TRIVIAL TECHNOLOGIES OF EFFECT IN THE HOME

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Abstract

Most accounts of how new technology has transformed the domestic realm focus on the provision of comfort, sanitation and labour-saving devices. In parallel, but typically not visible in these histories, there has been a minor strand of development that we identify as trivial technologies of effect. These are gadgets and devices whose utility cannot be separated from wonder and delight. They bring a kind of non-essential utility for private enjoyment, and so occupy a distinct ground somewhere between function and entertainment. In this sense they can be thought of as aligned to the practice of architectural design, which similarly pursues both functionalism and art.

The paper explores this category of trivial technology through two significant examples of mechanised houses. The first is the house of Jean Eugene Robert-Houdin, a nineteenth century magician and noted amateur inventor. From this case, the form of the magic trick provides a metaphor for our analysis of technologies of effect. The second example is the penthouse addition of the appartement de Beisetgui, designed by Le Corbusier. Here we trace the same lineage of devices in the modernist guise. Finally we briefly examine the present-day phenomenon of the 'smart house', and other attempts to rekindle wonder in domestic digital technologies through the designs of Bill Gaver.

In conclusion, we use the inherent ambiguity and irony of trivial technologies to explore the modernist mantra of the machine a habité in a different light, that is less about satisfying functionalism, and more about producing automated and sensory effects.

Keywords: domestic technology, modernism, magic.

1 Introduction

> 'Would it not be possible to go even further and plan our buildings and houses by taking into account the person who frequents or inhabits them, not only to determine their general arrangement and distribution, but also to introduce thousands of specific comforts, services, and time – and energy-saving devices that the adaptation of new procedures from science and industry could provide for domestic life? A house is an instrument, a machine so to speak, that not only serves as shelter for Man, but … must confirm to his activity and multiply the production of his work. Industrial constructions, workshops, plants of every kind are, from this viewpoint, almost fully achieved models worthy of being imitated.'

This passage written by Adolph Lance in 1853 was read by Le Corbusier and, according to Manfredo Tafuri (204-205), very possibly inspired his idea of a *machine à habiter* – a famous motif of modern architecture's lean, functionalist aesthetic. But there is another vision that the passage conjures up: a house full of gadgets and mini-machines intended to enhance every aspect of domestic life. During the nineteenth century the home was indeed transformed by a few key innovations mostly concerned with improved sanitation, cleanliness and cooking (Ierley). In the western world, these have become part of a mundane infrastructure that is assumed necessary for normal domestic life. But what about the 'thousands' of new 'comforts' and 'services' that Lance called on 'science and industry' to deliver?

Attempts to make real this second vision of a mechanised house have given rise to a category of invention that we will identify as 'trivial technology' and which forms the focus of this paper. Instances of this category – think of the Goblin Teasmade – display technological ingenuity which exceeds their utility. That is, the effort in conceiving, building, operating and maintaining them somehow seems out of proportion with the advantage that they might bring to their users. A defining characteristic of trivial technologies is that they do not become part of an assumed domestic infrastructure. Rather, on every use the home dweller feels ever so slightly delighted that something has been done by a machine that might have been done by themself, or not done at all. While core domestic technologies quietly and slavishly perform important functions, trivial technologies ostentatiously do something surprising if not particularly useful. (Our definition is in stark contrast to Von Foester's notion of 'trivial machines' which perform a task without variation and wonder, like a toaster (Gage 771).) A second characteristic of our trivial technologies is that they relate to activity in and around the home. Excluded from our category then are purely decorative and artistic artefacts, media like television and radio, and global communication devices like telephones that are intended to bring value through symbolism and/or the distant content that they present.

Trivial technologies have always belonged chiefly in the domestic realm because it is only here that the disproportionate expenditure of ingenuity and effort can be tolerated. They typically depend on the doting hand of the hobbyist and amateur inventor, who is usually male, and on his leisure time to tinker. Further, trivial technologies are intrinsically comical. A theme explored, for example, by the absurd machines of the illustrators William Heath Robinson and Rube Goldberg, those built by the Swiss sculptor Jean Tinguely, and those simulated in Aardman's animations of Wallace and Grommit (Lewis, Hulten). Comedy arises through a kind of satire on the seriousness of technology, and through a glimpse into the unrealistic mind of the amateur inventor.

What can this seemingly fringe category of technology tell us? We will explore their significance through two key examples of trivially technologised houses, and consider how they aim to produce effects that are over and above satisfying merely functional needs. It is precisely because they go beyond the mundane that they sharply focus consideration on what their point and meaning is. By concentrating on those inventions embedded in, or connected to, the house, we also consider what they tell us about the relationship between technology and architecture; particularly to question modern architecture's appeal to functionalism and the *machine à habiter*.

2 The Priory: the house of Robert-Houdin

'The Priory' was the home of the French magician Jean Eugene Robert-Houdin who performed in Europe in the mid-nineteenth century. He was widely regarded as the greatest magician of his day, and subsequently as the greatest of all time (Dawes 121, During 118; Metzner 160). Robert-Houdin's house of gadgets is significant for two reasons. First, it is one of the earliest attempts to create a mechanised house and was contemporaneous with the writings of Lance

as quoted above. Second, as we will argue, the invention and installation of his trivial technologies owed much to the nature of conjuring. To underline the significance of this association between trivial technologies and magic, it is important to realize that conjuring in the nineteenth century was a dominant form of entertainment that exploited the latest advances in science and technology to produce ever more amazing tricks: new understandings of electricity and electromagnetism; new materials such as invisibly thin steel wires and larger glass sheets for optical illusions; and the increasing sophistication and miniaturization of mechanical devices (During, Steinmeyer "Science" "Discovering" "Hiding"). Like other great nineteenth century magicians, notably John Maskelyne in London, Robert-Houdin was a trained clock-maker and accomplished amateur inventor (Dawes, Christopher). And during his life he created many examples of automata and trivial technologies including an alarm clock, patented in 1837, that on being activated lighted a taper for a candle or cigar (a distant ancestor of the Goblin Teasmade perhaps?) But success in magic lies not merely in technological invention. It depends critically on how technologies are deployed to create effect. This can involve disguising or mis-conceptualising the role of the apparatus, and the boundary between the apparatus and the actions of the performer. It is here, in the deceptive deployment of technology, that Robert-Houdin appears to have excelled (Steinmeyer "Hiding" 139). His 'mysterious clock', for example, presented a face and hands that kept good time although they were clearly seen to be separate and disconnected from the clockwork mechanism.

After a short career of entertaining the public and the powerful of Europe, Robert-Houdin retired to The Priory near Blois in 1849 and applied his technoscientific-magical thinking to novel devices for his new home. He installed a system of alarm-clocks to wake servants, with ringing bells that could only be turned off by those affected leaving their beds. These ran off a central master clock - a kind of early network arrangement - that allowed all clocks to be brought forward or back if desired. Unknown to the servants, their actions of opening and closing doors in the house kept the master clock wound. Other domestic technologies at The Priory were: an automatic timer-based horse-feeder, a temperature-activated fire alarm, and burglar alarms on windows and doors. Of particular interest is the entry gate that was some distance from the house and triggered a bell when post was delivered or needed to be collected. When visitors rang a bell at the gate, it could be remotely unlocked at the house, and a name plaque next to the gate rotated to change its message from 'Robert-Houdin' to 'Entrez' (Robert-Houdin). When visitors then opened the gate a further variable sequence of rings was initiated that sent a signal to the house about the familiarity or otherwise of the party.

Robert-Houdin's domestic inventions take the form of magic tricks, and we argue that this reveals a reoccurring pattern in trivial technology. As in magic performance, all of his devices were designed to lurk unseen, waiting to deliver an encapsulated moment of effect for a targeted audience in the space of the house: horses, servants, visitors, those caught by fire or those being burgled. And also like magic, the moment of effect was accentuated, and depended on surprise (the rotating plaque, the changing alarm setting), and disguised the role of technology (the entry gate sensor system). It also often involved a kind of performer-spectator relationship between someone 'in-the-know' and someone haplessly affected (master/servant; host/visitor; master/horse; household/burglar). These early programmable message-sending devices can be considered as a kind of prehistory of information technology and the smart home.

The Priory, as an early mechanised house inspired by magical thinking, provides a model of technologies of effect. Unable to justify their existence on utilitarian grounds, they wait for their moment to create delight, at least for their owner and creator. Rather than sinking into the invisibility of necessity, they keep visible a relationship between a performer/designer and a spectator/user. Robert-Houdin’s domestic inventions also establish the reoccurring tropes of trivial domestic technologies of effect. First, they are connected to servitude, mediating a relationship between master and servant. Industry's new modes of technologically regulated work and technologically mediated power were thus brought into the home. Second, many of Houdin's devices operate at the threshold of the private interior of the home and the exterior world, aiming to enhance connectivity across this boundary. This is most evident in the elaborate and ingenious system of entry bells, and less obviously in his obsession with alarm clocks that can be seen as part of the wider role of the modern clock in creating a fundamental relation between the private domestic realm and the public realm of work and the city via accurate time-keeping and information (Kwinter 18).

3 The Appartement Charles de Beistegui

For our second house, we stay in France but jump forward some eighty years to a little discussed domestic work of Le Corbusier. The appartement Charles de Beistegui is a small roof-top addition to an existing nineteenth century building on the Champs-Elysées in Paris, constructed in 1929 -1931. It was built for the wealthy film-maker client Charles de Beistegui as a modern party penthouse. This was no prototypical house for the ordinary contemporary man, but rather a bespoke design of extravagance. The appartement featured an extraordinary and surreal walled roof terrace and garden from which the visitor's gaze was obscured and frustrated: only the top half of a few iconic Parisian monuments were allowed to be viewed. The design incorporates many technological devices that are apart from the core domestic technologies of environmental comfort and constructional efficiencies. This house therefore presents somewhat of an anomaly in the oeuvre of Le Corbusier.

In contrast to Corb's more famous villas of the period, the fabric of this building – in structure, spatial arrangement and skin – does not absorb and perform all the work of the 'machine for living'. Other more trivial and wonderous technological artifacts embellish the design. For example, while candle-light powers the only sources of interior lighting, electricity is devoted to mechanized systems for moving doors, walls and even garden hedges on the roof top terrace that otherwise obstruct any view of Paris. Here, as Colomina has described, electricity becomes what Corb describes as the 'docile servant' (Colomina 297). Electricity also powers the retrieval of cinematographic views of Paris that are collected via a periscope device on the roof and projected on an interior screen which unfolds via an automated mechanism that moves the room's chandelier out of the way. Thus the otherwise obscured view from the terrace is further abstracted and automated. As Tafuri has described, technology is here employed 'in the service of game' to make a *boite à miracles* (203).

The overtness of technological embellishment is captured in Le Corbusier's own description of the appartement, as summarised by Peter Blake, who commented that only a 'Frenchman in love with modern machinery would ever describe a landscaping project in terms of the length of electric cable required to make it function' (Blake 60). Blake reasoned the motivation behind the mechanically moving hedges on the roof top garden terrace of the apartment as an example of Le Corbusier's desire to manipulate nature in the mode of the classical. However this does not seem an adequate explanation. The technologies in this apartment can be read as analogous to Robert-Houdin's house of technologies, but now embedded in, and modified by, the context of domestic modernism. There is an updated endeavor to modify the master-servant relation, in this case by replacing the tasks of servant help with automation. There is also an emphasis on the boundary between the modern interior of the apartment and the exterior city of Paris. The apartment and roof terrace quite literally becomes an apparatus for capturing, modifying and projecting the environs: the relationship between house and city is made artificial and mediated through apparatus.

Despite the appartement de Beistegui's overtly frivolous and showy use of insignificant technologies for sensory enhancement and wonder, by-and-large Corb's explorations in domestic technologies cannot be seen as intentionally light or humorous. It was perhaps this taking oneself too seriously that the French filmmaker Jacques Tati was to exploit. However Tati also sought to make a serious critique of the effects of modernism and the technologies it brought to disrupt the French environment (Penz 64). In his film Mon Oncle of 1958, it is the modern, functionalist house that is both a central character and subject of satire. As in Corb's appartement, Mon Oncle's house is embellished by a sequence of trivial technological devices that again focus on the threshold between interior and exterior, surveillance and labour automation. For example, the front garden features an automated fountain in the form of a metal fish that spouts only when unfamiliar visitors and guests arrive at the gate and ring the bell. While inside, the kitchen features other devices in the family of the Goblin Teasmade, such as an automated steak-grilling flipper.

Jaques Tati's humorous critique of modernism was followed by postmodernism's general dismissal of the dogma of functionalism. However recent criticism by the likes of Stanford Anderson, Mark Wigley, and Beatrice Colomina, have overlaid more subtle interpretations that complicate modernism's original appeal to, and ownership of, the functional. For example, Anderson contends that functionalism in modern architecture cannot be taken at face value for it was indeed a 'fiction'; in two senses of the word: as a simplistic error of interpretation, and as an intentioned and conscious rhetoric or story-line (21). Functionalism, for Anderson, is in fact a misleading and 'weak concept', inadequate for understanding the complex *raison d'êtres* of modern architecture (19). In particular, he reads Le Corbusier's 'functionalist villas' like Villa

Savoye as a talisman for new ways of modern living: as a *machine à habiter* it is propositional and suggestive, but not deterministic.

As suggested in the introductory quote of this paper by Lance, if we assume that Tafuri is correct in attributing the concept of a *machine à habiter* to nineteenth century sources, this also throws its meaning into question. Indeed one alternative meaning that has been offered takes an alternative translation of the machine as an apparatus for 'the production of stage effects', and arrives at 'a contrivance for the effect of dwelling' (Wesley 122). This alternative reading, while by no means of universal application, is illuminating in the case of the appartement de Beistegui.

4 Today's 'Smart House' and its alternatives

Jumping forward 60 odd years to the present, have we now reached a new incarnation of trivial domestic technologies on a mass-scale rather than through the rarified examples of the amateur inventor or the architect designed penthouse? Since the early 1990s there have been numerous predictions of the transformation of the 'dumb box' into the 'smart house' through automated information systems (Millar 128; McCarty 9). These promises of automation build upon earlier uses of trivial technology, with, for example, more sophisticated alarm clocks, surveillance and movement detection, information gathering, home-help replacement, and remotely operated control for devices of heating, cooling, lighting, entertainment and so on. The following description again updates the trope of servitude:

'You arrive home after an elegant evening at the theatre. As you pull into the driveway, outdoor lanterns snap on to help you steer clear of the rosebushes. Inside the house it's toasty 72f, with just a few lights on. The electric fireplace has just started up, and the soft music emanates from the stereo. In the kitchen, freshly baked apple pie is waiting in the oven' (Hamilton).

Here the enticing promise is made of ghosts of former servants who can prepare the house for the returning master. However, it was noted in 2000 that although some 4 to 7 percent of American homes were now equipped with computer operated networking of services and entertainment, but many proud owners of these new incarnations of a 'machine for living' do not know how to operate them (Lovine). Other pioneers of integrated domestic technologies like the MIT Media Lab, also admitted that they were somewhat stumped as to what the point of much of this technology was; perhaps too trivial yet not wonderous enough to catch on. (Time International)

At the same time as the smart house phenomenon, which favours utility while concealing its new devices and their controllers, we see other more artful experimentations with alternative technologies in the home as exemplified by the work of technologist Bill Gaver. Gaver's domestic artifacts exhibit a kind of technological ambiguity and wonderment that is reminiscent of magical apparatus. They continue the exploration of the connection between those inside the home and the immediate outside. For example, the Drift Table, that predates Google Earth, provides dwellers with a virtual balloon journey by presenting digital maps through a small hole in the surface of a coffee table. Similarly the 'Video Window' provides a view of the exterior streetscape on a computer screen mounted on a wall. And Gaver's 'Key Table' mediates entry to the home: the force of dropping keys and other objects on the table changes the orientation of a picture hanging nearby (Gaver).

5 Conclusion: Technologies of effect

The desire to bring industry's technological ingenuity to the aid of domestic life, beyond the survival and comfort-related activities of cooking, cleaning and sanitation, gives rise to the category of trivial technology. From the examples of trivially technologized houses that we have considered some themes emerge. Trivial technologies thrive around the mediation of relationships between people in the household. Firstly they invoke servitude; they intervene in, or simulate, the relations between master and servant. Secondly, a key site of mediation is the boundary of the home; the gulf between occupants and visitors or other outsiders. For Robert-Houdin, this was embodied in an automated entry gate that issued bell signals. For Le Corbusier's appartement, technically-assisted connection with the outside was realised through a periscope and an automated hedge which revealed selected views of the city. In the present-day smart home, the boundary is marked by an emphasis on security alarms and internet connectivity. While in Gaver's work, the Video Window and the Drift Table allow the viewing of the house's immediate environs, and the responsive Key Table intervenes in the act of entering the house.

What these persistent themes tell us is that domestic trivial domestic technologies should not be dismissed as merely the work of over-zealous boffins who cannot quite grasp the difference between the efficient world of industry and the social world of the home. Rather, they exhibit a deep concern with the ambiguity and irony of technology. They represent attempts to rise above the purely functional and mundane infrastructure that we take for granted. Like the realms of magic and architecture, they can produce momentary sensory effects that are wonderous. And what they also tell us about architecture is that its appeal to technological functionalism is never straight-forward. Even for a so-called functionalist like Le Corbusier, architecture had to satisfy both biological needs (heating, lighting, circulation etc.) and aesthetic phenomenon, which for Corb was encapsulated in profoundly sensory terms: 'the physiological sensation, an "impression", a pressure by the sense, a compulsion.' (Le Corbusier 126). This sensory effect is what lifts mere building into architecture.

Our investigation of gadgets and devices in the home, drawn from the nineteenth and twentieth centuries, forms a kind of pre-history of the smart house. We argue that this pre-history is important for understanding the current condition and future possibilities of the latter. The trivial technologies examined here mark an uneasy meeting point between technological functionalism and aesthetic design. It is this uneasiness that is carried forward in today's smart-house, often unreflectively with inherent tensions unresolved.

6 References

Anderson, Stanford. "The Fiction of Function", Assemblage, 2 (1987): 18-31.

Blake, Peter. The Master Builders. London Gollancz, 1961

Christopher, Milbourne. The Illustrated History of Magic. New York: Thomas Crowell Company, 1973.

Colomina, Beatriz. Privacy and publicity: modern architecture as mass media. Cambridge, Mass.: MIT Press, 1994.

Dawes, Edwin. The Great Illusionists. London: Chartwell Books, 1979.

During, Simon. Modern Enchantments: The Cultural Power of Secular Magic. Cambridge, Massachusettes: Harvard University Press, 2002

Gage Stephen, "The Wonder of Trivial Machines", The Journal of Systems Research and Behaviour Science, 23 (2006): 771-778.

Gaver, Bill. Alternatives: Exploring information appliances through conceptual deign proposals.' (2000) CHI 2000 Conference Proceedings, the Hague, Netherlands.

Hamilton, Anita. "House of Dreams", Time, 11 Nov. 1997, vol 150:22.

Hulten, Pontus. Jean Tinguely: A Magic Stronger than Death. New York: Abbeville Press, 1987.

Ierley, Merritt. The Comforts of Home: The American House and the Evolution of Modern Convenience. New York" Clarkson Potter, 1999.

Iovine, Julie, "When Smart Houses Turn Smart Aleck", New York Times, 13 Jan. 2000, sec.f1:2.

Kwinter, Sanford. Architecture of Time: Toward a Theory of the Event in Modernist Culture. Cambridge Mass: MIT Press, 2001.

Le Corbusier, Précisions sur u etat present de l'architecture et de l'urbanisms, Paris: Crès et Cie, 1930.

Lewis, John. Heath Robinson: Artistic and comic genius. London: Constable,1973.

McCarty, James, "Building a High I-Q. House", The New York Times, 2 8 Oct. 1990, sec3:9.

Metzner, Paul. Crescendo of the Virtuoso: Spectacle, Skill and Self-Promotion in Paris during the Age of Revolution. Berkeley: University of California Press, 1998.

Millar, Heather, "Smart Houses: Getting Switched On", Business Week, 28 June. 1993: 128-129.

Penz, Francois and Thomas, Maureen. Cinema & Architecture. London: British Film Institute, 1997.

Robert-Houdin, Jean Eugene. The Secrets of Conjuring and Magic or How to Become a Wizard. Trans. Louis Hoffman. London: George Routledge & Sons, 1877.

Stafford, Barbara & Terpak, Frances. Devices of wonder : from the world in a box to images on a screen. Los Angeles, Calif.: Getty Research Institute for the History of Art & the Humanities, 2002

Steinmeyer, Jim. Discovering Invisibility. Burbank, California: Hahne, 2001.

Steinmeyer, Jim. Hiding The Elephant: How Magicians Invented the Impossible and Learned to Disappear. New York: Carroll & Graf Publishers, 2003.

Steinmeyer, Jim. The Science Behind The Ghost. Burbank, California: Hahne, 1999.

Tafuri, Manfredo. "Machine et memoire: The City in the Work of Le Corbusier". In H. Allen (ed) Le Corbusier. Princeton University Press, New Jersey, 1987

Time International (anonymous)"Simplifying (?) Our Lives: Talk to your thermostat, surf from the toilet, phone your fridge. And while you're at it, could you fix me a sandwich?", June 4. 2001, 157:22.

Wesley, Richard. "The Idea of a house", RES 34, Autumn (1998): 119-128.