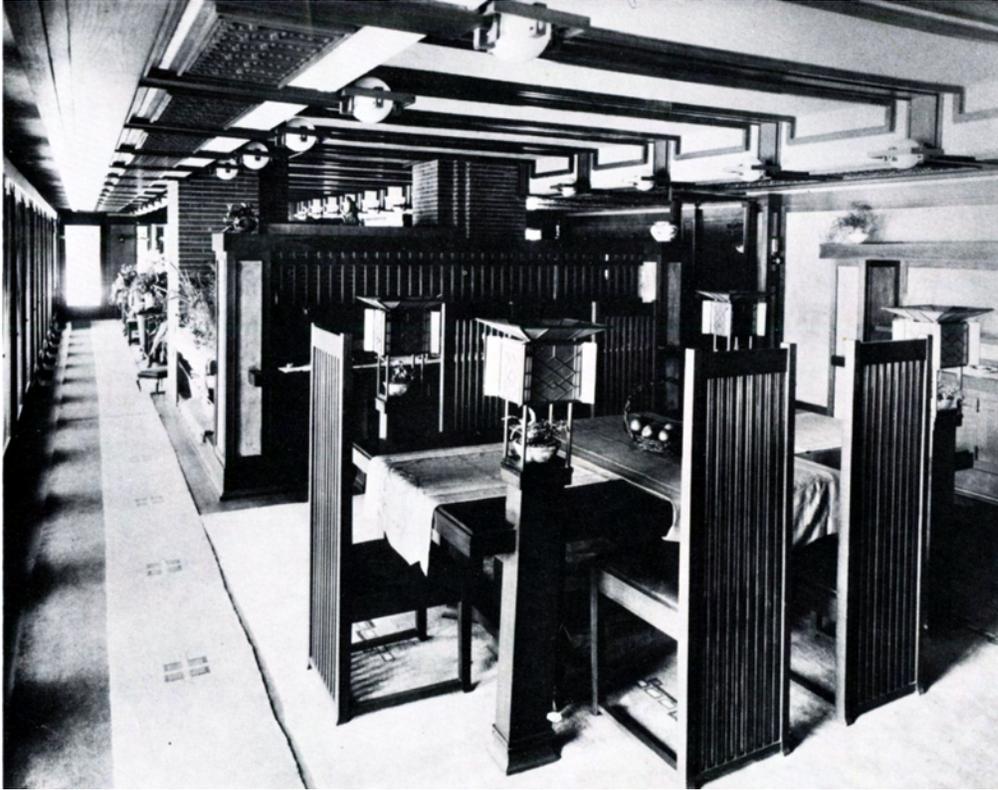


Fig. 50
Wright, Table for Robie House, 1908
Table as symbol of an ordered cosmos.

table), and the normally concealed zones of pre-consumption (the kitchen) and post-consumption (the toilet). Most of the action is played out at tables in the restaurant itself which is owned by The Thief. The Thief and his thugs sit at a long table in one part of the restaurant, gluttonously consuming the fine cuisine, while the Lover sits at a small table at the other end of the room. He sits alone and, consumes books at the same time as he consumes food. In the background hangs a large painting, Franz Hals' *The Banquet of the Officers of St. George Civic Guard Company* (1616), a painting that, in Guiliama Bruno's words, constitutes "a public binding of eating and social relations."⁷ Tables are thus cast as media of social encoding, of negotiation of social norms and establishment of hierarchies. Notably, probably quite unlike the officers of St George, the Thief et al have terrible table-manners. The Wife and her Lover sneak off frequently to their rendezvous in the concealed zones of the restaurant. But the use of table in this film is more than simply as an 'official' counterpart to the hidden zones. Later in the film the Lover is killed and he is then himself laid out on the table as if for consumption. The table is thus suddenly revealed both as an operating-table and as a sacrificial altar. The Lover becomes cadaver and sacrificial victim. The mythic link Greenaway is drawing between the Eucharist, cannibalism, and dining, through the act of 'incorporation' is clear, and this complex symbolic loading of the table is then highlighted by a series of carefully chosen art-historical references. At times the table on which the Lover is served resembles Rembrandt's *Anatomy Lesson of Dr. Tulp* (1632) while at other times resembling Mantegna's *Mourning over the Dead Christ* (c.1475)⁸.

This confluence of metaphorical strains shows the image of the table to be layered with complex connotations. The death of Christ in the Christian tradition holds mythical resonances of earlier sacrificial rituals that Greenaway taps into in his film. Christ is the lamb that must die in order to provide absolution for the sins of humanity. In the story of the Last Supper, when Christ announces that he will soon die, he offers wine and bread to his apostles, declaring that the bread is his body and the wine is his blood. This symbolic dismemberment in which Christ offers up the very substance of his body for the salvation of his followers blurs the line between sacrifice and dining. Both this story, and the ritual of the Eucharist that follows from it, lend the dining table, in cultures with their roots in Christianity, a sacramental tone. And as the psychologist



Fig. 51
Chambers, *Lunch*, 1969
In Chamber's painting something uncanny adds a level of mystery to an otherwise happy-looking family meal.

James Hillman has pointed out, such customs as the tradition of saying ‘grace’ acknowledges these grave religious connotations to the meal that, according to him, would be present regardless. Other customs, according to Hillman, that we use to neutralize the tensions that come along with these sacramental undertones are “fixed places and dinner ‘on-time,’ the rituals of clean hands, of setting places and clearing the table, and the endless attempts to mollify the tension with light music, dimmer lights, and rules concerning what is appropriate to talk about at table.”⁹ Dinner was evidently a serious affair.

The dining table designed by Frank Lloyd Wright for the Robie house (1909-10) exemplifies the seriousness with which he certainly regarded the family dinner. The table is set to receive five chairs but can accommodate extension. However, rather than having a head and a foot, like many dining tables, this table is intended to have only a head, where the father sits, thus cementing the hierarchical structure of the family and also, strangely, mimicking the format of a religious ceremony, with the priest at the end of the nave (represented here by a ‘scarf’ running the length of the table, and crossed by another scarf, presumably representing the transept) pontificating to the congregation. The dining table codifies the social structure of those gathered. According to psychiatrist Rosalynne Clements, in dreams “the position one takes while sitting at the dinner table symbolizes one’s position in the family and that one has a place. If you have a place at the table, you know where you belong.”¹⁰ In case of the Robie House table this was laid out definitively at the time of the design.

If the dining table is a primal site of ordering, the preparation of it can thus be an act of cosmic significance. Take for instance the following sample of a step-by-step guide to setting the table provided by Catherine Beecher in her *Treatise on Domestic Economy* of 1841:

1. Lay the rug square with the room, and smooth and even.
2. Set the table square with the room, and see that the legs are properly place to support the leaves and to stand firmly.
3. Put on the tablecloth, square with the table, and make it lie smooth and even ...
5. Lay the mats on the table, in a regular order, and set the plates around the table, at regular distances, putting at each plate a napkin, and a cupstand.



Fig. 52
LC 6 Table by Le Corbusier,
Jeanneret and Perriand, 1929
*Glass tables create a continuous visual field,
eliminating the possibility of mystery underneath.*

6. Put a knife and fork to each plate, laying them even, and all in a similar manner. If meat is used, put the carving-knife and fork and steel by the master of the house...¹¹

These simple instructions read as a small window into a long and dutiful battle for order that the house-wife is supposedly engaged in. Everything must be *just so*, perfectly regular, the place-mats aligned with the table-cloth, aligned with the table, aligned with the rug, aligned with the room. No doubt it is imagined that the room is also square to the rest of the house which sits square on the property, maybe even oriented to the cardinal directions. Each person at the table is to have their place clearly demarcated (elsewhere Beecher recommends the use of marked napkin rings for this purpose) and is to be provided with their culinary weaponry. The ‘master of the house’ is to be clearly established and afforded with a large knife, his ceremonial instrument of power. The legs of the table should be carefully checked beforehand to make sure to avoid a sudden collapse during the meal. The requirement for the surface to be smooth and even is perfectly consistent with our earlier observation about the table surface being an objective and unbiased zone of fair encounter. As Beecher says, “there is nothing which so much gives a table a neat and tasteful appearance as *clean* table-linen, ” which “should always be well-starched, as should also the napkins.”¹²

The table for the Robie House takes this cosmological quality one step further. In addition to the stable legs underneath (which notably mimic the parti of the house), this table also boasts four square columns that, rising a good foot above the eating-surface seem more to tether it to the ground, to hold it in place, than to hold it up. On top of these ornamental columns are set small planters, thus incorporating the natural world into this little cosmology. Above these planters shine Wright-designed lamps.

In direct counterpoint to this solemn affair is the ‘LC 6’ table designed by Le Corbusier with his cousin Pierre Jeanneret and Charlotte Perriand for the Salon D’Automne of 1929. Consistent with our comments above about Le Corbusier’s desire for the demystification of space, the surface of the LC 6 consists merely of one solid piece of glass. This is supported by a simple frame of tube-steel, so simple in fact that we could imagine that he could have had his way the clear plane of the table would actually float unaided. Wright, in contrast, went so far as to include unnecessary extra columns in the design of the Robie table. In a dinner at the LC 6, propriety is no longer limited to the



Fig. 53
Superstudio, 'Life' from *Fundamental Acts*, 1972
*Life as a picnic, played out on a Cartesian grid that orders
the ground plane.*

tabletop, but extends, with the scope of the eye, to what lies below as well. There shall be no errant leg entanglements at this table, no poor sap hiding behind the hem of the table cloth until the meal is over! A glass table is an explicit denial of the division between surface and under, consistent with Le Corbusier's rigid and hygienic visions of both the house and the city. Both the unseemly and the merely playfully mysterious are exiled. As Pallasmaa complained about Modern houses, "they do not contain secrets."¹³

As Clements says, in dreams, and it is our mandate to listen to dreams here, "the table unites those who sit around it and so represents relationship."¹⁴ This is essentially the issue that forms the basis of (although not the content of) George Baird's essay of 1976, "Dining Positions." In this piece Baird raises the question of how we shall design tables, knowing that they organize (and thus signify) a given social structure. In the Robie House table, for instance, Wright clearly indicated that one of the people at the table was superior to the rest. Baird wonders if the design of dining accommodations for a large group of people gathered together would be better as one large table, as several differently sized and shaped tables, or whether it wouldn't be best to do away with the table altogether in favour of eating on the grass like a picnic¹⁵. These three options of course imply three different modes of social organization on a gradient from maximized communality simultaneous to maximized hegemony (he refers to it as possibly 'cryptofascist') to the minimally focused but also minimally controlled. All three options allow for self-organization to varying degrees, but also with varying degrees of social engineering. The idea of one large table around which everyone gathers could conjure connotations of "bourgeois families dominated by authoritarian fathers, of regimental refectory meals in boarding schools," or alternately it could bear resemblance to "diverse and potent images of men's communality, ranging from the easy civility of a dinner party, through such instances of profound interdependence as the barn-raising supper."¹⁶ The picnic option could result in everyone going off and eating on their own or in self-aggregation in factions with varying degrees of inclusion and exclusion.

The table designed for the Smithsons for their House of The Future gets around these problems by adopting the Arthurian technique of having no head or foot. Their table is a hexagonal abstraction of the circle, which is no doubt far more convenient for dining at. Thus the hierarchical implications of

a rectangular table are neutralized. This was also a common technique of Arts and Crafts designers like Philip Webb whose round tables expressed a similar communal ideal. What is truly innovative about the Table of the Future is, however, that it actually runs on hydraulics. It is two tables in one, a dining table at full height, and a coffee table at half height. And when fully collapsed it sinks into the floor, thus allowing the space only to be a dining space at meal hours. When the room is to be used for something else, the table just disappears. A couple of the tables designed by Eileen Gray are similarly transformable, consistent with her ‘camping style’ approach to furniture, intended to maximize the appropriability of domestic space. One of the tables designed for her house in Castellar for instance, with a simple inversion of the top, changes from a coffee table into a dining table. The table she designed for E.1027, with its cork top (selected because it is pleasant to the touch), is usable as either a work surface or a dining table. The affixed adjustable lamp allows for a variety of different lighting options. Several of these tables could be aligned to make a continuous dining surface.

Some families eat at separate, lightweight aluminium ‘TV trays’; others gather around large, heavy ‘harvest tables’ made of roughly sawn wood. TV trays allow for self-organization and freedom, but represent a fractured social body, focused not on active shared narratives that act to bind and to order but rather on relatively flat received narratives. Harvest tables on the other hand seem to bind the dining act to nature, to the earth, and thus to a larger cosmic framework.

Picnics, as Baird points out, are acts of “deliberate transposition.”¹⁷ A picnic is a formalized indoor activity that has been divorced from its normal setting and conditions, and as Baird further makes clear, “the transposition from indoors to outdoors . . . carries with it a connotation of a larger social transposition from a mundane urbanity to a pastoral idyll.”¹⁸ Whether the connotations of this transposition are lascivious or more innocently ‘Edenic’, there is an implication of freedom in the picnic, an escape from the confines of society metaphorically represented by an escape from the dining room, and also from tables, chairs and the rest of it. Which is in a sense what Superstudio’s Supersurface project was referencing: life lived as a picnic, outside of the institutional confines of architecture. And such a reading definitely resonates with their libertarian

political agenda. But the complexity arises when we realize that the inhabitants of the Supersurface are not living at all in nature as found; this idyll is very much constructed. It is instructive to remember that the infrastructure with which they have flattened the world, their “network of energy and information,” resembles the checker pattern so common for picnics¹⁹. The Cartesian matrix with which Superstudio covers the earth is an aggressive attempt to render the world understandable and everything measurable upon it. The Supersurface is an infinite table and the picnic blanket a fragment of it. What else are picnickers doing when they lay down their cloth but enacting a ceremony of quantification, a demystification in preparation for the dining ritual similar to Superstudio’s preparation for the idyllic way-of-life that they imagine their images to be snap-shots of. For picnickers, the cloth laid down evens-out the ground and demarcates a territory in which the ritual may proceed.

In Diller and Scofidio’s *withDrawing Room* (1987), another sort of transposition takes place: the dining table is lifted high up in the air. Datum lines inscribed on the walls would indicate that it is supposed to be on the second floor, but it nonetheless floats in a volume. It has been transposed for the purpose of reinterpretation; everything is suddenly below it. Additionally, it has been bisected, cut in two, and part of the surface has been removed. The chairs are literally *attached* by mechanical apparatus. This is a fraught site. As in Clement’s analysis, the people accustomed to sitting around this table know their places, but maybe they know their places too well. It appears that they have been literally tethered to the (four-person) family construct and by pretty menacing-looking devices at that. Hillman’s comments about the psychological importance of the family meal seems to resonate loudly in this project. As he points out, “studies in family disorders accuse the evening meal of being the major focus of family tension,”²⁰ and indeed this seems to be what Diller and Scofidio are getting at here. Another unavoidable dimension of the dining table, as Baird hinted at, is exactly its implication of social structure (and thus its possible imposition of bourgeois ideals) and its potential echoes of unpleasant family experience. Tables can be traumatic sites. But, while we keep this in mind, and we definitely have Diller and Scofidio to thank for rendering it in such an elegantly disturbing manner, let us not forget that four equal friends can also sit at a square table, even a rectangular one, and let us recall once again Guattari’s enabling suggestion that we are free to reconstruct our social ecosystems as we sit fit.



Fig. 54
Dunne & Raby, *GPS Table from Placebo Project*, 2001
*This table re-orientes by citing its location in relation to a
Global Positioning network of satellites.*

TECHNOLOGIZATION

Tables show up a number of times in the work of the techno-savvy British design duo Dunne & Raby, specifically in their so-called *Placebo Project* (2001). The *Placebo Project*, like their earlier *Hertzian Tales* (1994-97) examines the role that electromagnetic fields play in our intimate environments, or as they describe it on their website, “the secret life of electronic objects.”²¹ Objects featured in the project are things like chairs with nipples on the back that vibrate when in the presence of EMR, lamps that feed off of ambient EMR, and a table that has a drawer for your phone that silences it and turns green whenever it rings. Another table is embedded with 25 magnetic compasses. Whenever the table comes into close proximity of radiation, the dials start to spin. Dunne & Raby have a similar project that incorporates a small display offering up the table’s GPS coordinates. Poignantly, when the table is not by a “clean window with a clear view of the sky,” or outside, the display reads the simple prognosis, ‘lost.’²²

This table has a whole new level of associations. The traditional table was a potent site for negotiating associations between people, but the GPS table is more interested in something else; it’s lost without its global network. The design plays cleverly with scales. It is a coffee table, a relatively non-technological thing in our intimate landscape of Being. It is mundane, and very much of its place. When Dunne and Raby install the LCD screen and GPS, it undergoes a mutation. Not only is it instrumentalized, but by becoming a node in a vast wireless network, it represents an entirely new scale. This table is not just in the living room, next to the couch, it is on the surface of the earth. To take this thread of reasoning further, this also affects how we relate to one another around the table. While the table used to play a framing role in defining my relation to you across its surface, now, as the table has become ‘globally positioned’ through its connectivity, so have we! Our relative position to one another is less important than our new absolute Global Position.

A recent innovation that takes the form of a table is the application of so-called multi-touch technology to new communal interfaces. Multi-touch has recently successfully penetrated the mass market as the interface for the iPod. These interfaces are basically LCD screens with a transparent grid of conductive strips laid out overtop of them. Pulses of electricity are sent along the strips so



Fig. 55
Strukt Design, *StrukTable*, 2009
A table with informational depth, opening up possibilities for communality in opposition to the frequently alienating qualities of the virtual.

that when your finger touches them the pulses are interrupted. Similar sorts of technology have recently been applied to larger vertical monitors, but what is of greater interest here is how they have been applied in table form. Coffee tables are already being developed that act as large computer interfaces.

There is no need for a mouse here, you can use your fingers, and several people can even use their fingers concurrently. This opens up new potentials for in-situ collaboration. If one of the greatest problems with computer technology is its alienating qualities, not only do these tables make computing that much more corporeal but they also allow more than one user to interact with the same information side-by-side.

Here, the connectivity hinted at by the GPS Table is taken considerably further. This table connects both you and I, sitting across the table from one another, to a vast depth, even if this time it is not a vast spatial depth but a vast depth of information. Our positioning is changed. We are now situated in relation to something much larger than ourselves. How we are positioned at the table becomes markedly less relevant. Thus the role of the table in defining our position in relation to one another has been undermined by the information within it. Furthermore, while the surface of the table remains a space of legitimacy, it is no longer solely what is on the table that is legitimate, but what is in it.

TABLE OF THE FUTURE

One key aspect of the table is in fact supported by the turning of the table into an interface for technology, its importance as a site of communication. At the dining table, it is common for people to ‘table’ ideas, and to share stories. As we spend increasingly large quantities of our lives in virtual space, the Internet becomes the root of many of the ideas and stories to be shared. Innovations such as multi-touch tables, or tables with incorporated multi-touch interfaces allow members of a table to potentially share in common the prosthetic memory of the entire computer-using population of the world.

If this was to happen in a thoughtless manner it could easily contribute to alienation and to the fragmentation of the immediate social ecology. However,

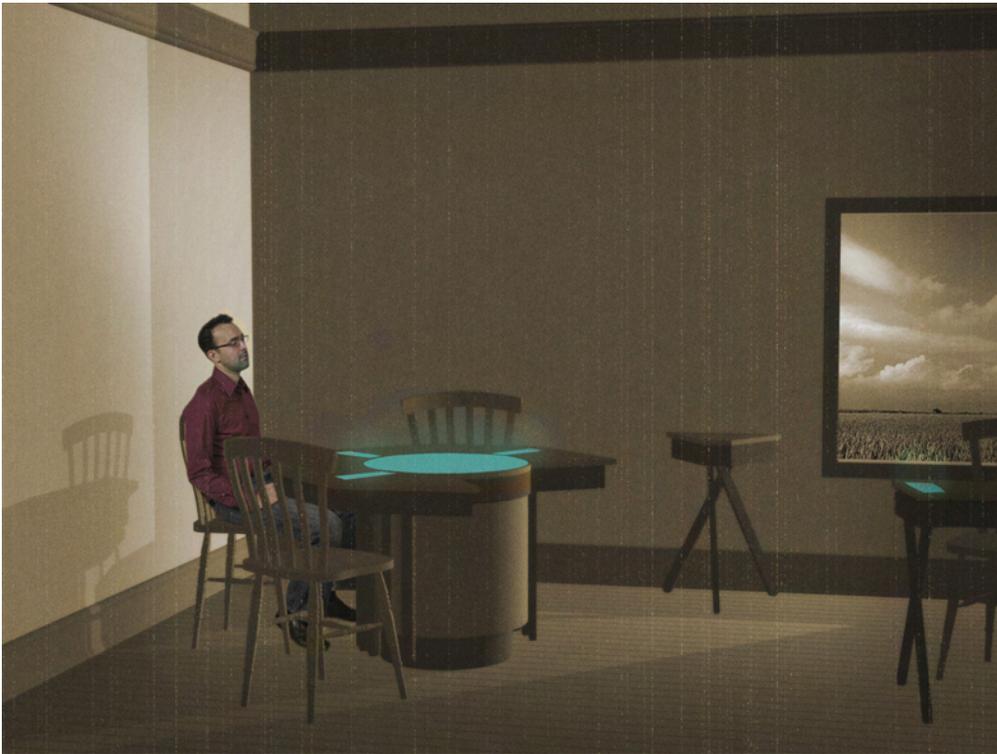


Fig. 56
Perhaps the table of the future would be not just be a surface for holding things and across which negotiation occurs but be an access point for information, assembled according to need and whim.

if done in a controlled manner, with easy ways to call up information when necessary and to share it across the table, and if also such a table were to be provided with easy ways to turn off the information in order to focus on what is at hand, then it may instead augment the value of the table and the rituals that occur around it, rather than negating them.

Further, the table should be adjustable in order to allow for many different social configurations. Eileen Gray's tables at E.1027 could be assembled into a larger table, for instance, and this seems to point in a fertile direction. Perhaps, as Baird points out, the diners would prefer to eat alone, or maybe in separate groups. The table of the future should allow for this sort of 'emergent' aggregation, allowing hierarchies to evolve but not be forced.

While this in effect fragments the cosmological image contained in the table, that might just be alright. Perhaps a self-organizing image is actually more appropriate to our contemporary condition.



Fig. 57

BED | 8



Fig. 58
Waterson, *Calvin and Hobbes* book cover, 1988
As articulated by the fears of children, there is always something mysterious about the zone under the bed..

In some ways the bed is very like the table. As we noted earlier, both table and bed are in fact ‘pieces of furniture with flat tops, for doing something upon or holding things’, and often the bed will even have ‘a number of vertical supportive elements underneath,’ just like a table. Some of the things that we said earlier therefore, about tables, can also be said of beds. This surface for instance is also a micro-cosmos with its own rules. It is a space of comprehension while below the bed is mysterious, even the realm of drooling monsters. The bed is also, however, the place of conception, birth, and death. It is where we spend 1/3rd of our life. It is a space of intimacy and loneliness; it is a space of dreams and nightmares.

The word itself comes to us through the Old English *bedde*, which can then be traced through a few Germanic contortions to the Old Teutonic word *badjo*. This itself seems to have come from an older Proto-Indo-European word which actually meant ‘to dig.’ You can think of the bed then as a dug-out place, a place of the earth, a *grounded* place. Often when the word ‘bed’ is used metaphorically it is intended to conjure exactly this sense, the bed is the base upon which things rest.¹ The French word for bed, *lit*, which relates to our word



Fig. 59
Parkeharrison, image from *The Architect's Brother*, 2007
*When we sleep the bed is a vehicle in which we travel
through strange lands and reconsider the world in an
altered form.*

‘litter,’ comes from the old Latin word for bed or couch, *lectaria*. In the Middle Ages to make a bed often meant to scatter things on the floor to sleep on, in fact, to ‘litter’ the floor. This intersects nicely with the etymology of the word ‘mattress’. ‘Mattress’ comes to us, not from the same place as the word ‘mat,’ which originates in Phoenician, but from an old Arabic word, *matrah*, which literally meant ‘place where something is thrown’.² So, in addition to being dug-out places, we can think of our beds also as ‘strewn,’ a place for nestling into our thrownness³. Wherein, we confront the first of a number of complexities within the heart of the bed image. Not everyone is comfortable with their ‘thrownness’. The ground can be comforting, even ‘grounding’, providing us with temperature moderation through thermal mass, but that same thermal mass can also wick away our heat. The ground is also the territory of critters and beasts, which can easily hide in litter. Raising ourselves up, making our bed more like a table, both orders the thrownness of the bed and protects us from the base concerns of the ground.

As raised plane or as littered hole, the bed is always a place antithetical to labour; it is the territory of the invalid and the dreamer. The bed is respite from verticality; it is neutral in its horizontality. Using the distinction of Arendt,⁴ while ‘labour’ is exiled, ‘work’ and ‘action’ may still be enacted in the bed, such as in the case of the ‘working-girl,’ but more pertinently in the case of people who choose to work from bed, including such writers as Cicero, Milton, Swift, Mark Twain and Winston Churchill⁵, and also media mogul Hugh Hefner⁶. Thus the work that may be conducted in the bed is either leisurely or abstract. In either case it is removed from the base necessities of human existence. The bed is a removed territory. It is the primal site of rest, of restoration, and of dreams.

In bed the world disappears and re-appears. It is the site of night-time thoughts, where we loose our minds. In both our night dreams and our day dreams, both of which may occur in bed, the world is met in a new form. Things are twisted in dreams – they both are and aren’t what they appear to be – they are inverted and transposed. Because our dreams are mash-ups of the world the bed where these dreams are experienced is a classic example of what might be called a ‘counter-site’ or ‘heterotopia’, alongside a garden or a cinema. In counter-sites, as Foucault describes them, “the other real sites that can be found within the culture, are simultaneously represented, contested, and inverted”⁷. No wonder



Fig. 60
The Great Bed of Ware, c. 1590
*This truly monumental bed from an Inn in the
United Kingdom could sleep at least
10 people at once.*

beds are such inspirational havens for writers who attempt this same sort of reflection in their books! The world without enters into our beds through our memory and through our imagination and there it is assessed, turned-over, and re-invented.

It is the ship that, Foucault says in his essay, “Of Other Spaces” (1967), is “the heterotopia par excellence.”⁸ The ship allows us to depart from the real world of our everyday experience and to see familiar things afresh. And our beds are very like ships. They are the vessels in which we travel through our dreams, our means of transport. Which, for anyone familiar with the imaginings of children, will not come as a surprise at all. Take for example a nursery rhyme by that true poet of the dream-bed, Robert Louis Stevenson: “My bed is like a little boat, / Nurse helps me in when I embark, / She girds me in my sailor’s coat / And starts me in the dark.”⁹ Or for instance think of the film *Bedknobs and Broomsticks* (1971), in which the bed literally becomes the primary means of transport. The children travel about London in the bed, looking out and down upon the city, establishing a new connection with and understanding of the city.

In our imaginations the association of bed and vessel is an obvious one. And in addition to being a heterotopia, it is a micro-cosmos, a world within a world. When we lie in bed it is as if a little world stretches before us. As another of Stevenson’s children’s verses goes, “I was the giant great and still / That sits upon the pillow-hill, / And sees before him, dale and plain, / The pleasant land of counterpane.”¹⁰ So if we listen to Stevenson, in addition to being a boat, a bed can also be a whole landscape. But we must keep in mind that it is always exactly that, a *whole* landscape. It can’t be a piece of one. If it is a landscape it is an island, for it has a clear boundary around it. And it’s its boundedness that qualifies it also a house, as Pallasmaa has rightly pointed out.¹¹ As Pallasmaa indicates, the image of the bed as house used to be much more obvious when apartments afforded less privacy and a curtain draped over the bed would at least give you a visual barrier. The beds of the wealthy in Europe, from the 15th century on, with their posts, cross-beams and their drapery around them, were very like ‘primitive huts’ within the house.

Beds now are often far less grand. Indeed as Gallagher has accused, North American beds and bedrooms seem quite sterile for the single most intimate spaces in the house¹², rather pallid and empty instances of a primary image that



Fig. 61
Emin, *My Bed*, 1999
*A disorderly bed can signify moral decrepitude
or instability.*

at its heart resonates with vitality. Compare for instance the master bedrooms depicted in lifestyle magazines to the great bed of Odysseus, hand carved by its owner from the stump of an olive tree and inlaid with gold, silver, and ivory. The timid, one might even say aseptic-looking, floating planes of today are silly ephemera next to Homer's potent image of heterosexual union, as natural as a tree, rooted solidly in the earth, enshrined in a hermetic room in the centre of the house. The tree from which Odysseus had carved his and Penelope's bed had once stood in the courtyard, but he enclosed it in order to make his bedroom. The bed thus is like a hearth to their house, filling it with the marital warmth radiating out. As Odysseus declares, "a great sign, a hallmark lies in its construction."¹³ This bed is a symbol of the central importance of procreation to humanity, its roots indicating a genealogy as fated as nature itself.

Which of course, for Homer, was the order of the cosmos. Probably one of the reasons why our beds are less grand is because this is not the order of our cosmos. Our procreation does not seem to be of cosmic importance. But our suspicions of Homer's reverence of 'lineage' and the classist, patriarchal heterosexual vision of the world it implies shouldn't necessarily stand in the way of our appreciation of the primal image of the bed, of which Odysseus's stump stands as our great example. The bed remains the sanctioned zone of sexual union, and this is not a small part of its general capacity to signify. It is the territory of permissibility, of blurring of boundaries between self and other, of physical and psychic entanglement. In bed, the otherwise carefully defended human body can be safely given over fully to another in trust. It is a site of love, and of love in all its forms: consummate love, betrayed love, jealous love, tender love, angry love, illicit love. These are no small emotional traces for the bed to carry.

And because of all of this emotional weight, the bed is also a place of incredible vulnerability. Indeed, the violation of the bed can seem like the violation of the self. And, as Gallagher notes, the very "privacy that suits it to be the home's personal sanctuary and romantic getaway also makes the bedroom the likeliest setting for the expression of negative emotions, from loneliness and sadness to the anger that fuels fights and even violence."¹⁴ The bedroom is often the site of domestic violence, including child abuse, as Gallagher points out. After all, when Little Red Riding Hood finally confronts the wolf in the Grimm brothers'

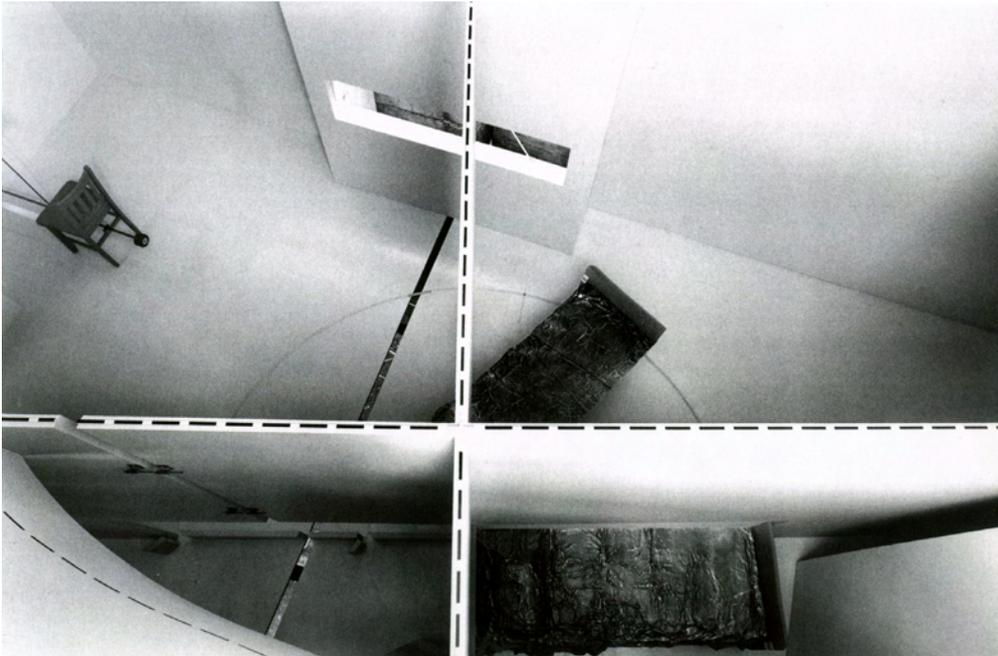


Fig. 62
Diller + Scofidio, Bed from *withDrawing Room*, 1987
Bed as 'negotiable surface' of relationship.

story, it is in her grandmother's bed. The wolf, in the place of the grandmother, has big ears to hear the girl with, big eyes to see the girl with, and big hands to hug the girl with, all affectionate attributes, but what the wolf really wants to do is devour the girl, and it does. The story turns out alright in the end, with the wolf being justly punished for its unnatural appetite, but in our concern for images we cannot ignore how a story like this tarnishes the bed. After a telling of this story, the bed is left destabilized, a site of potential betrayal.

The bed can be dug out, and it can also be raised up above the earth. It is a removed, horizontal heterotopia in which not just children but the whole world is conceived; it is a micro-cosmos refracted by dream – the quarry and the perch of the poet. The bed can be a small house within the house. A vehicle in which we travel through strange lands, it can still existentially 'root' the house in space and time. The bed is the space of union, and it can also be the space of betrayal, both a space of delight and incredible hurt.

The strong emotional potency of the bed means that it can have both positive connotations and it can also be used to signify negatively. Doris Salcedo, whose work about trauma and cultural memory often involves pieces of furniture that have been disfigured, has frequently incorporated beds into her sculpture. Her beds are mattressless, hollow, empty frames intersected by wardrobes or enmeshed with other pieces of furniture in an evocative assemblage. Her brutal sculptures actively conjure the uncanny, presenting conventional objects in unconventional ways in order to disconcert. As Bruno observes in her *Atlas*, what Salcedo is presenting us with in her work is an intimate personal geography, a geography that has been disrupted by history¹⁵. Diller + Scofidio's *withDrawing Room* project also presents the visitor with what seems to be a bruised personal geography, and again the bed is amongst the key elements of the design. For D + S, the bed is the "negotiable surface" of the marriage contract. The relations between partners are played out there. In bed we enact, metaphorically or not, many of the key aspects of our relationships. Like the table, the bed is a space of negotiation. In the *wDR* this negotiation is rendered literally, and ironically, by cutting the bed in half, a dramatic splitting vaguely reminiscent of Matta-Clark's work. The difference is that the bed is reconnected with a hinge. This way the inhabitants can choose the nature of their relations as they wish. Do they wish to swing their beds together, or not? Maybe they want to be close, but not



Fig. 63
Mies van der Rohe, Bed from the Farnsworth
House, 1951
*There is no room for hiding under this solid,
pristine bed.*

touching. Maybe they want to be in different rooms. Maybe they want to sleep head-to-head facing opposite directions. All of these options are available.

The surface of the bed is a moral battleground. As Diller +/or Scofidio have pointed out, “every day the bed must be *made* into a uniform surface,” in order to conform to our standards of propriety¹⁶. As a space of negotiation, the bed must be kept free of wrinkles and stains, and every day the conditions of the negotiation renewed. The beds of the morally impure are always mussed up, strewn with things; they are not flat, in fact they probably sag a bit in the middle. In the realm of images, the morality of the individual is clearly inscribed upon their bed. Think of how Hamlet described his mother’s bed: it was “enseamed,” “stew’d in corruption,” even a “nasty sty!”¹⁷ This bed is clearly dank and dirty, far from the smooth, shiny, aseptic surfaces depicted in lifestyle magazines and in advertising which presumably signify ‘the good life,’ a life of order, cleanliness, and purity. A bed in which morally dubious things are done, associated with a debauchorous and promiscuous lifestyle, could not be so flat and smooth.

The bed designed by Mies for the Farnsworth House is a perfect example of a morally ‘upright’ bed, at least in the manner in which it is photographed. It is a clear, geometric shape, and notably, like many Modernist beds, there is no space underneath where monsters might drool. This bed, like the floor beneath it, and the terrace below, is a pure platform; a viewing platform of even and rational clarity, in which we again encounter the phenomenology of flatness (and return to the bed as ‘table’ as opposed to strewn, dug-out place). In Mies’ bed we again encounter the analog of Foucault’s *tabula* of objectivity. Leaving this bed unmade would be a heresy. And can you imagine fitting it out with patterned or coloured sheets? Eileen Gray, on the other hand, apparently delighted in her use of coloured sheets, and even speculated on the decorative potential of the unmade bed¹⁸.

Gray’s design for E.1027 uses beds very intentionally. First, in her bid to make everyone at the house feel “free,” and “if desired, entirely alone,”¹⁹ she provided each bedroom with independent access to the garden. In Le Corbusier’s re-invention of the bourgeois home which he had completed a few years earlier, the Pavillon De L’Esprit Nouveau, he had placed a study just off of the dining room. Off of the master bedroom, presumably in what he considered to be the

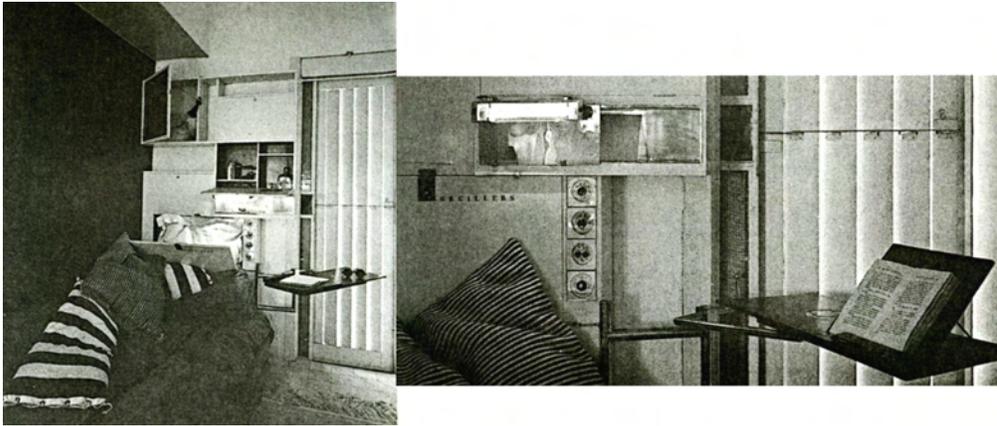


Fig. 64
Gray, Alcove Bed from E. 1027, 1929
*A bed with technological controls, appropriate for
a variety of purposes, with a table to serve you.*

realm of the female, he had designed a boudoir. In seemingly direct response, in Gray's house she replaced this boudoir with a studio, thus, in Constant's terms, "merging the historically gendered spaces of boudoir and study into a single entity".²⁰ Instead of a study off of the dining room, she placed a sleeping 'enclave' which could be arrayed as two twin beds, as a double bed, or used as a sofa²¹. This convertibility of Gray's alcove bed is vaguely similar to Diller + Scofidio's transformable bed, except it is optimistic, lacking entirely the acidly ironic tone of D + S's proposition. While D + S's bed is cynical, Gray's bed, in the spirit of her 'camping style,' is about potentiality of reinvention. Gray, a strongly independent woman, and a homosexual, uses the bed as a means of breaking with convention, of problematizing gendered spaces and creating new sorts of spaces for new sorts of 'ways of living.' The bed is available for this purpose, as it was available to Salcedo and to D + S, because of its emotionally intense connotative ties.

Perhaps, as Weisman has suggested, the house has always been "inextricably associated with women,"²² but as Gallagher explains it, "when late-nineteenth-century middle- and upper-class women were told to stay home and be domestic goddesses, their control over the home's décor gradually increased until, by the mid-twentieth century, they thoroughly dominated the interior."²³ Since women were largely still excluded from the professional workplace, at least in positions of power, it follows that they would come to fully master the limited territory that was theirs, especially since caring for the house and its contents was presumably their 'vocation'. It also follows, however, that men would become a bit resentful. Think of the penultimate section of Daniel Carter Beard's 1914 *Shelters, Shacks, and Shanties*, in which he, rather symptomatically I feel, gives recommendations for how a man might build "a concealed log cabin inside of a modern home."²⁴ According to Beard, this design was in recognition of the fact that "a great many men and all the boys rebelled against the conventionalities and restrictions of a modern house."²⁵ Which is potentially understandable perhaps as an expression of 'Rousseauian' or more suitably (being American) 'Thoreauian' sentiment, but we are provoked to wonder why a great many women and all the girls wouldn't enjoy a similar retreat.

Gallagher directs us to the design of the Playboy Bachelor Pad published in 1956 as a similar sort of rebellion against the feminization of the house. Unlike



Fig. 65
Bed from Playboy Magazine "Playboy's
Penthouse Apartment", 1956
*A bed of power, floating above the ground,
complete with technological controls.*

“the overwhelming percentage of homes (that) are furnished by women,” says the article accompanying the design, “this is *his* place, to fit his moods, suit his needs, reflect his personality.”²⁶ And who is *he*? As Gallagher proceeds to say, he “seems to be a hard-drinking, womanizing, gear-head.”²⁷ Read as a fictional character, written through the design of this apartment, he is revealed as strong, witty, suave, cultured, and most clearly of all, independent. To this imagined playboy women are “fair game,” “admiring lasses,” or even “intended quarry.” This parading of masculinity, clearly defined in opposition to femininity, comes to a head at the bed.

TECHNOLOGIZATION

The Playboy bed is “huge,” “magnificent,” and “luxurious”; it “dominates” the penthouse bedroom. It is another flat, Modernist, raised plane, like the Mies bed, a “sleeping platform” as Playboy has it, without much room underneath for mystery, but what sets it apart is, first, its grand prominence in the room, and second, the incorporated gadgetry. Built in to the seven-foot headboard are a series of knobs and buttons, a veritable switch-board, which gives this man control over every light in the place as well as the locks to the doors and the curtains too. The headboard also has built-in speakers, storage, and a telephone²⁸. Lying in this bed, man is a magician, turning on and off lights, engaging and disengaging locks, closing curtains. He controls light and thus clarity of vision; he controls the permeability of the threshold between inside and outside; the age-old dream of control over the inanimate world is fulfilled through technology. Man lies supine, a Vitruvian Spider in the centre of a radiating, technological, web of power.

A similar sort of technologization of the environment is achieved in the Smithson House of the Future, designed in the same year, but of course, the Smithsons not being Hugh Hefner, the H.O.F. is not intended for a misogynist bachelor but for a couple. Which is not to say that the imagined ‘way of life’ of the H.O.F. exactly conformed to ideas of ‘wholesomeness’ as determined by the established norms of the time. As Colomina derides in her classic essay on the H.O.F., ‘Unbreathed Air,’ “there were no children in this house, because

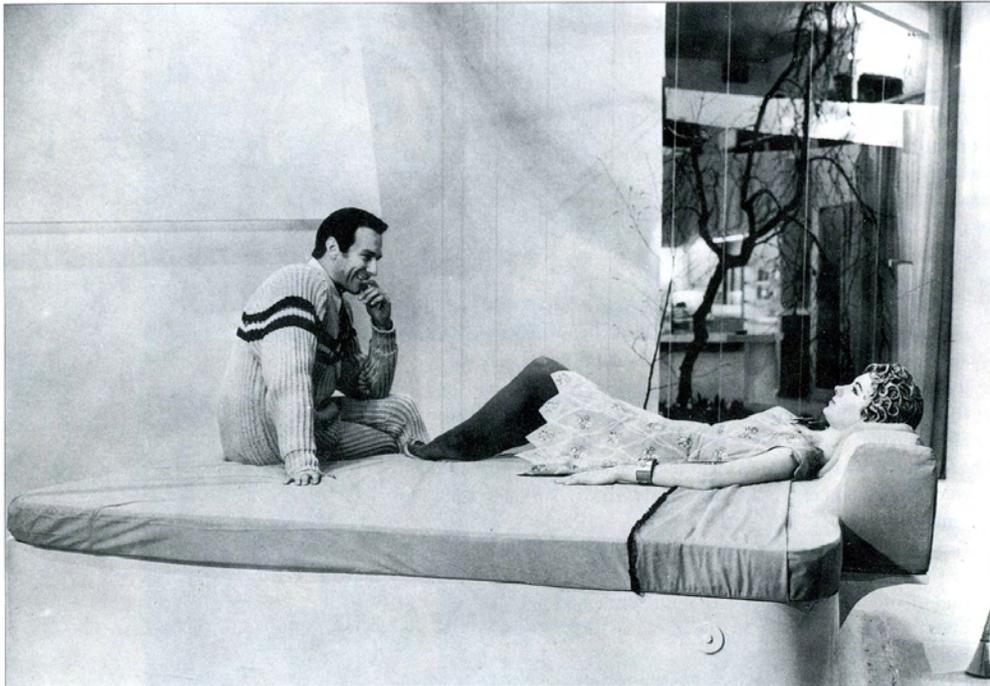


Fig. 66
Alison and Peter Smithson, Bed from House
of the Future, 1956
*Red, vehicular, moulded built-in pillows, the
perfect bed for this Couple of the Future.*

the adults themselves had become children.”²⁹ Indeed, this comment could be directed equally at the Smithson’s playful ‘plastic’ nest or at the Playboy apartment. The literature describing the Playboy apartment is full of phrases like ‘frolicking’ and ‘fancy-free’ that indicate simultaneously a infantile freedom of care and an erotic promiscuity. Likewise the H.O.F. seems to be, as Colomina puts it, “highly sexualized”. The house is “a series of organic shapes, a body of honey-colored translucent skin, and pimento red orifices, organized around a central, folded furry opening.”³⁰ The bed, bath, and sink, are all, as she points out, painted red. Also, the organically shaped bath can be seen clearly through the glass wall enclosing the central courtyard, a move apparently justified by the fact that, in Peter Smithson’s words, “the occupants are young people, when the body is still beautiful.”³¹

When the Smithsons were thinking about what the Bed of the Future was going to be like, what implicit values, hopes and dreams did they invest in it? Well apparently the B.O.F. is red, causing it to stand out distinctively from the rest of the house and causing it to be associated with the bathtub and the sink. Thus it is a special place, and presumably also an erotically loaded place. Red denotes it as a place of excitement, and it also links it with human anatomy. Interestingly, however, this bed, like the table, recesses into the floor if you want it to disappear. The bed thus wants both to stand out and to disappear. Occasionally it wants to be a place of performance, but not always. Something that differentiates the B.O.F. from other beds we have looked at so far is its strange shape. Clearly, to the Smithsons, the future is not orthogonal. This bed is wider at the shoulders, like a person and also like a vehicle. The headrests also both recognize the particular shape of the human body and make the bed seem vehicular (like “car seats” as Colomina observes). The B.O.F. thus both wants to be customized to the human body and seems to want to carry its ‘users’ off on some mysterious journey. Also, similar to the Playboy pad if not as extreme, the B.O.F. seems to have boasted an array of bedside controls.

Eileen Gray’s alcove bed from E.1027 also embodies a series of similar themes. Although not directly referencing vehicle design (although Gray’s interest in boats affected much of her design ethos), the bed did also respond to the human form in its design and, like the Playboy bed, had a highly complicated head-board, complete with light switches and storage. Unlike the B.O.F., however, Gray’s



Fig. 67
Toran, Sheet Roller from *Accessories for
Lonely Men*, 2001
*This apparatus helps you pretend that you are
not alone in bed.*

anthropocentric design approach had less to do with form and more to do with behaviour. She was interested in how the body moved and how the architecture could respond to this. It is thus that the retractable table incorporated into the headboard of the alcove bed “extends to meet the occupant in the bed,” thus invoking an “analogy with the mechanics of the body.”³² This is consistent with Gray’s general project of suiting the architecture of the house to the particularities of the human condition, be it the movement of our bodies, our psychological needs or our social characteristics. While Mies’ bed was white, flat and serene, Diller + Scofidio’s bed was black, broken and hinged. While the Playboy bed was a dominating seat of power, the Smithson’s bed was red, anthropomorphic and disappearing. Gray’s alcove bed is unassuming if technologized. It is less a magician’s throne than a multi-functional counterform to a life. Her colourful sheets are meant to be strewn.

Although also intended for a bachelor, Noam Toran’s *Accessories for Lonely Men* (2001) is very different from the Playboy apartment discussed above. Far from the callous domination of women implied in the design of the apartment and the literature surrounding it, the *ALM* are actually an attempt to soothe the lonely heart of a man who longs for female company. The man implied by these objects, rather than needing to escape the potential domination of women and thus resorting to their serial use, is lonely without them. Perversely, however, the company that he pines for is reduced to a series of simple sensory experiences that can be mechanically reproduced: the bed-partner who is always stealing his sheets is replaced by a large rolling device; two metal plates simulate the effect of cold feet touching his; a metal ‘finger’ curls his chest-hair. We can learn from this some of the experiential minutiae of the experience of bed that have a great potential for meaning. Additionally we can learn of the instinct to augment the bed with technology (these devices are not that far removed from hot water bottles, electric blankets and body pillows, on the one hand, and an automated bed-maker on the other³³). But what we can also learn of is the impossibility of these two things intersecting, that actually these minutiae, as subjective experiences of a particular other person, are irreplaceable.

As we have explored, the desire to infuse our environments with automation is directly related to older notions of enslavement, and let us not forget either that historically it has no in-frequently been the habit of slave-keepers to sleep

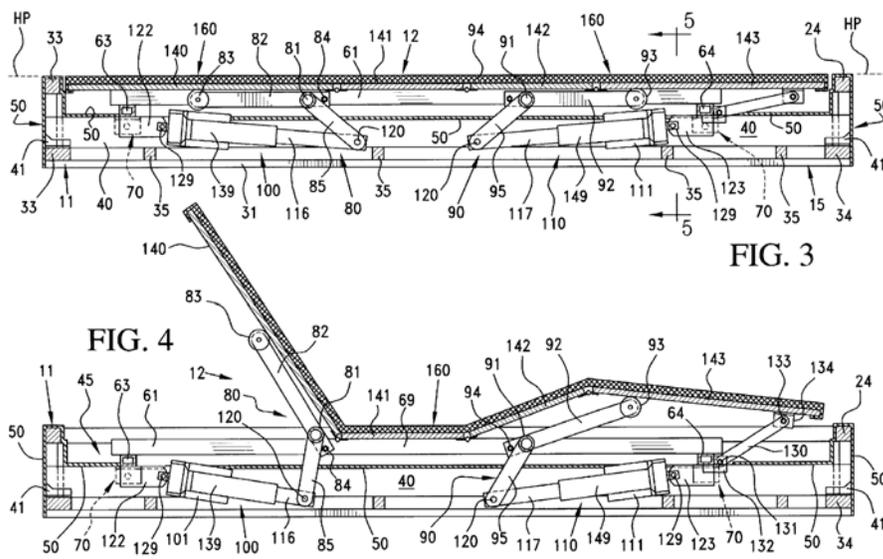


FIG. 3

FIG. 4

U.S. Patent Oct. 4, 2005 Sheet 2 of 10 US 6,951,037 B2

Fig. 68
Diagram from US Patent Application
#6951037 B2
How would you like your bed configured?

with their slaves. The idea of mechanized satisfaction of sexual desire is not a new one. Examples proliferate including the ‘orgasmatron’ from the film *Sleepers* (1973), the ‘excessive machine’ from *Barbarella* (1968), and interestingly, Beckett’s *Dream of Fair to Middling Women* (1932), at least according to Tajiri’s interpretation of the novel. Given this, it shouldn’t be much of a surprise when prominent manufacturer of automated beds, Leggett & Platt, infuse their product descriptions with sexual innuendo. Their Prodigy bed, for instance, “completely redefines and modernizes the bedroom for an interactive, customizable comfort solution optimizing smart sleep and bedroom activity from a bed that knows exactly what you want.”³⁴ While it is customary for bed advertizing to show less bed than ‘leg’, it is notable that the sexual energy in this description seems to be directed less at what can be done *on* the bed and more at what the bed *can do for you*. This bed seems to be directly attuned to the user’s desires.

The first patent in England for an ‘invalid bed’, what we now call ‘adjustable beds’ or ‘articulating beds’, appears to have been granted as long ago as the 17th century³⁵, but only in the 20th century have these mechanical innovations really come into their own. The typical goal of the adjustable bed is to put the body in what is known as the ‘semi-fowler’ position, a position in which the back is raised anywhere from 30-45° from the line of the horizontal, with the legs also often raised. This position reduces pressure points on certain points of the spine, creates better vascular circulation to the hips and legs, and reduces the workload on the heart. According to one source, the semi-fowler is the most natural of positions, being the position that the body would take if removed from gravity³⁶. Adjustable beds then generally have four different segments, connected by three joints and driven by either one or two actuators. These actuators, often called ‘motors’ are pistons which extend or retract, causing the different planes to bend in relation to one another. Some of these beds also come with a further articulation of the plane that the head sits on, allowing for a great many more configurations. In some, the entire plane of the bed can tilt. As if this level of ‘interactive, customizable comfort’ was not sufficient, many new adjustable beds also offer ‘massages’ to the user, allowing you to choose between upper body massage, lower body massage, or ‘wave’ massage, referred to by one company as a “waterless whirlpool massage.”³⁷ Or, if you don’t want a massage and prefer to be ‘rocked’ instead, that possibility also exists.³⁸



Fig. 69
Leggett & Platt, *Starry Night* Adjustable Bed
*The most deluxe bed on the market, complete with built in
speakers, a wireless router, and snoring control.*

More expensive versions of adjustable beds actually have a split down the middle of the bed allowing the two anticipated partners to adopt different positions. In a manner reminiscent of Diller + Scofidio's bed, then, if these imagined partners want to become physically intimate, they must recompose their fractured bed. Fortunately most such beds come with 'flat' buttons that upon pressing will immediately return the bed to a horizontal position. Many of these beds also have additional memory settings. A user can thus preset their bed to various positions that would suit their needs: a position for a nap perhaps, another for night sleeping, another for eating in bed, and another for watching television. The bed thus is customizable to your habits. With the press of a button, your bed contorts into a desired position, and as the bed moves, so does your body. Your bed and body move as one, and the line between them gets fuzzy.

Interestingly these mechanical beds are often attached to wooden ornamental headboards. The robotic undercarriage of these machine-beds are concealed from view by wooden sides, as if while we want the customization of the bed, we don't want its manipulability to be evident. Even Leggett & Platt's top-of-the-line bed, the Starry Night, with its temperature control, anti-snore technology, digital projector, speakers, embedded digital memory, wi-fi router and iPod dock, has most of this technology concealed³⁹. Although we may want our beds to move in sync with us, to remember us, to massage us and rock us, to play us music, and even to 'monitory our body movement and breathing pattern'⁴⁰, we don't want our beds to look like machines! We want them to seem strong and stable, like *bedrock*.

There is no space below most contemporary beds and in the most futuristic beds this mysterious space has actually been replaced with machinery. These beds, including Gray's alcove bed, are no mere things, whether littered hole or raised plane, but are clearly technological things designed to assist us. If we wish to write in bed, the bed contorts our body to the most suitable position. It might even provide us with a table. If we wish to dream, it may return us to a supine position, or the built-in wireless router may turn the bed into a boat to cruise the dream-like eddies of the digital sea. It can even rock us gently. If you wish, on the other hand, to make love, the bed can even re-pair the negotiable surface of your relationship.

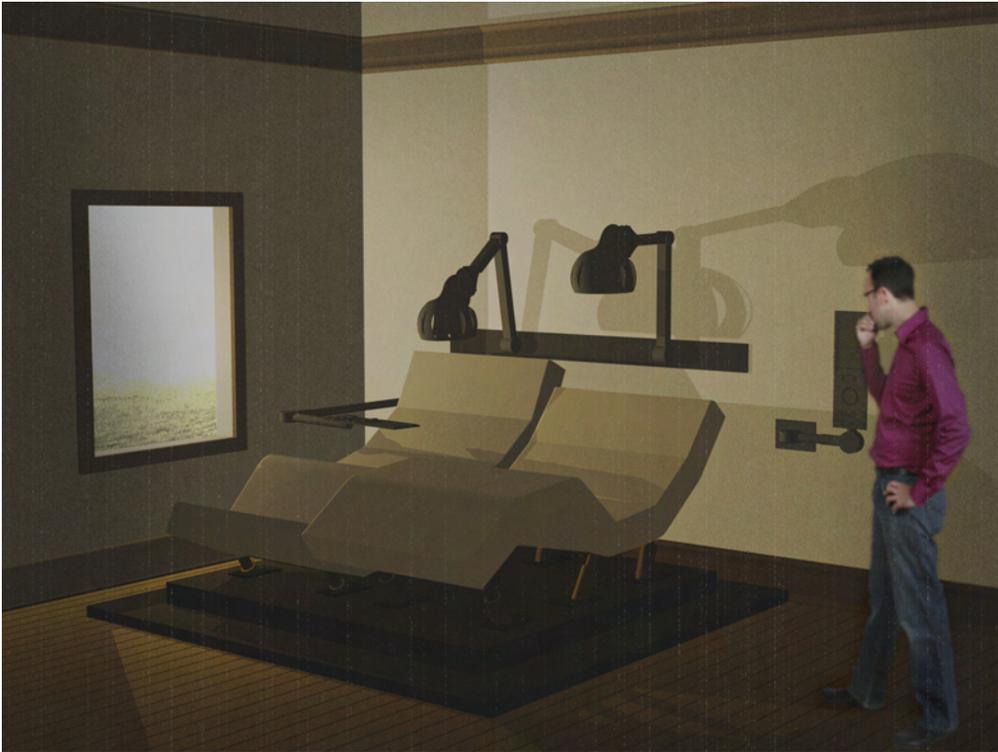


Fig. 70
*Perhaps the bed of the future will augment
your sleep, will conform to your body and your
behaviour.*

BED OF THE FUTURE

By this point, the bed has been infused with miniaturized technology and has been granted the capacity to respond immediately to our demands. It can create a virtual profile of us, and can give us access to a vast virtual world. As we have discovered, the bed is already laden with intense emotional connotation, and some of the associations with the bed are more than worth keeping.

The bed as a monumental symbol of stability, for a couple, an individual, or whatever other options might be available, seems valuable still, without implying anything about the value of lineage and heterosexuality. Providing a bed with a prominent position in a room, and firmly connecting it to the ground, are both worthwhile practices. The newfound capacity to contort the bed into a variety of shapes seems promising for orthopaedic reasons and also for reasons similar to Diller + Scofidio's. This variability would both soften some of the gravity of a monumental bed and also provide flexibility for the occupants, making it truly, as D+S said, a negotiable surface. The raising and lowering of the bed too, as per the Smithson's, allows the bed to be both 'littered hole' and 'raised platform' of objectivity depending on what it needs to be.

The bed as vessel and site of reflection upon the world could easily be augmented with the tendency indicated by the inclusion of a wireless router in the Starry Night. Perhaps the walls of the bedroom could become moving images, screens to allow you to navigate a virtual world. The bed is already a primordial site of escape and abstraction, so alienation is not a problem here as it is elsewhere. The bed can even sway like a boat in the water!

Technologies like the massaging bed and the body-monitoring function of the Starry Night point in the direction of automated ways to help you sleep better. As long as the individual remains in control of this, there's no reason why this couldn't be taken even further. Music to help you fall asleep is already a Starry Night feature, but not a pacemaker device to slow your heart down or direct induction of particular brain states. These sorts of innovations would seem like the obvious next step however, and by making use of the networked quality of the bed they could even be co-ordinated with the amount of sleep you would be able to get that night based on your schedule for the following day. In the morning, the bed could increase your heart rate and even transition you to an alert brain state. The bed could easily be re-invented as a 'machine for sleeping in' without sacrificing the many important roles it plays in our lives.



Fig. 71

WINDOW | 8



Fig. 72
Friedrich, *Woman at the Window*, 1822
A window of dreaming and possibility – the gradient of the mundane to the exciting is mapped on the woman's body.

The word ‘window’ that we use to refer to an opening in a wall that admits air and light to pass through it actually derives from the Old Norse word *vindauga*, literally meaning ‘wind-eye’. The Old English word that was displaced by this new word was not nearly as pretty, literally meaning ‘eye-hole’. The word for a glazed window used in English until the 16th century, was, in keeping with other European languages, *fenester*, which derives, through Latin, from the Greek word *phainein*, or ‘to show’. Normally we can say that a window contains a pane of glass. The word ‘pane’, closely related to ‘panel’, can be traced back through the Latin *pannum*, meaning ‘piece of cloth’ to the Greek word *penos*, which actually meant ‘web’. Our word ‘glass’ comes to us from an Old Teutonic word denoting ‘shiny’¹. The shiny web of glass, set in the wind-eye of our wall, reveals to us the world, and also reveals us to the world. Let’s look briefly at three such wind-eyes.

In the published description of the Playboy bachelor apartment that we noted earlier, a surprising level of attention is paid to the windows. This seems odd given the nature of the design, a luxurious playground for a wealthy man-boy. You would expect it to focus on the space as personal territory and on gadgetry,

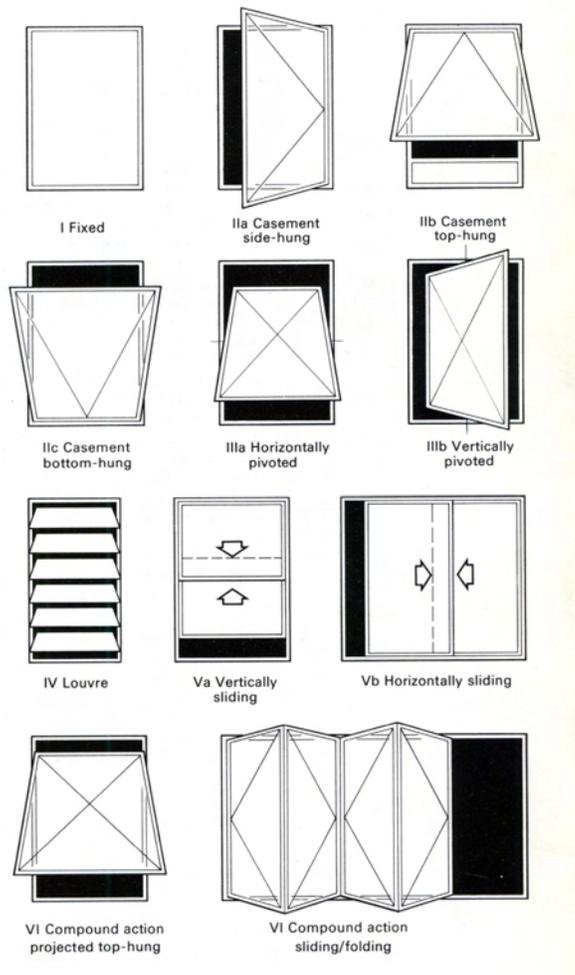


Fig. 73
Illustration showing classifications of windows from Beckett, *Windows*, 1974
Windows frame the outside and the inside, they structure forces of subjectification and provide mediated fragments of the space of appearance.

which of course it also does. Nonetheless, from the very outset of the description the windows take a position of prominence: “coming down the hallway, we are able to view the entire width of the apartment and through the open casements, see the terrace and the winking towers of the city beyond.”² Later, describing the bedroom, the writer goes on to say, “casement windows stretch across one entire wall, framing an ever-changing, living mural of our man’s city.”³ Through these casement windows, the imagined *übermensch* looks down over the city. His view floods out over the city, and the city enters the apartment, becomes part of the apartment. As he casts his benevolent gaze over it, it becomes *his* city, next to *his* Saarinen chair, and *his* back-lit globe. This *is* about personal territory, and the city, seen small through the window, is part of that territory. This window, then, is a window of surveillance, and a window of power.

For another notable example of this type of window we may recall Heidegger sitting at his desk in the Black Forest. He looked out over the valley with its villagers ‘down there’. As Bachelard commented, “a philosopher of domination sees the universe in miniature. Everything is small because he is so high.”⁴ Heidegger’s window too was a window of power, the world set out before him ready to be thought.

But there are other ways of looking out the window than with a dominating gaze. A view through a window can be an anchor, or it can be a skyhook, for instance, either grounding us in the real world of the quotidian, or saving us from our drudgery. The window in Caspar David Friedrich’s *Woman at a Window* (1822) for instance is clearly a different sort of window from that of our playboy. The interior, which after all occupies most of the canvas, is dark and dull. The woman’s dress matches the wood panelling almost too well so that they seem to blend seamlessly into one another. Her body could be just another articulation of the wall, a fancy piece of trim. She is fully associated with what we presume to be her house, like Joyce’s Eveline. And again, like Eveline, she gazes out the window. Outside, the world is colourful. This gradient, from the drab interior to the colourful exterior is mapped on the body of the woman: her shoulders, silhouetted in the window, are lit up by the light beyond. This window is a portal into another world. We see the masts of two ships, symbols of dreams, of departures, of travel to other places, of excitement. The woman’s head is slightly cocked in curiosity. Friedrich’s window is a window of the possibility of other worlds; it is the window of the dreamer.

The third window is a window we have come across a couple of times before, the window of Jack Chambers. We met Chambers’ depictions of (sub)urban North American interiors both when we were exploring the depth of the hearth and when we were



Fig. 74
Chimney / Window in Mongolia from Laffon,
At Home in the World, 2004
*Light enters and smoke departs; a strong
symbolic connection with the sky is made.*

navigating the dining table. What Chambers teaches us is the importance of the window in establishing an interior environment. Chambers' interiors literally depend on the exterior, which give value to the interior. His exteriors, revealed through these windows, are big, bright, and cold-looking. The interiors, the simple geometric volumes of which are clearly legible, are lit solely by the light from this big, bright outside, a trope consistent with his metaphysical belief in light as "the principle of intelligibility."⁶ Chambers' window is the window of definition, the window that delineates the boundary of the room and positions the interior in relation to the exterior.

The truth is that the interior needs the exterior in order to exist, and vice versa: they define one another. The threshold, as Kingwell has pointed out, "is neither outside nor inside; rather, in setting the limit between them, it partakes of both."⁷ Unlike hearths and toilets and tables and beds, thresholds are not places, they are media. Windows, complicated thresholds, let us see both inside and outside together as they engage in their reciprocal genesis. Windows blur this essential boundary, bringing the inside out and the outside in. It is customary to think of the eye as the 'window to the soul' – what we think of as our 'inner self' sees the world through the eye, and likewise through the eye the world may see a glimmer of what this self is like. Likewise, as we learned from the etymology, the window is the eye of the building. It is also the language of the building: it's the means both of perception and of expression. For, in the same way that the self is constantly engaged in a process of ontogenesis reciprocal with the world without, similarly the exterior world is 'produced' simultaneous to the 'inside' as they communicate back and forth, in part through the window. If we ourselves are ecologies within larger ecologies, bounded by the house, communicating through our sense organs and our various languages, then the window is an important means by which this ecosystem then interacts with the larger ones. In addition to the window, we can think of the door and several other orifices (including the telephone, the air conditioning exhaust, and books) as other means by which this interaction takes place.

The boundary of the house, like the boundary of the city, represents the age-old boundary between the natural and the artificial, a boundary that is acknowledged in the northern European tradition of bringing the Christmas tree in, across the threshold⁸. The window is thus a primary metaphorical

interface with the natural, and the character of that relationship has always been implied in its design. Heidegger's relationship to the mountains from which he drew majestic power was constructed by a window. And in addition to being the interface between the ecosystem of the house and natural ecosystems, it is also where we see our neighbours, fellow citizens, and where they see us. The larger social ecosystems are also engaged through the window. Fragments of the space of appearance are framed everywhere there is a window, small potential revelations of who we are, available for popular consumption. These temporary revelations are examples of the predetermined crossings of boundaries implied by the very existence of the boundaries in the first place. For all boundaries are meant to be transgressed, their transgression in fact necessitated by their manufacture. "Every limit," as Kingwell puts it, "is also its own negation."⁹ The permeability of the window is important, then. Ethically important. Who transgresses and how, visually, acoustically and physically, inwards and outwards, is important in establishing the relations between ecosystems.

In the Greek imagination, this threshold was associated with the god Hermes, the mythological counterpart to Hestia.¹⁰ While Hestia represents stability, Hermes is "a wandering god"¹¹; he is the messenger god, the god of travels, and the god of chance. In the Greek pantheon, these two gods stand together, the two deities closest to our human domain, one holding while the other pulls. The pairing of these two can teach us something about the house for it is in the tension of these two principals that domestic life unfolds. In the house we are caught between the centrifugal force of the window and the centripetal force of the hearth. With Hestia and Hermes we have a 'parti' of a house, we have a centre and a perimeter, closely tied together but just far enough apart for dwelling to occur in between.

When we say that the world is understood through the house, this is partially because it is within the environment of the house that we imagine and that we re-member the world. But through mediating thresholds like the door, the telephone, the book, and the window, the world is quite literally perceived and our mental ecology affected. The window is thus a key lens of our subjectivity. If our window is pink, the world outside will literally look like 'la vie en rose'. If our window is dirty and yellowed, the world will look squalid. Indeed, is window cleaning not a bit like world-cleaning? As we wipe the cloth from side

to side, picking up the suds, we reveal the world beyond. I heard once of a man who, in his dreams, saw the world through a broken window. Surely it was not just the window that was broken for him, but the whole world.

As human dwellings first evolved the problem was probably less how to make holes for light and ventilation as it was how to decrease the level of exposure. The sorts of primitive huts that we love to imagine would have mostly been window at first, walls coming later, possibly in the form of hanging carpets. Both fabric based dwellings and masonry and earth based dwellings have always typically had something like a window in the roof in the very centre to let the smoke of the fire out. In masonry buildings the two ways of making an aperture are either through the use of a lintel or the use of an arch. In ancient societies, glass was not commonly used in windows because of the difficulty of making it in large enough sheets. It also wouldn't have been as attractive an idea in more favourable climates. The Romans apparently did use glass in some of their windows but it was not common. Glazed windows were rare even in northern Europe where inclement weather would make fenestration more necessary. Inhabitants of that part of the world often filled the holes in their dwellings with translucent materials such as parchment or oiled paper¹².

Because large enough lintels are often hard to come by and arches fairly difficult to make, therefore windows were often small, especially in large buildings where the load resting on the wall was very great. Despite the connection made in medieval Catholicism, especially the Benedictine order, between light and God, up until 12th century churches could only have very small windows. The interiors were dark and inward-looking. With the structural innovations of the 12th century, however, especially the invention of the flying buttress, suddenly a lot of the load could be transferred away from the wall-proper, allowing for much larger expanses of glass¹³. With these innovations suddenly the metaphorical qualities of light could be fully taken advantage of in the church interior. With Gothic architecture came large expanses of coloured glass, separated and supported by thin, moulded 'tracery'. As the light filtered through these panes into the otherwise dark interiors, it was as if God himself was majestically entering the church, through the window. The rules of permeability of these windows were quite clear. One thing could cross the boundary in an inwards direction

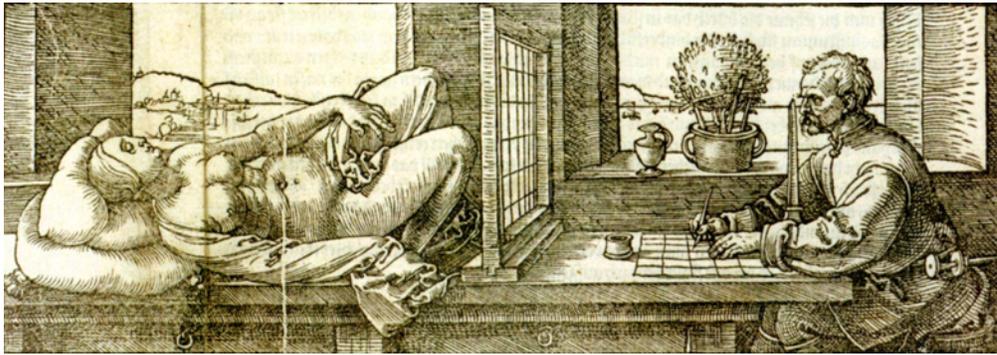


Fig. 75
Dürer, etching from *Underweysung
der Messung*, 1538
*The gridded window of objectivity
contains and controls.*

and that was light, which was divine. As light came in, all of its characteristics were transformed by the window to tell a particular message. Vision stopped at the window, both on the inside and on the outside. The larger network being interfaced with was not the environment immediately outside, but a powerful mythical world structure. Many of these windows told particular stories, drawn from sacred texts, but some, such as rose windows, told their stories simply through their geometry. Everything is static and in its place in a rose window. The centre is solid and it relates consistently to the boundary. Nothing exists outside of the boundary.

In his text of 1435, *De Pittura*, Alberti famously described the painting canvas as a window. “First of all,” he wrote, “on the surface on which I am going to paint, I draw a rectangle of whatever size I want, which I regard as an open window through which the subject to be painted is seen.”¹⁴ The act of painting, for Alberti, was like opening a window into another world, initiated by that primal act of marking its boundary. And so he began the long tradition of using the window as a metaphor for representation. The painting becomes the idealized perspective on the world, and in the freezing of this perspective both the painting and the window become media of objectivity. The rectangle is not a naturally occurring shape. The orthogonal is, however, implied both by the perpendicularity of the earth’s surface to the path of gravity, and in the annual movement of the sun compared to its daily arc. The orthogonal is also implied by human verticality. The rectangle is thus the shape of removal from the earth, of construction and of dwelling; it is the shape of utility, and thus of the faculty that we have come to call reason. As Cirlot notes in his analysis of symbols, “at all times and in all places, it has been the shape favoured by man when preparing any space or object for immediate use in life.”¹⁵ Alberti described the painting as “the intersection of a visual pyramid at a given distance.”¹⁶ He imagines a pyramid of vision extending out from us, as if, instead of having two round eyes, we in fact had one square one! This is pertinent because the painting, this presumably objective representation of the world, is conceived of as a window. If the window is the metaphor for the painting, we suddenly are going to want our windows to behave like paintings; we are going to want the ‘objectivity’ of the painting for ourselves. The sorts of murals that were common in the Renaissance, and found their extension into the 19th century in the form of



Fig. 76
Botticelli, *Cestello Annunciation*, 1490
*The fragments of landscape framed by
Renaissance windows speak generally about
a domineering relationship with nature.*

panoramic wallpaper, in a sense achieve exactly this, constituting windows into fixed, idealized landscapes. But real windows, unlike paintings, are not fixed, a fact attested to by Leonardo da Vinci's recommendation that when using a pane of glass as a tool in constructing perspective we should mechanically constrict the movement of our heads.¹⁷ This is perhaps the most interesting thing about Alberti's seemingly innocent analogy: the window viewer is constructed as cyclopean, square-eyed, and static. The perfect, grotesque, image of objectivity.

This, of course, was the much recounted birth of perspectival representation. Using a pane of glass gridded with lines as a medium for objectively determining the relative size of things is a boon for accurately reproducing the view from a given point. It is hard not to see this cold act of accurately 'metering' out your subject matter as an act of domination, as an enactment of the desire to control. In Dürer's famous woodcut of 1538, from *Underweysung der Messung*, the artist's removal from the sensuous display before him is disconcerting. Somehow this artist, seeing the world through his regular matrix, has removed himself from such things. On one side of the illustration, the *table* contains a landscape of female flesh; on the other side of the illustration, translated through the alchemy of a window, she has been replaced by a flat grid, not unlike a chessboard. The window is a medium, and as a medium it mediates. To pink windows, dirty windows, and broken windows we can add gridded windows, which are clearly windows of power.

Behind this curvaceous subject matter is an open window. Seen through this window is a rolling, natural landscape. On the other side of the illustration, separated by the window of artifice, behind Dürer's scientist-artist with his obelisk, we see a potted plant. On the one side we have horizontality, associated with leisure, perhaps even sloth, while on the other side the verticality of the obelisk and the artist is mimicked in the potted plant, a symbol of nature instrumentally controlled. As we saw with Chambers' work, the window is often very important in the composition of interior scenes. What can be seen through the window in a painting says a great deal about attitudes towards larger ecosystems, be they purely environmental or social. Botticelli's *Annunciation* (1490) is an exemplary instance of this – out the window we see a tightly controlled, tame landscape dominated by both a walled city and a turreted castle. A lazy river is forded by a large stone bridge. In the distance another hill rises, topped by what seems to



Fig. 77
Magritte, *La Condition Humaine*, 1933
The window is a medium, not a place, and as a medium it mediates.

be another city. In the foreground a cultivated tree reaches towards the divine. Botticelli's window is clearly also a window of power.

The window was a favourite motif of the mid-twentieth century Belgian painter, Rene Magritte. In his window paintings he consciously plays with the notion of mediation and the relationship between windows and paintings that Alberti initiated. His *La Condition humaine* (1933), for instance depicts what signifies a 'typical' interior with two heavy curtains hanging on either side of a window. Out the window we see a pastoral scene with green grass, a road, and some trees. In the centre of the view rises a specific individual tree, separate from the rest. If the view from the window were a painting, the tree would seem to be the focus. Except, we can only assume that that tree is outside of that window: the view itself is obscured by a painting of the view depicting the tree (p2), the pictorial content of which is rendered in exactly the same manner, and from the same perspective, as the view. Because the same hand has rendered both p2 and the painting of p2, our eye is pleasantly confused, going back and forth between the 'real' view and the view as rendered in p2. We will never know if there was really a tree outside of that window, or if it was purely the fantasy of the 'evil genii' who painted the second painting. Following the paranoid logic of the painting, there is furthermore no reason to believe that there is a view at all. The content of this painting could in fact be just a painting sitting in front of another painting! At which point we inevitably end up right back at the straight-forward observation that the whole thing is just artifice anyways. What we can learn from Magritte's playful gesture is, once again, not to forget that windows are always constructed. They actively frame.

Edward Hopper, another mid-twentieth century painter had a somewhat different approach to windows. While both painters are compelling in their intelligent artificiality, Hopper's images are always shadowed with melancholy. Magritte's windows, with their big blue skies dotted with impossibly fluffy clouds flirt with what we called earlier a window of possibility, except his clouds seem exactly that: impossibly fluffy. Their artifice unveils them. Hopper renders both dream-laden windows of possibility, such as *Rooms by the Sea* (1951), or *Morning Sun* (1952) as well as windows of definition. But what differentiates Hopper's 'windows of definition' from Chambers' is that as often as not they are in fact observed from the outside, as in his famous *Nighthawks* of 1942, or in his earlier



Fig. 78
Hopper, *Cape Cod Morning*, 1950
A window of dreams and possibility, but also of alienation.

Night Windows of 1928. Bachelard has observed that the illuminated house, seen at night, evokes “the concentration of intimacy in the refuge, in its most simplified form.”¹⁸ This is what Hopper’s paintings from the outside looking inwards are about. These refuges are defined by their relation to the exterior. In *Nighthawks* for instance, the room would not be the comforting space it seems to be if it weren’t defined against forbidding darkness. Simultaneously the darkness would not seem quite so forbidding if it weren’t held up against such a refuge. So through their permeability to vision windows can offer their stories, defined in relation to the exterior.

We would be amiss however if we spoke of Hopper’s windows without mentioning the alienation implied by his representation. Alienation is a consistent motif throughout Hopper’s paintings and windows give him a particularly strong means of representing this. As Ciriot observes, windows express ideas of both potential and of distance¹⁹, and in works such as *Sunday Morning* or *Cape Cod Morning* (1950), he manages to evoke both. Windows both promise connection and indeed separate us from things, whether we are outside looking in, or inside looking out, like Friedrich’s woman. Clement, in her instructions for dream analysis, points to this frustration as being one of the central symbolic aspects of glass. “We see through glass but it also separates us from what we are looking at,” she reminds us²⁰.

The character of our windows has always been closely related to the structural qualities of our walls. In early masonry dwellings, windows were typically small and the capacity to make large windows was dependent upon the availability of large lintels. Concentrating load into piers and flying buttresses allowed Gothic architects to construct the large windows that their churches were famous for. In the nineteenth century, the advances in the production of cast iron allowed designers like Joseph Paxton to make buildings that were practically all window. In the twentieth century, innovations with reinforced concrete made Le Corbusier’s controversial long, horizontal windows possible.

Le Corbusier’s strip windows, such as are in evidence at Villa Savoye, were a direct rejection of typical vertical windows. He agreed that the shape of such windows had historically been closely connected to the structure of the wall, and therefore, as the structure of the wall changed, so should the shape of the window²¹. Reinforced concrete provided him with the freedom to experiment.



Fig. 79
Le Corbusier, Terrace at *Villa Savoye*, 1931
*Horizontal windows edit out the foreground and
removes the partiality of the perspective.*

Horizontal windows completely change our relationship with perspective. As we explored earlier, the painting as we know it was influenced by the shape of the window and the window influenced by painting. A window, however, only resembles a painting so long as the viewer is static. As soon as the viewer moves in relation to the frame of the window, the image changes – and the smaller the window the greater the change. The view through a very narrow window looks completely different to two people standing side-by-side. When the window expands horizontally across the whole breadth of the wall, this effect is practically erased. Our relationship with the ‘outside’ does not change nearly as dramatically now when we move along the length of the wall. The horizontal window is thus a generalization of the view, eliminating what we might call the ‘partial perspective’ of the vertical window. This is further accomplished, as Reichlin has pointed out, by the editing out of the foreground of the view,²² for without the foreground all we are left with is the interior itself and that which is far away, the horizon if you’re lucky. The traditional perspectival view, such as we are used to seeing in paintings, is thus undermined. As Corbusier himself wrote, “the horizontal gaze leads far away.”²³ The view is totalized; it is spread out, allowing the viewer to take in the heroic long-view, in a sweeping glance, without having to worry about the quotidian below. The strip window, viewed from the top of one of Le Corbusier’s table-buildings, is decidedly a window of surveillance.

The windows Le Corbusier placed in his *cabanon* in Roquebrune-Cap Martin may seem humble, but they are also windows of surveillance. Although they might seem to be paradigmatically subjective because of their diminutive size, i.e. rapidly changing their content as you look at them from different angles, the fact that they are only intended to be seen through when you get up close to them means that you can actually see quite a lot from them without having to move much. When Le Corbusier was standing, the main square window facing the sea was designed to frame his head and shoulders perfectly. And squares are not humble. Far from it, as Ciriot comments, a square “implies tense domination born of an abstract longing for power.”²⁴ The window of the *cabanon* is the square eye of objectivity, taking in the whole view at once.

The windows designed by Eileen Gray for her E.1027, literally a stone’s throw from the *cabanon*, are of a very different nature from those designed by

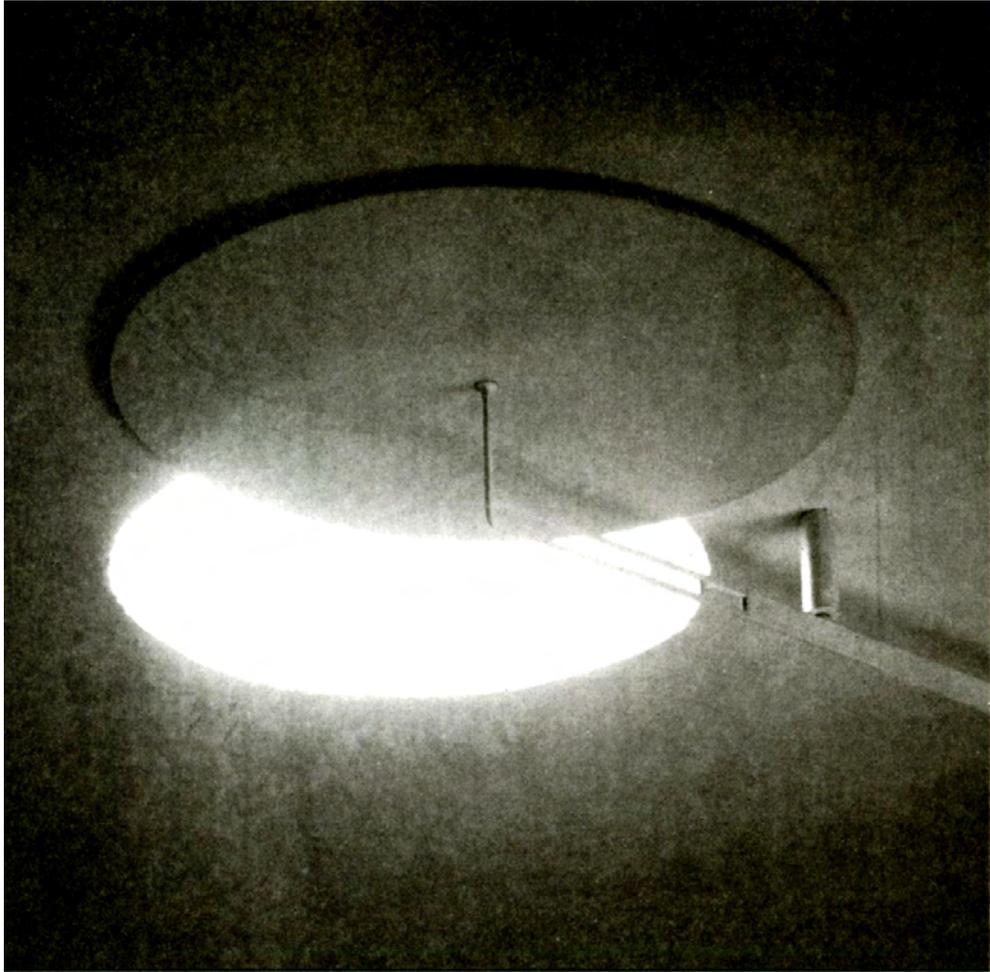


Fig. 80
Gray, Skylight at *Tempe a Pailla*, 1934
*This ingenious adjustable skylight is typical of
Gray's attitude towards windows.*

Le Corbusier. Gray was far more interested than Corb in designing for the peculiarities of the human condition. As she declared, in an apparent direct attack on his work, “formulas are nothing, life is everything ... I want to develop these formulas and push them to the point where they re-establish contact with life, to enrich them and incorporate reality within their abstraction.”²⁵ While much of her design was Corbusier-inspired, her windows were a clear point of rebellion. As Sylvia Lavin has remarked, E.1027 is “riddled with what might be called secret passages, hidden escape routes that have little to do with conventional windows and doors.”²⁶ And indeed the building is filled with clever little slippages and holes that distinguish it from a pure Corbusian design. As Weisman reports, “her use of three types of windows – sliding and folding, pivoting, and double-hung – combined with movable shutters, louvers and canvas awnings, allow light, air, and temperature to be modulated finely and subtly during different seasons of the year.” While she employed horizontal windows, they were fitted with vertical panes of glass that were attuned to the dimensions of the human body. In addition, far from Corbusier’s pristine voids such as those at Villa Savoye, she covered her horizontal windows with operable shutters. As she put it herself, “a window without shutters is like an eye without eyelids.”²⁷ Through these innovations, Gray effectively layered the Modern strip window with apparatus allowing for personal appropriation through physical engagement, thus permitted a certain degree of controlled subjectivity. The occupant can make their own relationship with the outside as they wish.

While reinforced concrete allowed for strip windows to evolve, the rapid advances in the nineteenth and twentieth centuries in learning to build with steel suddenly made it possible to make the entire wall into a window. In houses like Mies’ Farnsworth House (1951) and Philip Johnson’s Glass House (1949) this is exactly what happened. These are clear table-like buildings with a few key objects placed in them to organize the spaces. They are then wrapped in glass, putting the inhabitants and the social ecosystem that they represent in close proximity to the ecosystems without. It is unclear however if a wall entirely composed of glass constitutes not a wall at all but just a window, or if it just constitutes a transparent wall, without any windows. The window, had up until this point, always been defined through its distinction from the wall. The wall was the impermeable boundary of the interior while the window was the point



Fig. 81
Mies van der Rohe, *Farnsworth House*, 1951
*Is this a window or a wall? What is lost by making the whole
wall into a window?*

of permeation, where the interior and exterior leaked into one another. This leakage was controlled. It was framed. An all-glass curtain wall turns all of this on its head and it is tempting to agree with Pallasmaa that this “weakens the essential tension between the home and world.”²⁸ The transgression of the boundary by light and vision has been maximized while physical and acoustical transgression has been relegated to the door and the air-handling system. Such a move appears to value the visual well above the other senses, which would seem like a dangerous mistake, for comparatively the eye seems to be both wilful and greedy. The cultural geographer Yi-Fu Tuan lays it out neatly when he says that “the desire for a picture window and for the expansive view,” such as is clearly in evidence in a glass house, “suggests a need not only to command space but to see into the future and command time.”²⁹ In a glass house like Johnson’s or Mies’ the ‘window’ has been obliterated to the point that all you’re left with is a plane that facilitates the visual consumption of the outdoors. While it may promise the opposite, a glass house in the end is a chamber of alienation, which is possibly why both Johnson and Mies anchor their houses with such solid centres.

Paradoxically, glass houses actually represent the demise of the window. In showing all, mystery is lost, and mystery is essential to intimacy. The values of both interior and exterior erode as the boundary between them erodes. Without any complexity, the window loses its psychic value. You need to be able to sit at windows.³⁰ You can’t sit at a glass wall.

While the window is not a place but a medium, the places that are actually at this medium are highly charged sites, due largely to the complex interaction that occurs there. Both interior and exterior are defined, questions of sociability and subjectivity are negotiated. When a pie is placed on a window sill to cool, a statement is being made about the relative safety of that pie. Many of us wouldn’t place a pie on our windowsill because it might get dirty from the exhaust fumes in the street, or eaten by a dog. Many of us also couldn’t put a pie on our windowsill because the window has been painted shut, or there is a screen in the way, both of which are also highly significant. People living in towers are unlikely to have large enough sills to rest a pie on. Similarly, if a miscreant was to come and steal said pie (a true feat for those of us living in towers), this would also constitute a highly significant statement. The liminal places of our windows, including window sills and window seats, are important sites.

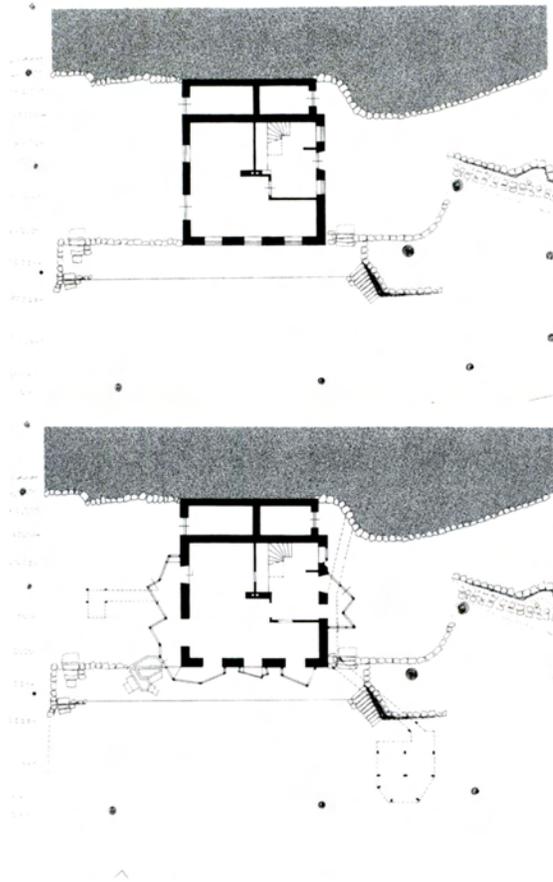


Fig. 82
Alison and Peter Smithson, Plans of the *Hexenhaus*,
1986-2002
*The Smithsons have here re-interpreted the threshold as a
place to be inhabited.*

A good example of a house that has maximized the liminal zones associated with the window is the Smithson's *Hexenhaus* (1986-2002). The house began as a fairly conventional gabled country home in Germany, but through many years of close collaboration between the owner and the architects, slowly grew into something quite different entirely. And the word 'grew' is used consciously here, for in addition to the long cumulative nature of the transformation, the additions executed by the Smithsons are literally like growths protruding out from the building, like symbiotic fungi that both feed off the energy of the house and effectively energize the life within. The first addition was a large triangulated multi-purpose verandah that incorporated a triangular couch in one facet as well as a nook with a glass floor for the owner's cat to watch the mice below. The next addition was a large bay window with a lowered glass floor and two built-in seats. Again, one seat is for the owner and the other, significantly higher, is for his cat. Eventually three more of the windows of the house were similarly fitted-out, a second verandah added, and most spectacularly of all, a new room was added, raised high up in the air on stilts and connected to the bathroom on the second floor by a bridge. These altered windows, and doors, explode out from the conservative domesticity of the original house, creating new opportunities to inhabit the boundary. They satisfy the owner's desire to experience the outside environment more intensely from inside notably without resorting to the increasingly conventional brash replacement of an exterior wall with pure window (and thereby destruction of the window). Instead the Smithsons created new window *places* where the inhabitant might dwell³¹.

In dwelling in these window places, the inhabitant of the Hexenhaus engages in all of the complexity of window: the competing allures of the dominant gaze and the gaze of the dreamer, the simultaneous manufacture of interior and exterior, the ethical negotiation of ecological relations between these, the crafting of subjectivity, and so on. Interestingly, as we pointed out earlier, the traditional window is not the only interface at which all of the complexity of these issues is played out. Many of these relations are also negotiated when we speak with others over the telephone, or when we read or write books, or, notably, at our computers.

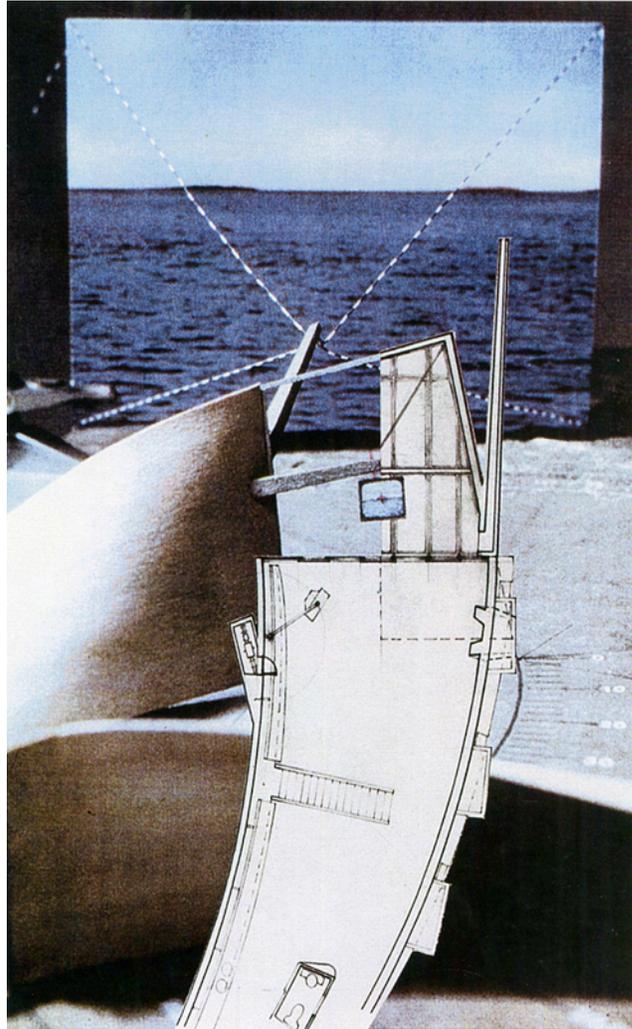


Fig. 83
Diller + Scofidio, Model of *Slow House*, 1991
*Portayal of view is layered over top of the
window, in case you prefer simulation.*

TECHNOLOGIZATION

The screens of our computers are windows too, and, more complexly, within these windows we encounter many other sorts of windows as well. Our primary user interface is normally thought of as being a desktop, but in order to access information, we must open a ‘window’. These extremely complicated windows invite all kinds of new issues, but many of the same issues that we have been discussing still apply. Different sorts of interaction can occur with the virtual worlds accessible through our computers. Our gaze can still be dominant, or it can be the gaze of the dreamer. The computer screen can absorb all of our attention or it can become a more passive window of definition against which we evolve our more immediate social ecosystems. Something little considered by the designers of computer screens is that they are in fact the frames through which vital relations are constructed. We are who we are in relation to others, and if those relations are established through a computer screen, that screen partakes in that process. The same goes for the windows within the screen, the software architecture that structures our online world³². If I can see a friend through a computer window, I see them in relation to that window.

One particularly witty riff on the relationship between these rapidly proliferating virtual windows and the traditional windows which give us sensorial access to the environmental and social ecosystems physically adjacent to our houses is Diller + Scofidio’s *Slow House* (1990). In the *Slow House*, a country retreat on Long Island, D+S designed the whole building as a teasing lead-up to the spectacular view. When, however, the visitor reaches the room with the view, it is obscured by a TV monitor displaying the same thing as is visible through the window. It’s a similar trick to that performed by Magritte in *La Condition Humaine*, except this time in architecture not in pictorial representation and without any real attempt at illusion. D+S give the visitor a choice: would they rather look at the view through one window or the other? The image in one is slightly mediated by the capturing, codification, and reconstituting of the image, but, people like watching TV.

Another statement on windows has been made recently in the form of a proposal by design outfit The Living. Their *Living Glass* project (2009), proposes a light (and vision) permeable surface that then opens and shuts small orifices built into it for the purposes of ventilation. When this ‘window’ senses a carbon dioxide build-up on the inside of the dwelling space, the orifices open.

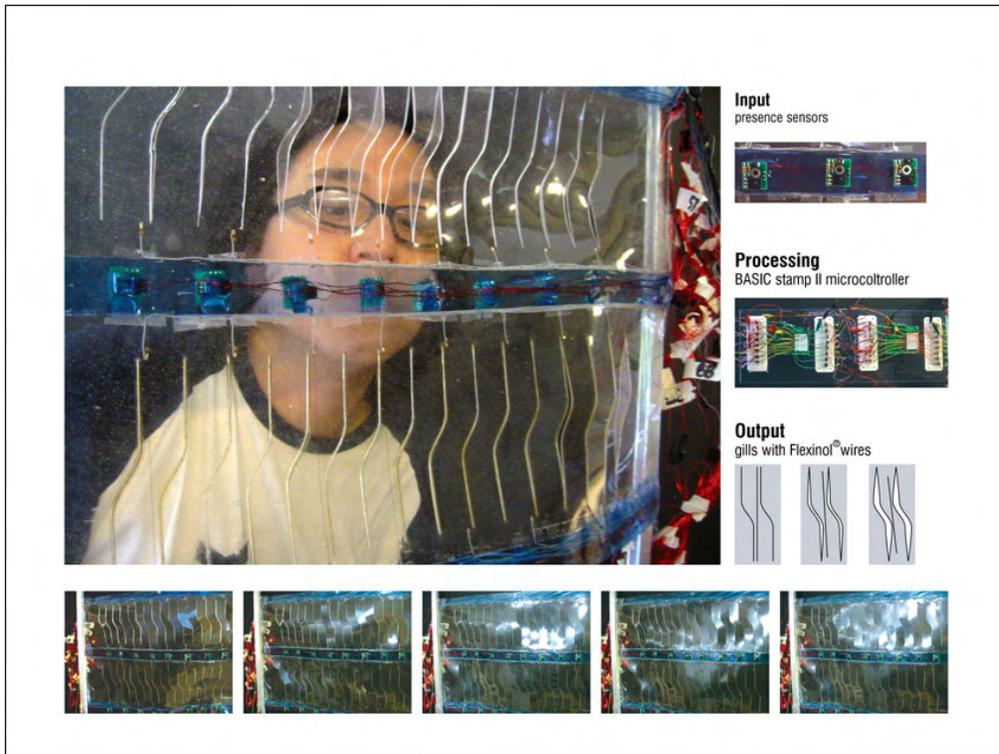


Fig. 84
The Living, *Living Glass*, 2009
A window making use of miniaturization and distribution to
respond to the needs of inhabitants.

WINDOW OF THE FUTURE

Following the tangent of such a proposal one can easily imagine the several functions served by the window separated, miniaturized, and dispersed such that what we have been calling a window here really no longer exists. One could imagine a wall with shifting transparency for instance and location-specific ventilation. Light could be transmitted in without the need to also provide a visual connection. Perhaps then the window of the future is made as you wish, when you want it, like Eileen Gray's windows but very much more so. In such windows we have complete immediate control over how we relate to the environment and to the space of appearance. In a responsive wall-window, the permeability which we earlier identified as being of ethical importance could be minutely configured as we see fit.

However, a wall-window with adjustable opacity does away with the frame and in so doing something of the poetics of the window is lost. It also loses the potential for the window to be a place of inhabitation. Perhaps the window then could be a gathered site of subjectification in which the functions of the traditional window and the digital screen merge. Using an LCD layer in the glazing, along with multi-touch fibres, the window could become the primary means in the house of interfacing with larger and adjacent ecologies. By gathering these interfaces into a select series of locations it reduces their potential to fragment and dilute the value of interior space and makes the function of subjectification more deliberate.

We can imagine a window that allows for an inhabitation of the perimeter of the house, not just the physical perimeter but also the virtual perimeter. It could give you access to what's going on in the street outside, but maybe it could also give you more information than the average window, such as a view directly of the sky, or a view down the street. Maybe the view could be augmented with a satellite image of the neighbourhood, or meteorological data. Moving more into the realm of mixed reality, such a window could provide you with the traffic conditions as well, but also other sorts of news. In such a scenario, you might walk to the window to check your mail. The view outside could have, layered over top of it, the contents of your facebook 'wall'. Augmented with all of the tendencies currently observable in technology, the value of such a window would



Fig. 85
*Perhaps the window of the future will not just
provide access to the immediately adjacent
environment but to other sorts of 'spaces'
and information as well..*

be its gathering of functions. Rather than a hundred small windows scattered about the house which has somewhat the same deleterious effect as a glass wall, such a window would presuppose a deliberate and direct relationship between interior and exterior.

TEN PRINCIPLES FOR THE DESIGN OF A CYBERNETIC HOUSE

The following principles culminate a number of the tangents contained in the preceding pages. It is of course semi-fictional, removed enough from the concerns of everyday life to be whimsical but yet infused with strains of real urgency. It is written as a shopping list of things to keep in mind when designing cybernetic houses. Admittedly, this is essentially a frivolous issue, but yet the ideas contained within should still resonate with us. They continue the refrains repeated throughout this thesis: our technology is changing rapidly; it is penetrating every corner of our lives; it is changing us; it is our responsibility to keep track of how it is changing us and to steer it accordingly. The house, as existential frame, is an important site for the negotiation of these complex issues.

1. *Make the technological field a technological flesh for the group.*

While our personal technology extends us and liberates us, it also tends toward alienating us from our bodies, from each other and from the world of things. The cybernetic house must be conceived as respite from this alienation: a tool to reconnect us with our bodies and with each other and with things. Removable personal technology should be shed at the threshold of the house and ‘synced’ to it. Personal information may be kept personal and public information may be added to the collective silicon memory of the house. This is a sign of trust on the part of the cyborg, allowing them to enter into a fertile social assemblage with the rest of the house.

2. *Carefully calibrate and articulate the connection between the house and the larger networks of which it is a part.*

The house is a nodal point in many networks such as information networks and networks of distribution. These networks must benefit the house and the household but not make them create a condition of dependence. In the same way that Steve Mann argues for the augmentation of the cyborg as opposed to the augmentation of the environment, as the technological field of the house becomes a technological flesh to the whole household, the house must retain its autonomy in the face of larger systems. Cybernetics being akin to steersmanship, the house may come to resemble a vessel, intimately linked to its occupants but nevertheless in their control, a tool for navigating the winds of hegemony through which they sail.

3. *Position the house respectfully in relation to environmental ecosystems.*

Technology can often be read as relating to the environment as mere reserved resources to satisfy its needs. The house may articulate a relationship to the ecosystems around it in many different ways including the way in which it sits upon the land, the manner in which it harvests resources for its purposes like water or energy, the means by which it disposes of waste, and importantly, through its windows. Our houses must not dominate the environment but instead engage with it in a respectful fashion, even if we recognize a need to support and augment it. The house must be a part of the world, looking into it, not at it, or down upon it.

4. *Design house to be modifiable and appropriable.*

With the automation of the technological field and specifically with responsive architecture, maintaining the autonomy and agency of the individual is of crucial importance. The calibration of the relationship between the serving and the served must be dynamic enough that the technology does not turn into an instrument of control, even self-control. The technology must be simple enough, at least in its interfaces, to be appropriable by the inhabitants. Rather than prescribing ways-of-living, the architecture must provide possibilities for experimentation, opportunities to scribe new patterns for social groups through the modification of the environment.

5. *Gather information access into clearly defined media.*

With the number of information access points in the contemporary house, it becomes like a house with a thousand windows. Like in a glass house, the crucial significance of the window is lost. When the hearth transformed from its original form to an electronic access point for information it lost some of its 'Hestia' and became far more 'Hermes'. If domestic life occurs in the space drawn between Hestia and Hermes then the transformation of the hearth into another window and the proliferation of small windows would have an obvious negative impact upon the space of the interior. Information access points should then be recognized as windows and treated as such, different windows providing access to different information.

6. *Make house a means of looking out not in.*

With its emphasis upon 'sensing', many pieces of contemporary technology begin to resemble instruments of surveillance not sousveillance. While there are many good reasons for the house to sense the behaviour of its occupants, the house should primarily be a means of sousveillance, with the capacity to observe the house itself, especially from without, consciously limited.

7. *Spatialize information.*

As codified information becomes increasingly a constant presence in our lives, it lays over the world, changing our experience. Frequently this information is engaged through our eyes, but other means of interfacing are rapidly developing. The mode by which we perceive information greatly affects our understanding of it and in turn our mode of thinking. When information is spatialized, we can navigate it with our bodies, unlocking the knowledge embodied therein. Spatialized information that we can engage with corporeally opens up new possibilities for thinking and, crucially, for dwelling.

8. *Maximize opportunities for communal interaction with information.*

Our increasing embroilment in the virtual, despite its promises to create an almost telepathic connection between people, can paradoxically separate us from one another. By sharing information and by taking advantage of opportunities to engage with it in a group, this can be counteracted. The virtual can be reflected upon together rather than simply accepted as received, and can create new opportunities for localized intersubjective socialization and negotiation of group structure.

9. *Privilege technologies that promote interactive socialization rather than mere reception of information.*

A form of socialization may occur through a television or a radio, but is far more valuable when the technology is interactive. Self is defined, group is defined, the cosmos is defined through these sorts of technologies. An individual should be enabled to actively take part in these processes. Technologies, especially information technologies, that encourage interaction should thus be promoted.

10. *Enable inhabitant as 'citizen' and 'maker' rather than merely as 'user' or 'consumer'.*

The time and energy freed by technology can be used for a wide variety of ends, and the house should not prescribe how this time is to be used. However, the possibility that these resources be used in active dwelling rather than leisure should be encouraged. This will avoid the potential inert boredom that our technology often seems to promote and, instead, catalyze an ethos of caring involvement with the world, a foundation for political engagement. While typical technological discourse tends to reduce the individual to a 'user', or worse, a 'consumer', these are not the most fertile definitions for us to bear. Let us design technology that encourages us to think of ourselves as creators and participants in the world instead.

POST SCRIPT

This is not a conclusion because it does not conclude. The present text is neither an Ithican return nor a neat closing, but rather a reflection of the preceding work. From this position, at the back of the book, however, things look different than they did at the front. Thus the reflection is distorted, resulting in a re-description of the work.

So far this thesis has been presented as a discussion of technology in the house – a probing of how we have historically related to our houses and how this changes with technological development. The thesis, however, can also be read as being composed of three arguments, in fact three disparate arguments that run through its central narrative.

The first of these arguments is regarding the place of what we might call poetic or mythic thought in discourse. This argument can be found in my initial statement in favour of a phenomenological approach rather than an excursion into the extensive field of psychology. This phenomenological position is assumed in opposition to scientific thought and is resolutely un-quantitative. This should not, though, be seen as dismissive of this other mode of thought, but rather as an attempt to revive a mode of thought often considered to be inferior and to position it instead as the complement of scientific reasoning. It is this stance that leads me to treat technological scientists as the ‘poets of science’ and

also to not worry very much whether my numerous claims are universally valid. Throughout the thesis I have attempted to reveal the poetic and mythic elements of both the house and technology, under the guise of ‘phenomenology’.

The second argument, aside from my stated intentions, that runs through this thesis is about the self and how the individual relates (relates in fact, could relate, should relate ...) to both the group (be in informal social group or formal political body) and the physical environment. This is explicitly the topic of the first essay, “Self, Technology, Architecture”, in which the self is posited as an ecological network amongst other networks, but it is also a concern that runs throughout the entire book. This is a delicate, complex and crucial issue which is only dealt with in broad strokes here. Contemporary psychology and philosophy, such as that of Antonio Damasio and Charles Taylor (just to name a couple of obvious references) have much to say about this,¹ and delving deeper into their work could have added a great deal to the present volume. As it is, my rudimentary sketch in the first essay, as irresponsible as it may be, served the purpose of laying the foundation for the later investigations.

The third argument has to do with the relationship between tradition and modernity. Although never stated as such, this is the crux of the thesis. The first glimpses of this concern gleam through the text in the anxiety evident in such phrases as “we are changing”, and my evocation of Alberto Perez-Gomez’s point about the inevitability of our coming technological flesh. The selection of Gandy’s painting as a key example of the relationship between historicity and modernism, and the ensuing discussion of the world exhibitions begins to face the subject head-on, but from there forward it is dealt with only implicitly. The question of modernity and even modernism is central, however, to much of Part One of this thesis and to the entirety of Part Two. It may be useful to articulate this position more clearly:

1. modernity and modernism are facts, and the forces that push us onward are formidable;
2. tradition is dangerous because it threatens to perpetuate patterns of inequality and domination, but it also contains much about the human condition that is worth paying attention to;

3. we must be responsible in guiding progress and in attempting to retain that which was of value in the past, which may be lost in the perpetual onslaught of modernity.

The “Ten Principles Towards the Design of a Cybernetic House”, born out of a long thread, or perhaps skein, of ‘poetic’ (i.e. non-scientistic) investigation, brings together the culmination of my reasoning both about the nature and positioning of the self and about modernity. Each point addresses one of these issues, and most address them both. What does it mean to make the increasingly interactive architectural environment like the exoskeleton of a cyborg? This is a plea in opposition to the alienation and individualism which so often are structurally reinforced by our technology. In saying that the technological field of the house should become like the technological flesh of the group, I am simply acknowledging that the self needs others – that while we should retain some scepticism of larger social orders, let us preserve something of the family structure even if it is not necessarily genetically based. The implied point is that while the traditional nuclear family may dissolve, we should not forget the importance of a close-knit social group in providing support of all sorts to the individual. The “10 Principles” is of course not really (just) about cybernetic houses, but is a guidebook for locating the self in the modern world, a guidebook that proposes architecture as an important and useful tool in achieving this end.

NOTES

Entry

- 1 Maurice Merleau-Ponty, *The Phenomenology of Perception* (London; New York: Routledge, 1962), xiii.
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PART I

Self, Technology, Architecture

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- 3 The word ‘rapport’ comes from Martin Heidegger, “Building Dwelling Thinking”, in *Basic Writings*, ed. David Farrell Krell (San Francisco: HarperSanFrancisco, 1993), 359.
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- 7 Bateson, in Andrew Ballantyne, *Architecture Theory: a reader in philosophy and culture* (London; New York: Continuum, 2005), 35.
- 8 Maurice Merleau-Ponty, *The Phenomenology of Perception* (London; New York: Routledge, 1962), x.
- 9 Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1998), 11.
- 10 Ibid, 128.
- 11 It is worth noting the hybrid genealogy of these statements – the word ‘phenomenological’ is used in sympathy with the work of Maurice Merleau-Ponty in particular, while the notion of ‘conditioning’ is used following Arendt and the word ‘assemblage’ comes from Guattari. Being is furthermore a reference to Heidegger.
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- 30 *Ibid.*, 328.
- 31 Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1998), 138.
- 32 *Ibid.*, 138.
- 33 Martin Heidegger, "The Question Concerning Technology" in *Basic Writings*, ed. David Farrell Krell (San Francisco: HarperSanFrancisco, 1993), 340.
- 34 Martin Heidegger, "Building Dwelling Thinking", in *Basic Writings*, ed. David Farrell Krell (San Francisco: HarperSanFrancisco, 1993), 352.
- 35 *Ibid.*, 358-9.
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- 41 Quoted in Simon Richards, *Le Corbusier and the Concept of Self* (New Haven Conn.; London: Yale University Press, 2003), 9.
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Post Script

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