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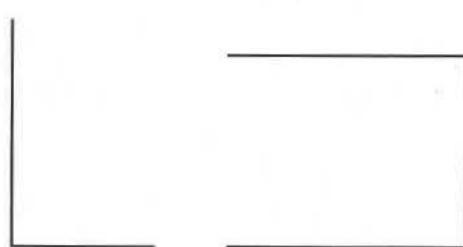
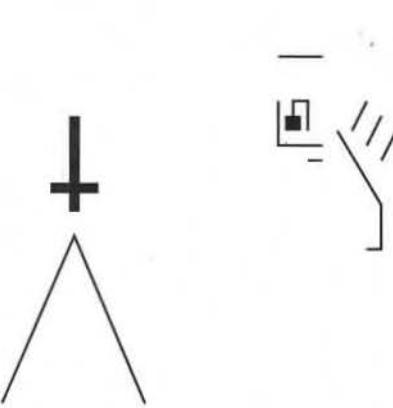
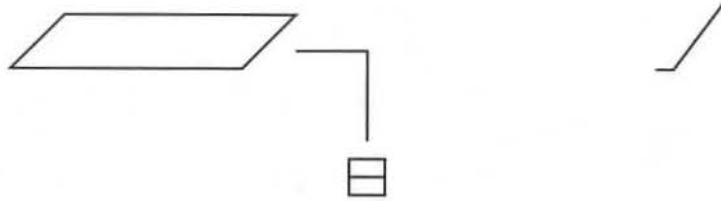
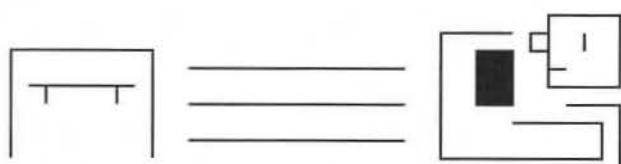


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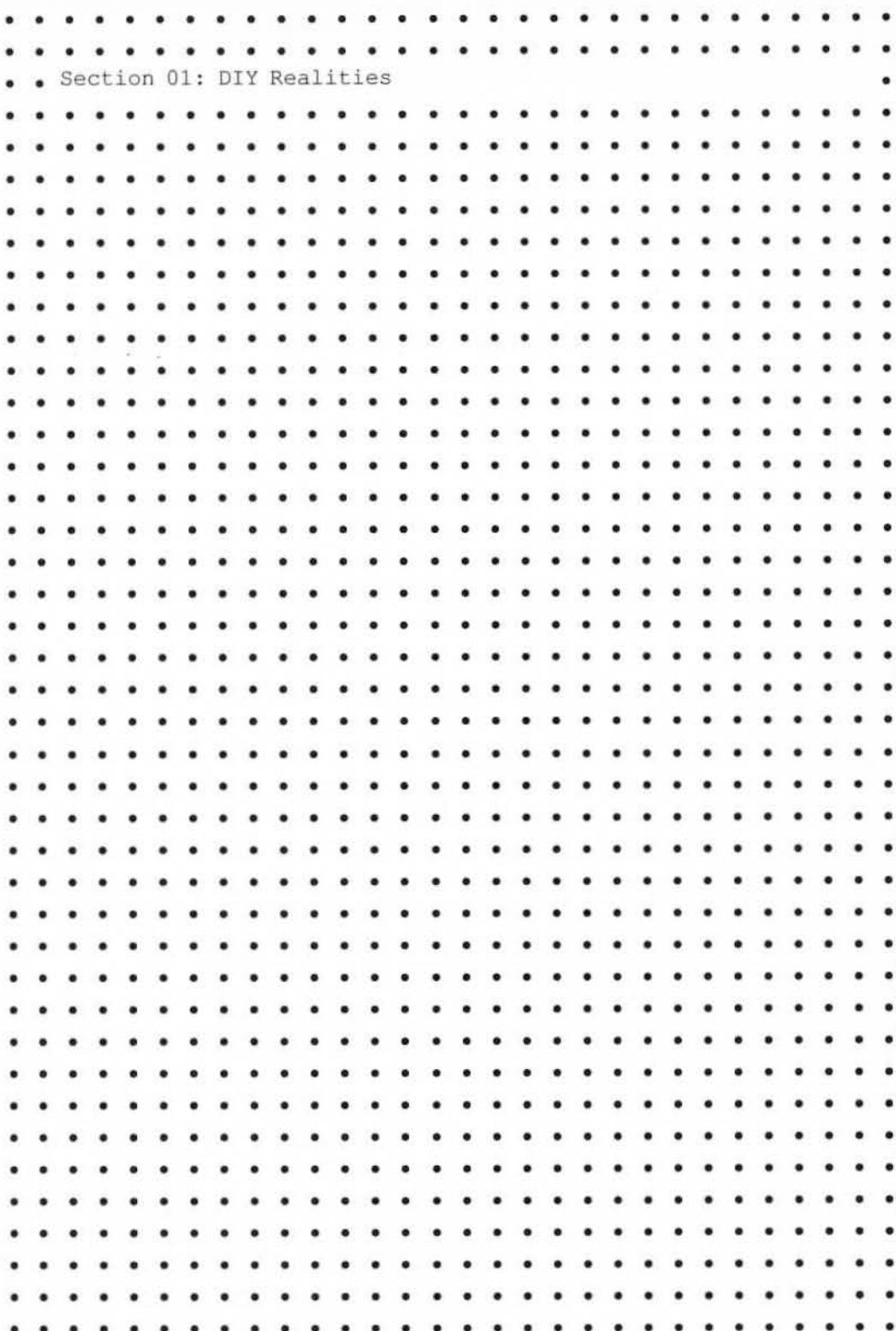
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Section 01: DIY Realities



Beneath the glossy surface of official design lurks a dark and strange world driven by real human needs. A place where electronic objects co-star in a noir thriller, working with like-minded individuals to escape normalisation and ensure that even a totally manufactured environment has room for danger, adventure and transgression. We don't think that design can ever fully anticipate the richness of this unofficial world and neither should it. But it can draw inspiration from it and develop new design approaches and roles so that as our new environment evolves, there is still scope for rich and complex human pleasure.

Corporate futurologists force-feed us a 'happy-ever-after' portrayal of life where technology is the solution to every problem. There is no room for doubt or complexity in their techno-utopian visions. Everyone is a stereotype, and social and cultural roles remain unchanged. Despite the fact that technology is evolving, the imagined products that feature in their fantasies reassure us that nothing essential will change, everything will stay the same. These future forecasters have a conservative role, predicting patterns of behaviour in relation to technological developments. They draw from what we already know about people, and weave new ideas into existing realities. The resulting scenarios extend pre-existent reality into the future and so reinforce the status quo rather than challenging it. Their slick surface distracts us from the dystopian vision of life they wish for. By designing the props for the videos produced to show us what the future could be like, design works to keep official values in place.

An occasional glance through almost any newspaper reveals a very different view of everyday life, where complex emotions, desires and needs are played out through the misuse and abuse of electronic products and systems. A mother shoots her son after an argument over which television channel to watch; a parent is outraged by a speaking doll made in China which sounds like it swears; the police set a trap for scanner snoopers – people who listen in to emergency radio frequencies illegally – by broadcasting a message that a UFO has landed in a local forest, within minutes several cars arrive and their scanners are confiscated. Many of these stories illustrate the narrative space entered by using and misusing a simple electronic product, how interaction with everyday electronic technologies can generate rich narratives that challenge the conformity of everyday life by short-circuiting our emotions and states of mind. These stories blend the physical reality of place with electronically mediated experience and mental affect. They form part of a pathology of material culture that includes aberrations, transgressions and obsessions, the consequences of and motivations for the misuse of objects, and object malfunctions. They provide glimpses of another more complex reality hidden beneath the slick surface of electronic consumerism.

Amateur subversions and beta-testers

When an object's use is subverted, it is as though the protagonist is cheating the system and deriving more pleasure than is his or her due. The subversion of function relates to a breakdown of order; something else becomes visible, unnameable, unable to find a correspondence in the material world. This subversion of function is related to not being able to find the right word, leading to the coining of neologisms that bend language to accommodate something new. Desire leads to a subversion of the

environment creating an opportunity to reconfigure it to suit our 'illegitimate' needs, establishing new and unofficial narratives.

Some people already exploit the potentially subversive possibilities of this parallel world of illicit pleasures stolen from commodified experience. They seek out (ab)user-friendly products that lend themselves to imaginative possibilities for short-circuiting the combinatorial limits suggested by electronic products. This ranges from terrorists fashioning bombs and weapons out of mundane everyday objects, many of which are listed in the Anarchist Cookbook, to Otaku magazines showing Japanese gadget geeks how to modify standard electronic products to squeeze extra functionality out of them. There are no futurologists at work here. The main players in this world are beta-testers, tweaking and adjusting reality on a day-to-day basis. They are dissatisfied with the version of reality on offer, but rather than escaping or dropping out, they adjust it to suit themselves. Concerned with software not hardware, they invent new uses for existing technologies and promote interaction with 'designed' objects that subvert their anticipated uses. In doing so, they challenge the mechanisms that legitimise the conceptual models embodied in the design of the product or system and demonstrate behaviours towards technology that invite others to follow.

Beta-testers have learnt how to derive enjoyment from electronic materiality, from rejecting the material realities on offer and constructing their own. They display a level of pleasure in customisation currently limited to home DIY and custom car hobbyists. Many specialist magazines and books are already available that show readers how to modify or tweak everyday electronic products. Most of them are a little technical, but only because knowledge of electronics is still not as common as other forms of practical know-how. After all, an ever-growing number of home improvement magazines and TV programmes thrive on the pleasure people get from modifying their environments themselves – of customising reality. Maybe in the future we will see popular electronics magazines that show us how to turn our mobile phones into eavesdropping devices in three easy steps?

Consumers as anti-heroes: some cautionary tales

The almost unbelievable stories reported in newspapers testify to the unpredictable potential of human beings to establish new situations despite the constraints on everyday life imposed through electronic objects. We are interested in people who have assimilated electronic technologies so fully into their lives that they feel comfortable doing things others would think of as almost too sacred or highly charged for technology. These individuals can be thought of as sad, based on the view that playing out deeply human narratives through technological objects is degrading and inferior to more traditional media. Or they can be seen as early adopters, able to find meaning and recognise the potential of new technologies for supporting complex human emotions and desires.

Teenagers are now using their mobile phones to intimidate each other. A new form of bullying has emerged since Christmas 1999, when a huge number of teenagers in Britain received pre-paid mobile phones as gifts. Earlier in the year, a 15-year-old was driven to suicide after receiving up to 20 silent calls in half an hour. The teenager left a suicide text message on her mobile phone the night before she died. The fact that her suicide note was in the form of a text message rather than handwritten will seem even more tragic to some, but to this girl text messages played a more vital role in her life than letters.

As a society we are struggling to define and communicate the safe use of new media to teenagers. Just as we have developed models of safe behaviour for the street and for dealing with strangers in cars, we will have to do so for phones and computers. It is not that these technologies are in themselves harmful, it is their use and misuse that we need to understand. Another distressing example is that of the 16-year-old schoolgirl raped by a man she chatted up with phone text messages. She swapped messages for weeks before agreeing to meet the stranger in a car park. For many teenagers, the mobile phone is a gateway to romance, and new hybrid services are fusing the lonely hearts column with text messaging. It is only a matter of time before purely text-based romancing matures as a genre of its own.

A more humorous example is the man in Australia who married his TV. During the ceremony, he placed a gold wedding ring on top of the TV set and one on his finger. He even promised to 'love, honour and obey' the product. One day it just occurred to him that his TV was the best companion he had ever had – he watched up to ten hours a day. It is easy to criticise people who watch so much TV, but in many ways this form of happiness shows what might be in store for the rest of us as society becomes even more electronically mediated. Though it is not necessarily a good thing, some people clearly find the company of electronic products more satisfying than that of people. These individuals are not rejecting other people because of technology; they have found happiness with technology instead. Before the advent of television and the web, they might have been lonely.

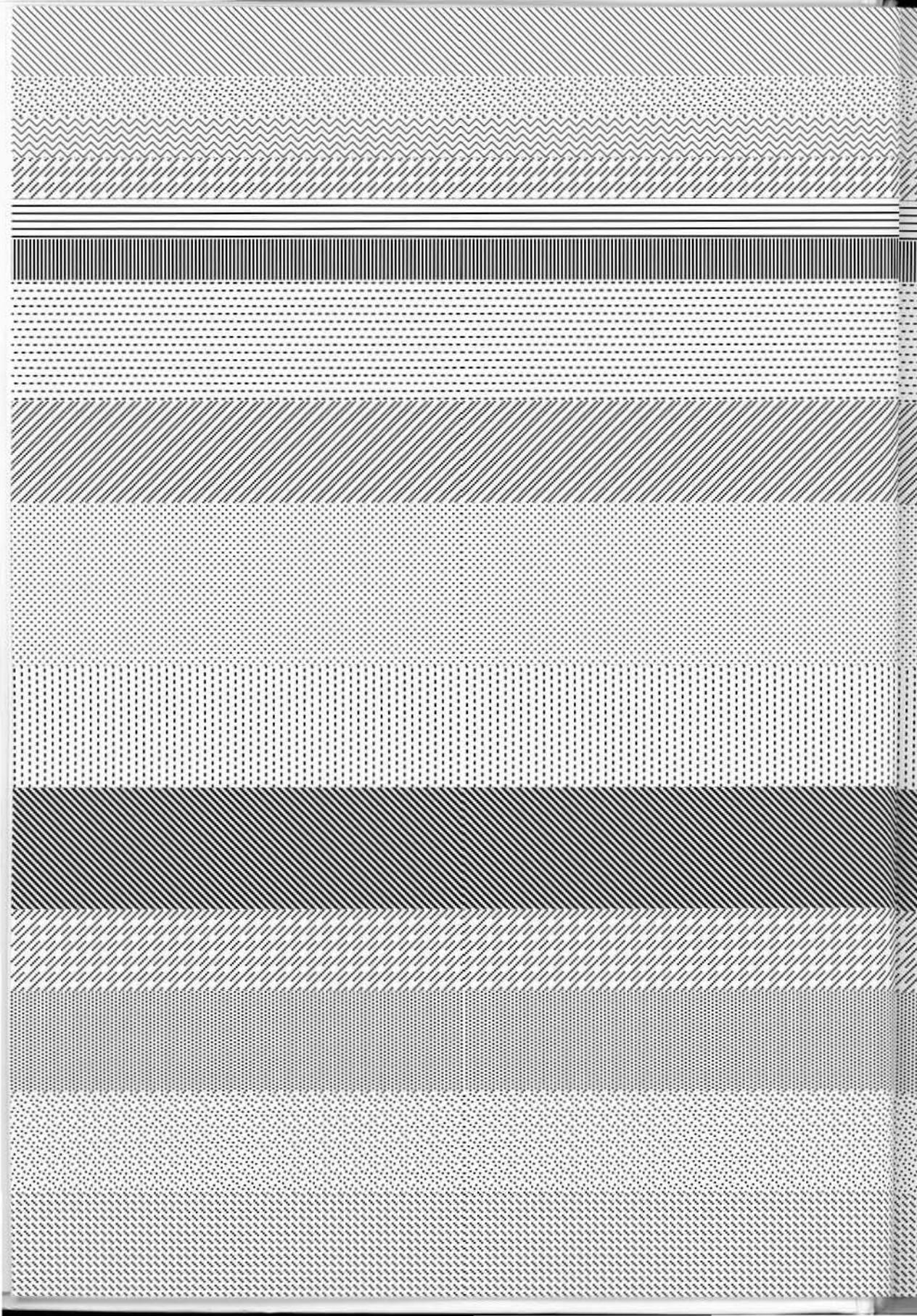
Maybe these obsessive behaviours provide glimpses of a future where electronic products have been fully assimilated into everyday culture and our psyche. They are cautionary tales; they push our relationship with the medium of electronic technology to the limit. This is despite the design of the products: in fact there is a contrast between the banal design of many electronic products and the extreme misuses they are subjected to. Products could offer more complex and demanding aesthetic experiences if designers referred to this bizarre world of the 'infra-ordinary', where stories show that truth is indeed stranger than fiction, and prove that our experience of everyday life lived through conventional electronic products is aesthetically impoverished.

When objects dream...

Electronic objects, from mobile phones to washing machines, are often described as 'smart'. But using this term to describe objects with enhanced electronic functionality encourages a bland interpretation of the things that are an integral part of our daily lives. Electronic objects are not only 'smart', they 'dream' – in the sense that they leak radiation into the space and objects surrounding them, including our bodies. Despite the images of control and efficiency conveyed through a beige visual language of intelligibility and smartness, electronic objects, it might be imagined, are irrational – or at least they allow their thoughts to wander. Thinking of them in terms of dreaminess rather than smartness opens them up to more interesting interpretations.

The dreams of electronic objects are made from electromagnetic radiation. These dreams radiate outwards from the object, creating a new, invisible but physical environment that we call hertzian space. It is here that the secret life of electronic objects is played out, secret not only because we rarely glimpse it, but also because we are only just beginning to understand it. The electromagnetic spectrum covers an enormous spread of frequencies, ranging from the fields given off by electrical wiring (50 Hz),

Love
Honour
and
Obey



Cosmic Rays

Gamma Rays

X-rays

Ultra-violet

Visible Light

Infra-red

Radio Waves

300 GHz Extremely High Frequency

Earth and Space Exploration

30 GHz Super High Frequency

Traffic Radar

Radio Navigation

3000 MHz Ultra High Frequency

Bluetooth

Civilian Global Positioning Satellites

Microwave Ovens

Mobile Phones

UK TV

300 MHz Very High Frequency

Radio controlled model aircraft

Illegal Bugging Devices

Baby Intercoms

30 MHz High Frequency

Short Wave Radio

CB radio

Vehicle Alarms (radio keys)

3000 KHz Medium Frequency

Medium Wave Radio

300 KHz Low Frequency

Long Wave Radio

Radio Astronomy

30 KHz Very Low Frequency

Natural Radio (Whistlers)

3 KHz Electric Waves

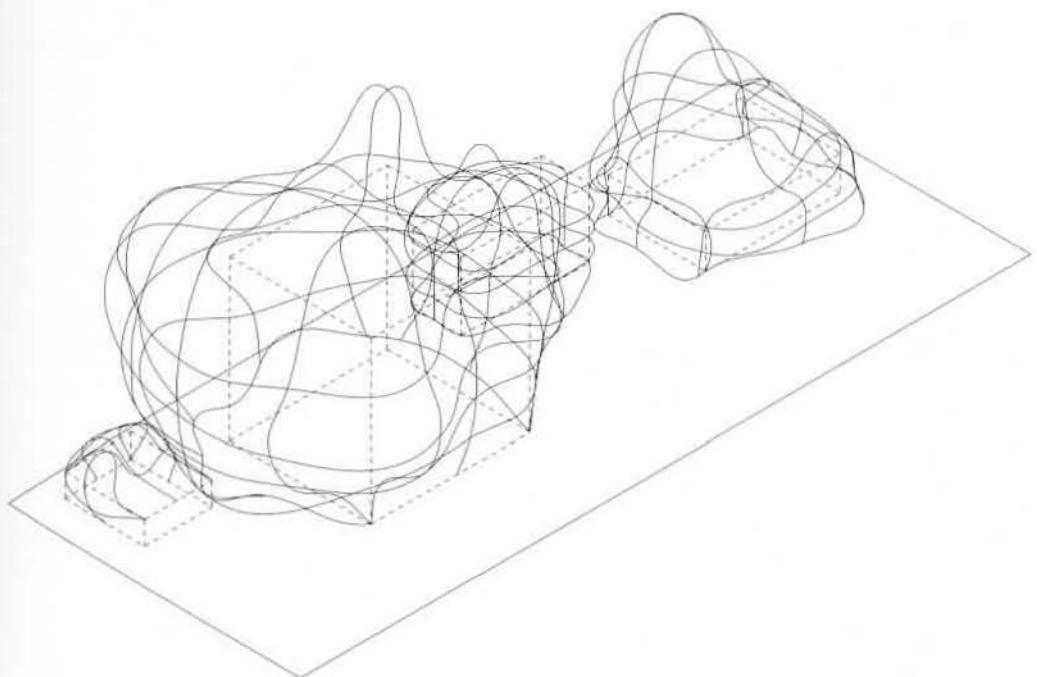
through the different radio frequencies (LW, MW, SW), into the region used by TV (UHF, VHF), radar, mobile phones, microwave ovens and satellites, on to infra-red (TV remotes), then into visible light, and finally x-rays and beyond. Our sense organs function as transducers, converting environmental energy into neural signals, but they cannot transduce radio waves or other wavelengths outside the narrow bandwidth of visible light and infra-red energy, which is sensed through the skin as warmth.

When we look at a television set or a computer, we are aware only of what is radiated at the frequency of visible light, what we can see. In fact, every electronic object is spread over many frequencies of the electromagnetic spectrum, some of them visible, others not. If our eyes could see (or tune into) energy of a lower frequency, these objects would not only appear different, but their boundaries would extend much further into space, interpenetrating other objects that would be considered discrete at the frequency of light. All electronic objects are a form of radio, hybrids of radiation and matter. Objects not only 'dematerialise' metaphorically, in response to miniaturisation and replacement by services, but literally dematerialise into radiation.

The extra-sensory nature of electromagnetic fields often leads to the EM spectrum being treated as something notional. But while cyberspace is a metaphor that spatialises what happens in computers around the world, hertzian space is real. Cyberspace describes what lies beyond the screen (or electronic object), a virtual world accessed through electronic devices, where computer games are played and the internet is surfed. Hertzian space describes what happens in front of the screen, outside of the object, it is part of the space our bodies inhabit, even though our senses detect only a tiny part of it.

Hertzian space is considered a medium for carrying information, an invisible alternative to wires and cables. People normally only become aware of it when they use their mobile phones, listen to the radio or watch TV. But in fact, it is all around us: like light, electromagnetic radiation is emitted by some objects, reflected by others and absorbed by others again. Hertzian space is three-dimensional and spatial. It is an environment that needs to be fully understood if it is to be made habitable. As the spectrum becomes better understood, it will begin to shape architecture and other objects. Buildings will evolve to provide shelter from it, filter it, furnish views and allow for privacy. Just as different building types evolve in relation to specific climatic conditions, so too will new building typologies evolve in response to different electro-climatic conditions.

Electromagnetic waves radiating from a telephone,
a computer, a printer and a fax machine, p.12



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• Section 02: Hertzian Space
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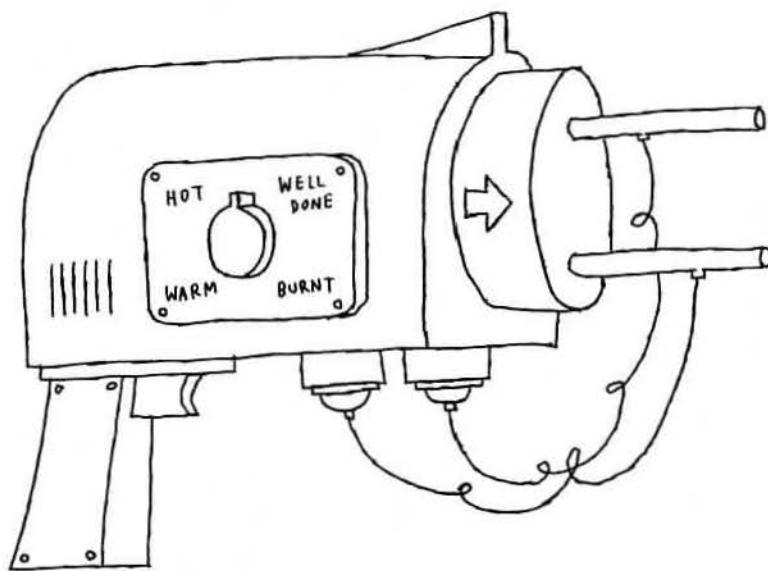
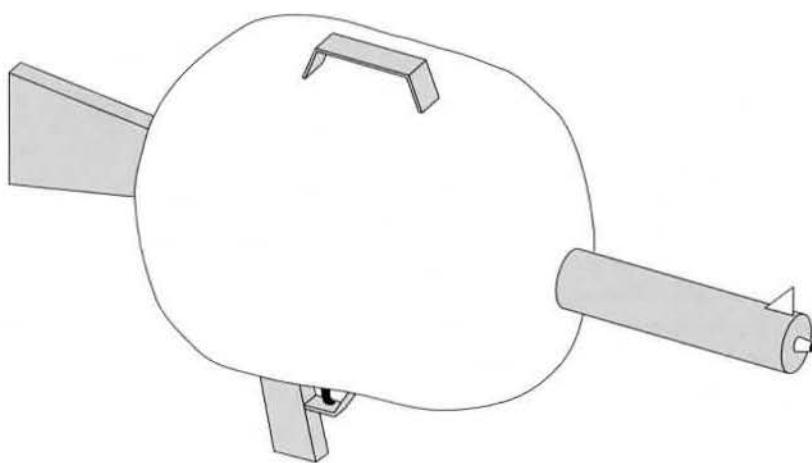
Nowhere to hide

As designers, we are interested in the interaction between devices, hertzian space and the imagination. We prefer to think of the electromagnetic spectrum as an inhabitable landscape, with its own electroclimate and electrogeography. But like other 'natural' environments, the electromagnetic spectrum is constantly under threat from commercial over-development. Unsurprisingly, industry views hertzian space solely as something to be bought and sold and commercially developed for use in broadcasting and telecommunications. The spectrum is highly regulated by the state and nearly all uses of it require a license – unauthorised use is viewed as trespassing. The high value of electromagnetic real estate has encouraged the government to explore radical plans to raise billions from the part privatisation of the spectrum. If these plans go through, it will revolutionise the allocation of spectrum to media, telecommunications and public sectors. Not-for-profit and community-based organisations will find it more and more difficult to compete for access with aggressively commercial companies.

The electromagnetic spectrum underwent intense militarisation during the twentieth century. Enormous parts of it are reserved for military communications, and extensive research has led to EM weapons such as the controversial non-lethal 'ray gun', which makes victims feel as if their skin is burning even though it is not. However, it is the efforts being made to render the EM spectrum totally transparent that are most disturbing. There are several ongoing debates about the extent to which governments should be allowed to eavesdrop on ordinary citizens' electronic communications. The European Union, for example, is seriously considering the idea that all electronically mediated communications should be stored for seven years to aid policing, but probably the most alarming use or, more accurately, mis-use of the spectrum by governments is Echelon, a global spy system established by the US National Security Agency (NSA) in 1948. Other partners in the project are the Government Communications Head Quarters (GCHQ) of England, the Communications Security Establishment (CSE) of Canada, the Australian Defence Security Directorate (DSD) and the General Communications Security Bureau (GCSB) of New Zealand. Echelon consists of listening posts positioned all over the globe which can monitor and analyse practically any fax, e-mail or phone call sent anywhere in the world. As information is gathered it is processed by the vast NSA computer system, any words that match a special Echelon dictionary are flagged. When a key word is found, the message is transcribed and kept for future reference.

The government monopolisation of the EM spectrum is taken to the extreme in Craig Baldwin's cult film *Spectres of the Spectrum* (1999). The film, an idiosyncratic take on media archaeology, plunders

Foam gun (top), drawn by Jon Hares,
Ray gun (bottom), drawn by Tom Gauld, p.15



the electromagnetic imaginary for its material. It mixes spiritualism, mesmerism, telepathy and time travel with a potted history of the use of electromagnetism for communications, weapons and medicine, and features characters such as Tesla, Alexander Graham Bell and Wilhelm Reich. Set in 2007, the film uses a montage of sound, live action and clips from a 1950s educational TV programme called Science in Action to tell the story of Booboo, a telepathic woman who travels back through radio space to find a coded message inserted in the airwaves by her grandmother. The message holds the key to overthrowing the New Electromagnetic Order (NEO) and their complete corporate colonisation of the imagination through a misuse of HAARP, the High Frequency Active Auroral Research Program set up by the US Air Force and the US Navy in 1993 in order to 'understand, simulate and control ionospheric processes that might alter the performance of communication and surveillance systems'.

The reality is not so dramatic. Now that so many of us are connected to the spectrum through mobile phones, it is becoming a convenient medium for the state to communicate with its citizens and sometimes monitor them. At one point, the UK government planned to send text messages to the mobile phones and pagers of unemployed people to test their basic maths and English skills. If they did not score highly enough, they would be asked to do a course or face a reduction in their benefits. It is not all one-way though: in the UK, many first-time voters expressed a desire to vote using their phones, and many people who did not vote in the last general election said they would have done if they could have used their mobile phones. It was widely reported that more people voted to eliminate contestants in the reality TV programme Big Brother than voted for the ruling Labour Party in the last election.

A more imaginative application, borrowed from the Amsterdam police force, is to send 'text bombs' to stolen mobiles so that they are unusable. After an owner reports their GMS phone stolen, the police start sending text messages every minute:

17:56pm	Menu
THIS HANDSET IS	
STOLEN, BUYING OR	
SELLING IT IS A CRIME	
- THE POLICE	
Back	

The messages are sent by a computer system specially designed for the police. The system can still work even if the handset's Subscriber Identity Module (SIM) card is removed, as it uses the phone's International Mobile Equipment Identity Number to track down the mobile phone number currently being used on the phone.

An early hint of the UK Labour Party's fascination with mobile technology and the EM spectrum was shown when politicians used their pagers to receive information during parliamentary exchanges at the dispatch box. A team of researchers working in the party's 'rebuttal' unit at their Millbank headquarters in London would search a database of opposition politicians' quotes and statements for information related to specific questions. So when a researcher discovered that a Tory backbencher who had asked

the Prime Minister a question about the insurance industry was a paid consultant to the Institute of Insurance Brokers, this fact was passed on to a Labour MP via his pager. Tory MPs seemed more upset by the way the politician read directly from his screen than by the use of the pager. This is an example of the spectrum being used as a sort of central nervous system, controlling the different limbs of the party.

Another use of spectrum as a nervous system, though on a rather larger scale, was recently discovered by scientists at Roke Manor Research Laboratories. They have developed a way of using the network of cellular phone masts to detect stealth bombers, which were designed not to show up on radar screens. The mobile phone network only exists when it is actually being used: it is like a sensitive skin stretched over the country, woven from the signals linking callers to base stations and each other. By measuring any loss of signal strength occurring through absorption by a foreign body, such a computerised nervous system can detect where it has been touched. Specially developed devices and software can sense the distortions and deflections in the telecommunications network created by bombers flying over the UK, right through the network. The advantage of this system over radar is that the entire network would have to be destroyed in order for it to be disabled, which would mean flattening the whole country.

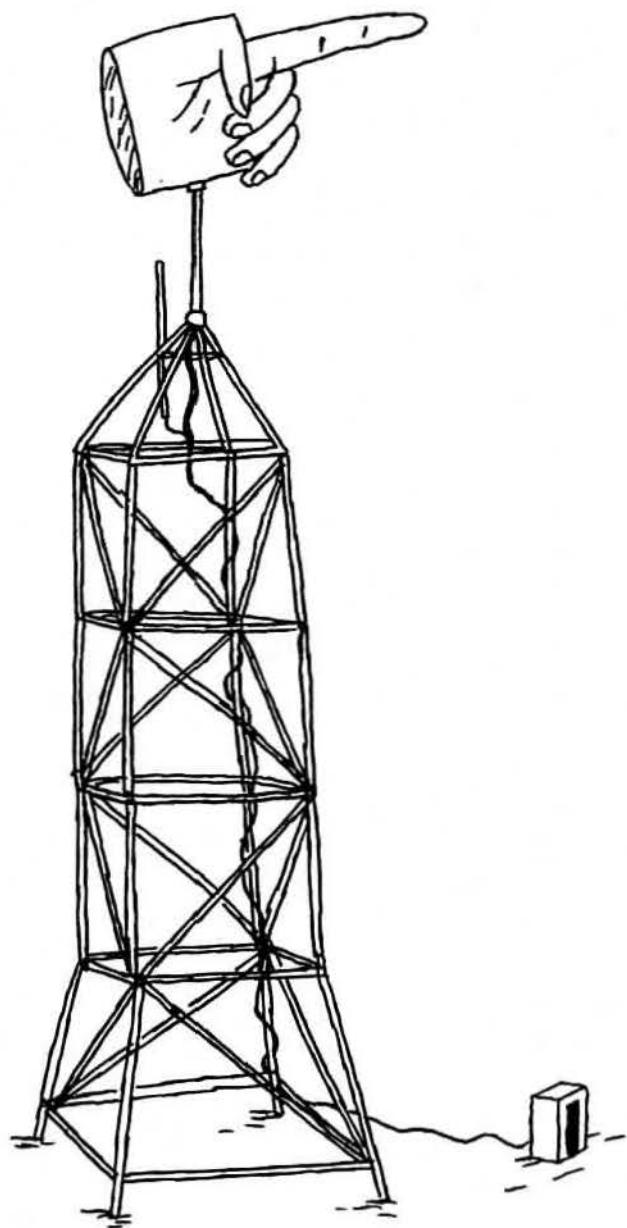
Spectral geographies

Although we cannot sense electromagnetic radiation, it is actual and very real, and interacts with the physical world to produce a new in-between landscape of shadows and hotspots we call an electrogeography. This hybrid landscape connects with rural and urban landscapes in a variety of different ways. Computer models produced by telecommunication research laboratories show how radio waves interact with the urban environment, and demonstrate clearly how hertzian space sits within the physical realm.

Different regions are now recognised as having different electrogeographies with specific features. For example, experiments to test the effectiveness of electronic tagging for criminals were conducted in three different locations: Manchester was chosen as an inner city area with numerous high-rise buildings, Norfolk because of its widely dispersed population and flat terrain, and Reading because it is a low-rise town with a highly developed technological infrastructure. The assumption was that high-rise buildings would block signals and create shadows, flat terrain would allow signals to travel freely over great distances and a dense technological infrastructure might generate electronic interference.

Tools developed for visualising the spectrum can also help us to understand hertzian space as a real landscape. Situated in an electrically quiet location 60 km north of London, the Baldock Radio Station operates 24 hours a day, 365 days a year, monitoring the spectrum. Although its main purpose is to track down sources of interference, it also helps the Radiocommunications Authority to identify rogue broadcasters. The station can monitor activity on any part of the radio spectrum, outputting the results as 'waterfall' charts. In these images consisting of offset layered snapshots taken over a period of time, the spectrum is portrayed as a landscape. Radio stations appear as regular, permanent features in the landscape, while rogue stations zigzag through the spectrum, trying to avoid detection.

Stealth bomber detector, drawn by Tom Gauld, p.18





The hertzian landscape even has its own natural preserves. In the US, West Virginia state legislature uses the Radio Astronomy Zoning Act to create a National Radio Quite Zone. This 13,000 square mile area is designed to be an electromagnetic sanctuary, relatively free from electromagnetic pollution. Situated close to the state border between Virginia and West Virginia, the zone is shielded from the nearest city by a mountain range, there are no high-powered radio or TV stations nearby and only a few electric power transmission lines pass through the landscape. Commercial airlines do not fly overhead, so there are no radar signals, and heavy trucks and buses are only allowed to pass on the other side of the mountains. The NRQZ was established by the Federal Communications Commission in 1958 to minimise the risk of interference to the National Radio Astronomy Observatory located at Green Bank. The area is also home to listening post run by the US Navy at Sugar Grove, which was once intended to be the site for the world's biggest bug. Even today, the area is still shrouded in secrecy.

Electrosmog

Electronic objects are disembodied machines with extended invisible skins. They couple and decouple with our bodies without us knowing. Working on microscopic scales, often pathogenic, many electromagnetic fields interfere with the cellular structure of the body. Paranoia accompanies dealings with such hertzian machines. How do they touch us? Do they merely reflect off our skin, or the surface of our internal organs? In other words, do they merely 'see' us, or can they 'read' us too, extracting personal information about our identity, status, and health?

Vatican Radio broadcasts the Pope's speeches and events to the furthest corners of the world in 40 languages via a forest of 58 antennae located at Santa Maria di Galeria near Rome. Following concern at

the disproportionately high incidence of leukaemia in children living near the transmitter site, in March 2001 the Italian Environment Minister charged three senior officials of the radio station with exceeding Italian laws on electromagnetic emissions. The Vatican denied causing a health hazard, and only agreed to reduce the number of transmissions as a goodwill gesture after the government threatened to cut off the electricity supply to its radio station. As the Vatican enjoys the legal status of an independent city-state, its lawyers also claimed immunity from Italian laws in this case, and argued that the station's emission levels did comply with the less stringent international standards. This fusion of religious content, electromagnetic space, health concerns and government regulations is a particularly colourful example of struggles occurring all over the developed world between large corporations, governments and increasingly concerned citizens.

The rapid expansion of uses for the electromagnetic spectrum has resulted in a new form of pollution, or electrosmog. Many different organisations exist to raise awareness of these issues, from the official, like the FEB (The Swedish Association for the Electro-sensitive) to the grassroots, like the EMF Guru website. There are also specialist centres such as the Breakspear Hospital in England, which specialises in treating environmental illnesses, including hypersensitivity to electromagnetic fields. But much of the information available on the effects of electromagnetic pollution is quite technical and difficult to understand. Powerlines (1997), a poetic documentary film by Helen Hall, uses dance and music to examine the mystery of electromagnetic fields, the promise of new energy, and the dangers of electromagnetic pollution. It is an artistic interpretation of a scientific area and introduces the topic to an audience who otherwise might be alienated by the technical subject matter. Located on the edge of a global electronic culture, it explores the shifts beginning to occur in the ways we relate to our environment, especially when we have to move beyond our senses:

'As the environment becomes flooded with electromagnetic radiation, all our senses are swamped with energy and information. While the entire world becomes electrified we are being overloaded by a vast world of electronic images, lights, and sounds, as huge amounts of information travel around the world at the speed of light and interact with the millions of electrical processes in every living cell of our bodies.'

Helen Hall, from the script of Powerlines.

The uncertainty about the effects of electro-pollution has resulted in a plethora of companies producing and selling protective devices, many of which seem highly unscientific. One company called LessEMF manufactures and sells protective underwear via the internet under the category of personal protection devices:

'Gain control of your inner environment – very sheer, comfortable undergarments you can wear over your regular underwear to shield yourself from powerline and computer electric fields, and microwave, radar, and TV radiation. This silver-plated, stretchable, washable nylon mesh is electrically conductive. It reflects radiation. Plus you won't get those static shocks as you used to in dry weather and your clothes won't cling to you! Fabric provides up to 35 dB of shielding at 100 MHz. Made in USA. Surround what you want to protect!'

<http://www.lessemf.com>

the disproportionately high incidence of leukaemia in children living near the transmitter site, in March 2001 the Italian Environment Minister charged three senior officials of the radio station with exceeding Italian laws on electromagnetic emissions. The Vatican denied causing a health hazard, and only agreed to reduce the number of transmissions as a goodwill gesture after the government threatened to cut off the electricity supply to its radio station. As the Vatican enjoys the legal status of an independent city-state, its lawyers also claimed immunity from Italian laws in this case, and argued that the station's emission levels did comply with the less stringent international standards. This fusion of religious content, electromagnetic space, health concerns and government regulations is a particularly colourful example of struggles occurring all over the developed world between large corporations, governments and increasingly concerned citizens.

The rapid expansion of uses for the electromagnetic spectrum has resulted in a new form of pollution, or electrosmog. Many different organisations exist to raise awareness of these issues, from the official, like the FEB (The Swedish Association for the Electro-sensitive) to the grassroots, like the EMF Guru website. There are also specialist centres such as the Breakspear Hospital in England, which specialises in treating environmental illnesses, including hypersensitivity to electromagnetic fields. But much of the information available on the effects of electromagnetic pollution is quite technical and difficult to understand. Powerlines (1997), a poetic documentary film by Helen Hall, uses dance and music to examine the mystery of electromagnetic fields, the promise of new energy, and the dangers of electromagnetic pollution. It is an artistic interpretation of a scientific area and introduces the topic to an audience who otherwise might be alienated by the technical subject matter. Located on the edge of a global electronic culture, it explores the shifts beginning to occur in the ways we relate to our environment, especially when we have to move beyond our senses:

'As the environment becomes flooded with electromagnetic radiation, all our senses are swamped with energy and information. While the entire world becomes electrified we are being overloaded by a vast world of electronic images, lights, and sounds, as huge amounts of information travel around the world at the speed of light and interact with the millions of electrical processes in every living cell of our bodies.'

Helen Hall, from the script of Powerlines.

The uncertainty about the effects of electro-pollution has resulted in a plethora of companies producing and selling protective devices, many of which seem highly unscientific. One company called LessEMF manufactures and sells protective underwear via the internet under the category of personal protection devices:

'Gain control of your inner environment – very sheer, comfortable undergarments you can wear over your regular underwear to shield yourself from powerline and computer electric fields, and microwave, radar, and TV radiation. This silver-plated, stretchable, washable nylon mesh is electrically conductive. It reflects radiation. Plus you won't get those static shocks as you used to in dry weather and your clothes won't cling to you! Fabric provides up to 35 dB of shielding at 100 MHz. Made in USA. Surround what you want to protect!'

<http://www.lessemf.com>

LessEMF also sells scientific meters for measuring different kinds of radiation, but the underwear is particularly interesting because these items illustrate a new and different idea of comfort. They might not be physically comfortable, but they obviously offer psychological protection for the wearer. It is as if the manufacturer and buyers of these products realise that we need to start developing objects that redefine our relationship to this new environment. However, many of the objects available now are not so convincing, and come across as slightly paranoid.

Radiant objects

Pathological products based on paranoia or eccentricity often reveal more about the aesthetic possibilities of this new space than more conventional objects. Many devices designed to make private situations and information public depend on the 'leakiness' of electronic objects, tuning into the dreams of radiant products. The 'computer intercept system' sold by the Surveillance Technology Group is an excellent example.

'Without entering the premises, electromagnetic radiating from unshielded computer screens and ancillary equipment can be intercepted from a remote location. The Computer Intercept System's highly sensitive receiver logs all radiating signals into its 100 channel memory. These emissions are then stabilised, processed and reassembled into clear reproduction of the intercepted data onto its built-in monitor.'

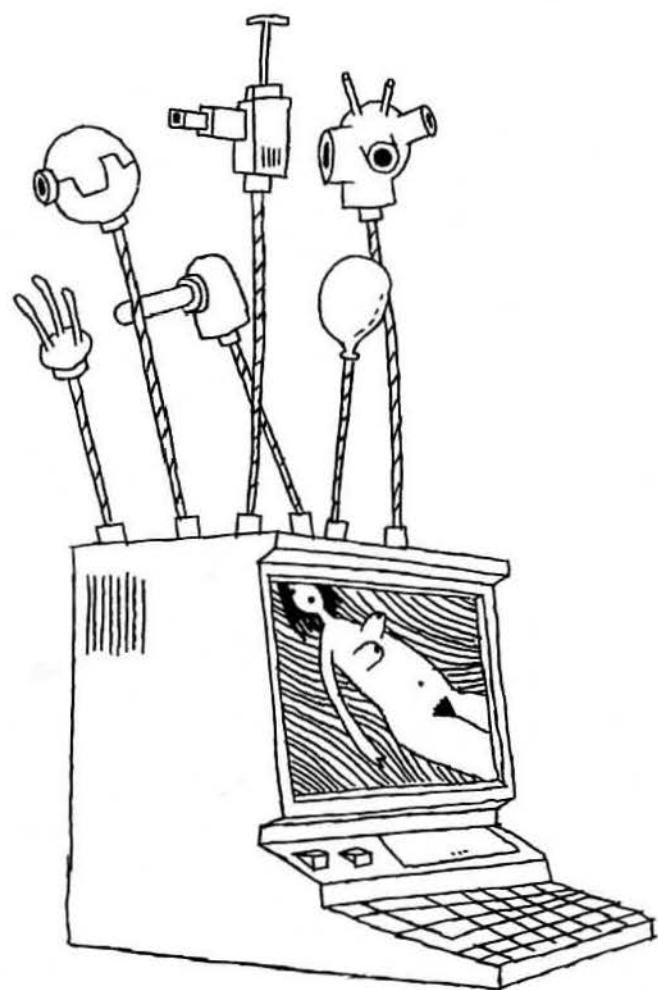
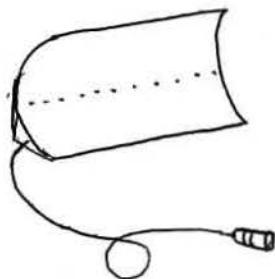
Surveillance Technology Group brochure

The realisation that computers leak has led to a radically different way of thinking about electronic products compared to non-electronic objects. In 1985, Dutch scientist Wim van Eck published a paper which caused a panic within the US government and was immediately classified. Wim van Eck proved that computer VDUs emitted electromagnetic radiation similar to radio waves and that they could be intercepted. This surveillance technique has become known as Tempest monitoring. Tempest stands for Transient Electromagnetic Pulse Standard. It is the standard by which the US government measures electromagnetic computer emissions and details what is safe (allowed to leak) from monitoring. It is also sometimes called van Eck monitoring or van Eck phreaking.

This electromagnetic leakiness gives rise to some very interesting issues to do with privacy, territory and the edges or boundaries of one's own identity, space and objects. Many of the most interesting debates in this area are taking place in the field of law. In 1992 police in California scanned a house using a thermal imaging device. The scanner showed that the building was generating excessive heat, and on the basis of this information, the tenant's electricity records and the testimony of an informant, the police obtained a search warrant. Inside the house, they found more than 100 marijuana plants growing under high-intensity lights.

In court, the defendant's lawyers claimed that by using a thermal imaging device the police had 'entered' his home, and should therefore have applied for a search warrant beforehand, just as they would have to if they were to physically enter the house. The prosecution countered that the defendant's home had 'leaked' into the street, and no privacy laws were violated. The issue was summed up by one

Tempest computer monitoring and interception system, drawn by
Rei Terao (top) and Tom Gauld (bottom), p.22



academic when he asked: 'Does this (scanner) take someone from outside (a home) and put them in or take information from inside and take it out?'

The US government compared the scanning to watching a house from the outside, which does not require a warrant. The US Solicitor General's Office wrote: 'Thermal imagers do not literally or figuratively penetrate the home and reveal private activities within... Unlike a hypothetical sophisticated X-ray device or microphone that could perceive activity through solid walls observations that would amount to searches, a thermal imaging device passively detects only heat gradients on exterior surfaces.' Another example of attempts to legally define ambiguous private and public boundaries within hertzian space occurred when a man was imprisoned on the basis of material picked up by a neighbour on his cordless phone. The court ruled that no one had invaded his privacy, as by using a cordless phone he had 'no reasonable expectation of privacy'.

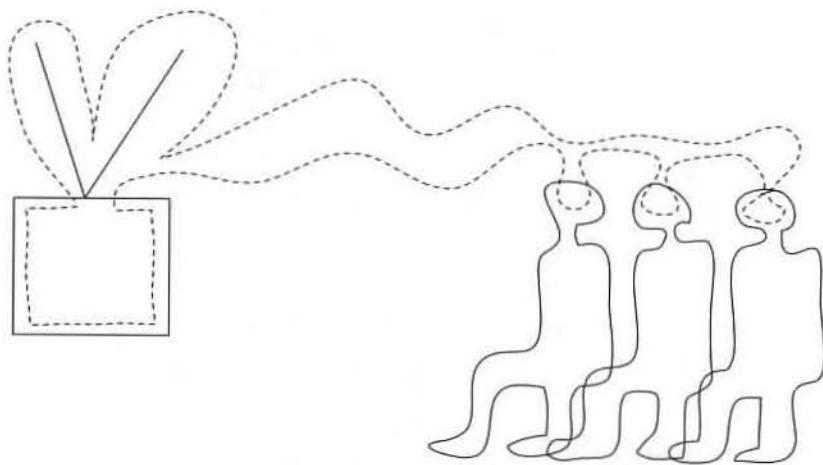
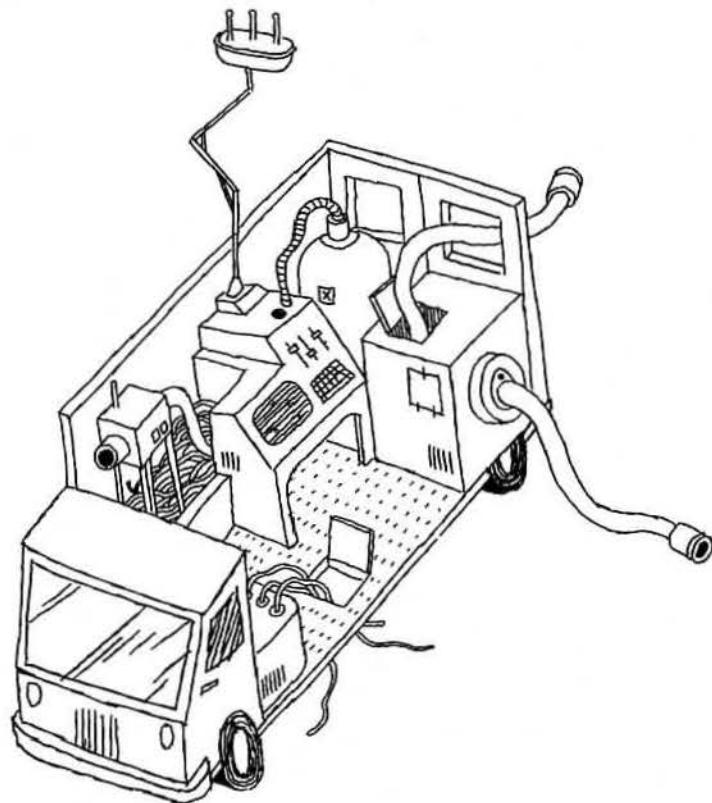
In Britain, television licensing authorities exploit the semi-mythic status of TV detector vans, as license inspectors cannot physically enter your house to check if you own a TV set or not without your permission. No one seems to know how these vehicles, which supposedly roam the city cross-referencing TV signals, addresses and TV license data, work, or if they even exist. As we begin to redefine inside and outside legally in relation to leaky products and devices, the question of how these devices actually work could become very important. Do they 'enter' our homes? Or do the electronic objects in our homes 'leak' into the street? These examples show that even such basic concepts as inside and outside are redundant when we start to talk about inhabiting hertzian space.

It is not just the difference between inside and outside, private and public, that is causing difficulties. Defining the exact moment when a piece of digital information becomes yours is also proving elusive. A Canadian police anti-pornography unit claimed that possession of computer pornography occurs when an image is saved on a computer's hard drive or a diskette. Most people have no idea what is being saved to their hard drive: the computer can make a copy of an illegal picture and save it to disc when a person is just peeking at an illegal image out of curiosity but has no intention of downloading it. It has still not been determined whether or not a person is guilty of possession of illegal pornography if it has been inadvertently saved to their hard disc without their knowledge.

The growing awareness that computers radiate is also beginning to influence the way we think about them in relation to our bodies. After one of our lectures, a woman approached us with a story. When her father died, she decided to clear out all his belongings. She found a new home for everything except his computer. He had spent so much time sitting in front of it working, that she felt he had somehow exchanged energy with it, she felt as though some of his energy or radiation had become mixed up with the computer's radiation. She could not bring herself to get rid of his computer, and ended up with a slightly spooky situation she did not know how to resolve. The house was completely empty accept for one room where the computer sat on the floor in a corner.

As awareness of the existence of electromagnetic fields grows, our notions of the 'haunted' might begin to evolve in new directions, as well. In *The Ring* (1998), a film by Hideo Nakata, a mysterious video cassette transmits a psychic virus to anyone who watches it. Within ten minutes of the film ending, the telephone rings, and unless the tape is passed on to someone else, the person dies within seven days. In a way, you could say that the haunted house has been superseded by the haunted product. Ghosts move

TV detector van, drawn by Tom Gauld (top) and Anthony Dunne (bottom), p.24



tv license detection telepaths training (they work in threes to avoid disputes)

through the magnetic fields and electronic workings of video cassettes, video players, TVs and the telephone system rather than hallways and cellars. There is something poetic about the idea of a ghost existing in a magnetic medium, breaking into everyday life through products that shape and transform the very same media.

Lawyers, criminals and the superstitious are already aware of these issues, designers and architects need to explore them too. Not just by finding new ways of exploiting the electromagnetic spectrum as a medium, but by defining and giving tangible expression to new thresholds between inside and outside, public and private, mine and yours, within a cultural context.

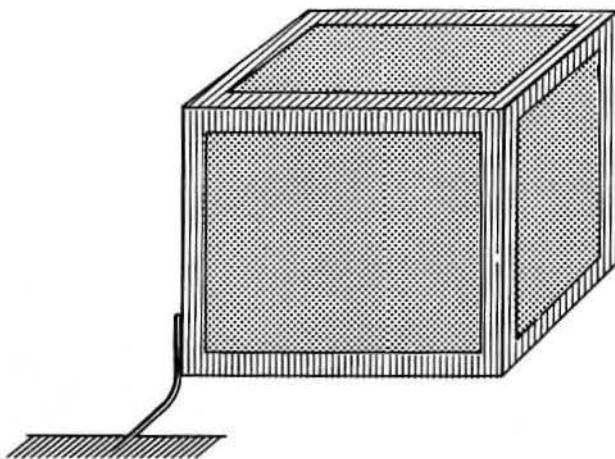
Immaterial sensuality

As a result of these changing notions and shifting boundaries, a whole host of technologies, devices and materials have been developed to offer protection or shelter from the spectrum. These objects and materials could be defined as 'radiogenic', that is they interact directly with electromagnetic waves, either reflecting energy, converting it or diverting it. Radiogenic objects and materials function as unwitting interfaces between the abstract space of electromagnetism and the material culture of everyday life, revealing unexpected points of contact between them. This fusion of the immaterial and sensual can generate some intriguing situations, objects and aesthetic possibilities.

The challenge today is not to create electronic space, but electronic-free space. The extent of hertzian space is reflected in the difficulty of finding electromagnetically unpolluted parts of the globe as sites for intelligence gathering 'antenna farms' and the use of Faraday cages to create 'empty' zero-field spaces for isolating sensitive equipment. A modern war is won by the side that best exploits the electromagnetic spectrum, denying the enemy its effective use and protecting friendly electromagnetic systems against electronic attack. In order to prevent electronic eavesdropping, many office buildings are now designed to function as Faraday cages, utilising electromagnetic shielding materials throughout the structure. Ceramic conductive coatings or fine blackened copper wire meshes are laminated in glass to create 'datasafe' windows. The same technology is used to protect sensitive equipment inside buildings from bursts of external radiation.

As electronic products escape their cases and leak into the space surrounding them, it might become necessary for us to seek shelter in specially constructed non-radio spaces, or negative radios. With the Faraday Chair (1998), for example, we used a conductive ceramic coating to shield the occupant. This utilitarian shelter of minimum dimensions and comfort might even be a retreat, a new place to dream, away from the constant bombardment by the radiation of telecommunications. We just do not know what the real effects of the new space that has been constructed are, but to completely shield our homes is a luxury only the rich could afford.

Antenna test-sites and other specially designed technical environments like anechoic chambers are used to measure an object's 'leakiness' in order to predict its effect on other objects. The complexity and specificity of these spaces show just how difficult it is to create fully-shielded environments. Most protective environments concentrate on blocking only particular wavelengths. In City of Façades (2001), architect Oliver Michell has developed a range of prototype Faraday Curtains that make use of



this shielding technology. His project proposes a new settlement populated by radio enthusiasts broadcasting opinions and (dis)information from a very dense site in Berlin. The city's fabric consists of a layering of protective surfaces, or façades, which protect broadcasters from the electromagnetic waves generated. In the true spirit of radio hams, the city is to be assembled by its inhabitants themselves, using a selection of designed parts and a set of construction guidelines.

Most of the materials Michell has chosen to focus on are familiar elements of domestic surface decoration such as wallpaper and net curtains, modified to filter out electromagnetic fields. His Faraday Curtains consist of readily available domestic net curtains soaked in clear resin before being vacuum metalicised with copper. Although a design proposal, this project is intended to be technically feasible. For instance, the lace used for the curtains was checked to ensure the holes were of a suitable dimension to shield against short wave radio waves. The final result expresses a hertzian domesticity, acknowledging the need for privacy and homeliness while providing psychological and physical protection from electromagnetic fields.

A different approach to shelters was explored by another architect, Pedro Sepulveda-Sandoval, as part of his ongoing research into digital shelters for the scanscape. His kit for making temporary zones of privacy consists of specially made tape with the words 'digital shelter' printed on it and a waveshield mobile phone jammer. When the electromagnetic shelter is set up, the only visible indication of its existence is a taped rectangle marking the functional limits of the phone jammer. This project very clearly demonstrates the environmental qualities of electromagnetic fields: when somebody steps inside the taped boundary, their mobile phone stops working. It is as though they have stepped into an invisible shelter that prevents telephone signals from penetrating its walls.

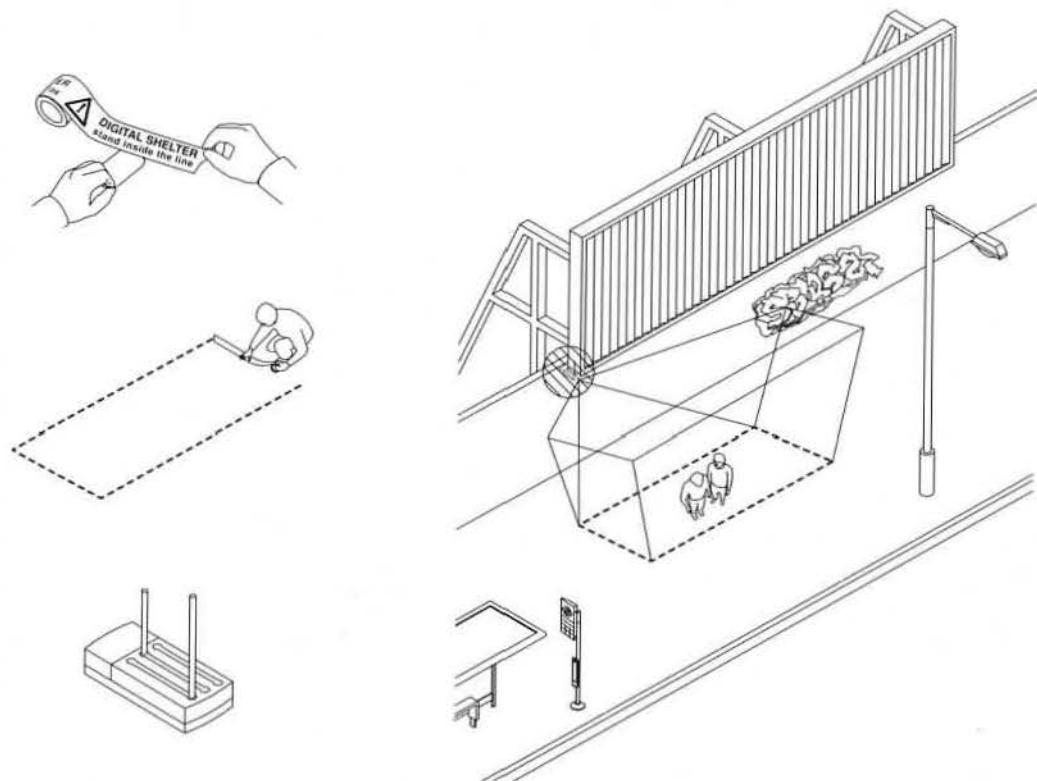
Waveshield devices are currently used in cinemas and restaurants to minimise 'social pollution'; they work by generating a radio signal that prevents the telephone from communicating with a base station, thereby losing its connection with the network. The UK distributor for these devices requires government approval before one can be sold. Using a jammer constitutes a form of trespass.

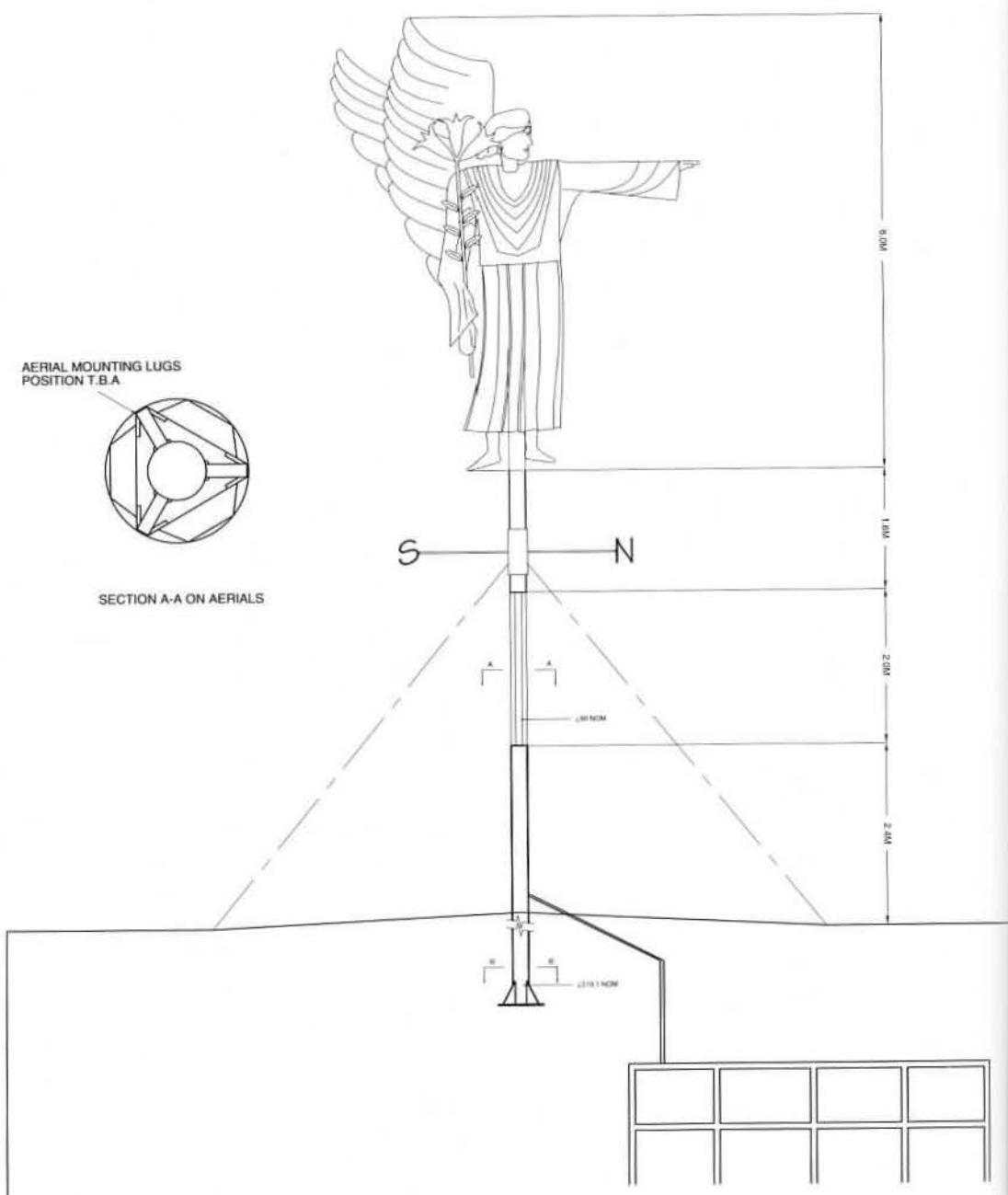
Like all supposedly immaterial media, hertzian space has its material props. In the case of mobile phone networks, it is the unsightly masts dotted throughout the countryside and perched on buildings in all major cities and towns. There are believed to be more than 20,000 such masts in Britain and an estimated 100,000 more will be needed over the next decade. Several American companies including ARCNET of New Jersey, the Larson Company of Arizona, Valmont Industries of Nebraska, and AT&T are jointly creating camouflaged antennas disguised as trees, like the 40 m white pine. These masts are covered with epoxy-resin bark, and antennas are concealed inside branches. Royal palm and saguaro cactus designs are also available, to suit different environments.

Hundreds of church spires already carry some form of telecommunications equipment, and in return the churches receive a rent of between £3,000 - £30,000 per year. One of the most intriguing stealth antennas is located in Guildford cathedral in Surrey. The telecommunications company One-to-One offered to re-gild the cathedral's 5 m angel weather vane with gold leaf at a cost of £20,000 if it was allowed to place a radio mast inside it. The pole on which the vane rotates has been replaced by a new steel structure concealing three transmitters.

Solutions like these are produced outside of a conventional design context. Whereas a professional designer might try to express the meaning of the antenna, or create a 'modernist' sculptural statement to house the technology, the angel antenna simply juxtaposes the needs of two usually separate worlds. The visual culture of religious paraphernalia and the efficiency-driven exploitation of the EM spectrum join to create an accidentally poetic landmark. Electronic technology gives existing objects, in this case a weather vane, new and almost magical qualities. The Guildford angel expresses beautifully the poetic potential of ubiquitous computing, that is, the belief that computers will cease to exist as discrete objects and will be absorbed, like the electric motor before, into pre-existing artefacts and environments. Rather than forcing material culture to express this fusion, the angel antenna is an example of how juxtaposition could lead to a more enjoyable, if cerebral, meeting of material and electronic cultures.

Peel the backing off the Digital Shelter adhesive tape and stick to the floor in the chosen space. Attach mobile phone jammer to the wall. Stand inside the line to use the shelter.





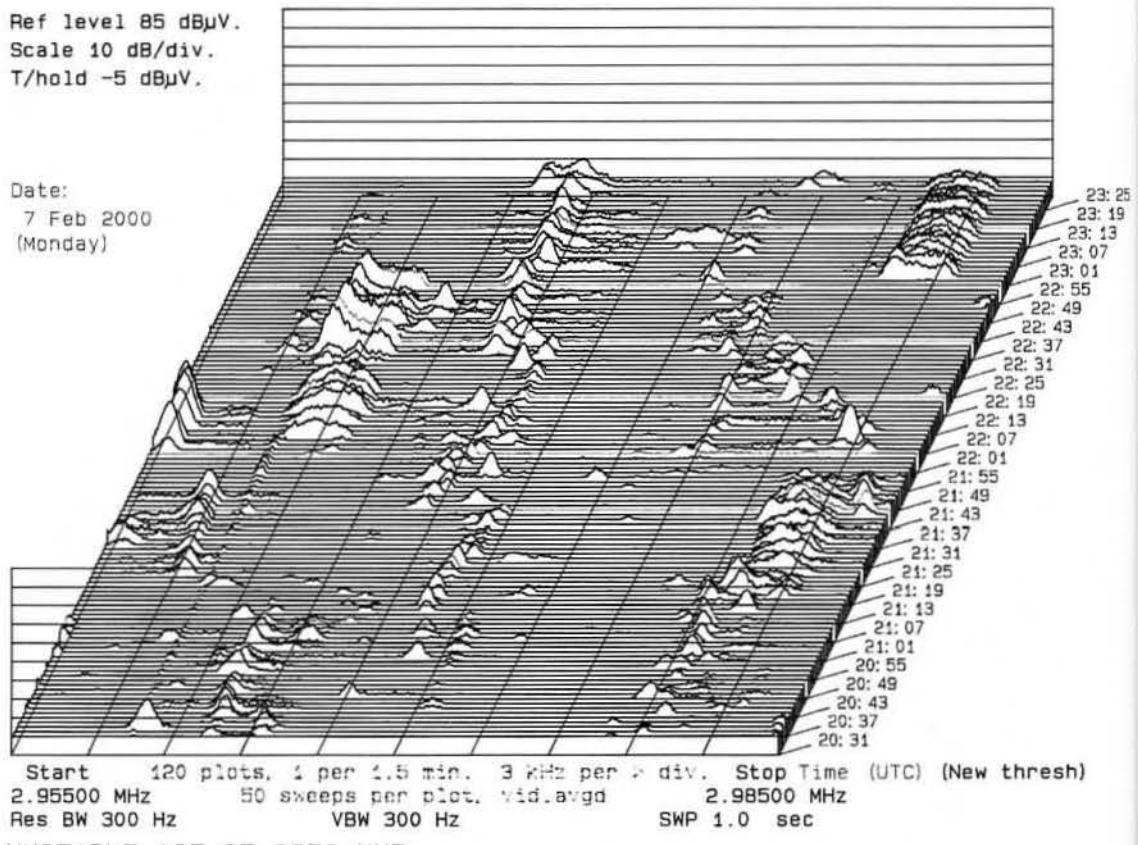
Camouflaged antenna, Guildford Cathedral, p.28



Camouflaged antenna, USA, p.28

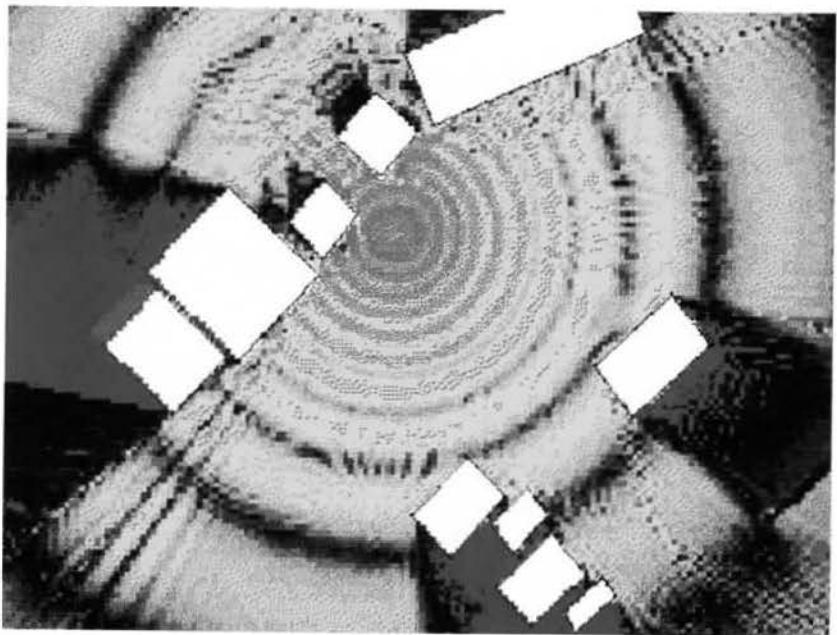
Ref level 85 dB μ V.
Scale 10 dB/div.
T/hold -5 dB μ V.

Date:
7 Feb 2000
(Monday)



UNSTABLE A3E CF 2970 KHZ

'Waterfall chart' produced by Baldock Radio Station, p.18



Computer model of radio waves interacting with buildings, p.18

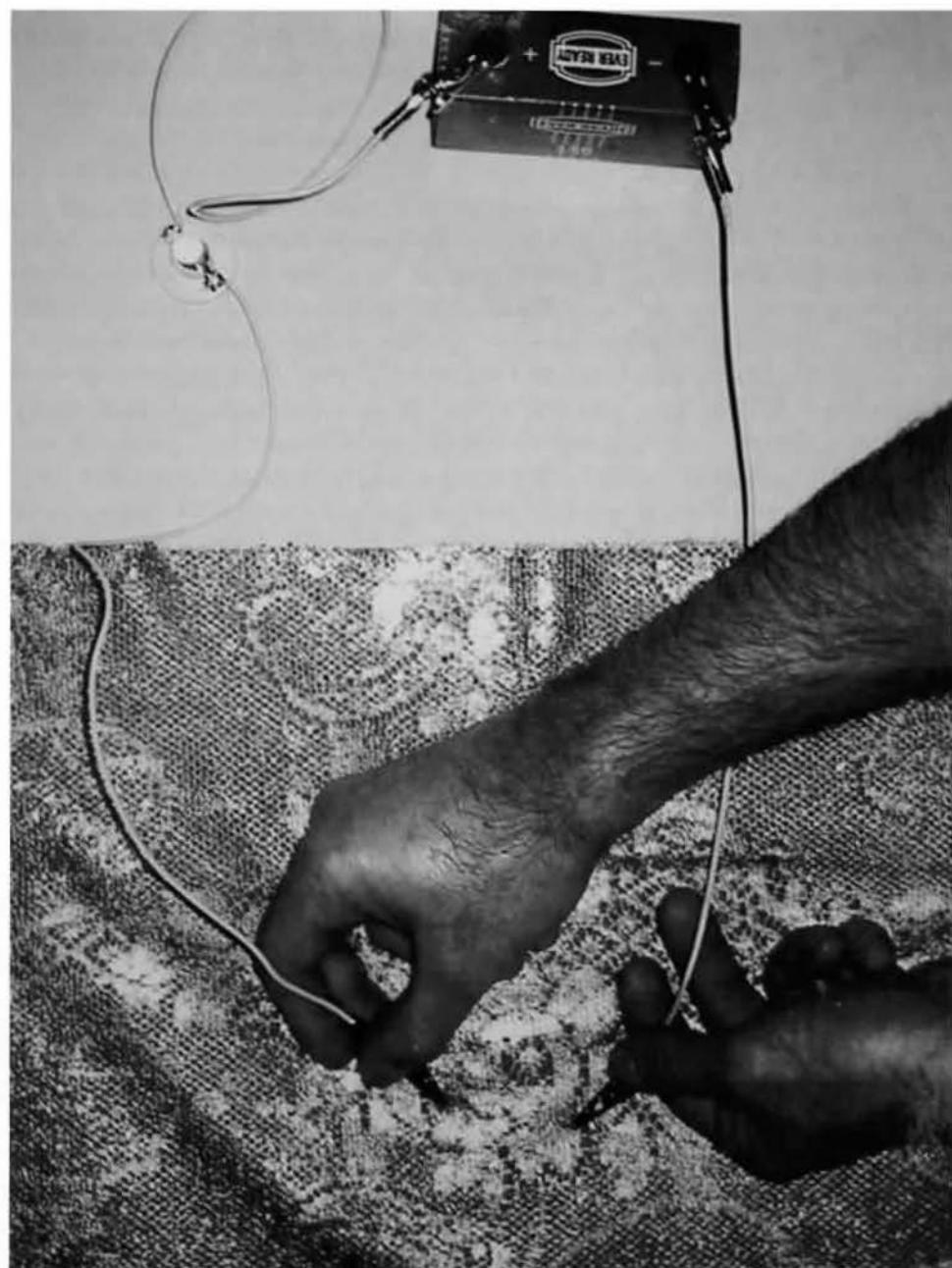
**NO PERFUME
NO PERFUMED PRODUCTS
NO AFTERSHAVE
NO SMOKING
NO FLOWERS**



Personal protection devices by LessEMF, p.21



Faraday Chair by Dunne & Raby, p.26



Faraday Curtains by Oliver Michell, p.26

Some people have developed a refined appreciation of the aesthetic potential of the new electromagnetic landscape, and know how to enjoy it before the rest of us do. These electro-connoisseurs hint at what might be as these strange pleasures seep into everyday life. Radio Hams have long taken pleasure in the spectrum, but a more recent development is radio orienteering. The transmitter hunters, or 'foxhunters' as they are also known, derive enjoyment from the spectrum by treating it as a real environment and playground. Five low-power transmitters (foxes) are set up to automatically transmit on the same frequency for exactly one minute each, one after the other. The contestants attempt to locate as many as possible within a two-hour time limit, carrying a card to mark with unique punches found at each fox. Scoring is determined primarily by the number of transmitters found and secondly by the amount of time elapsed. Contestants are individually timed and set out at five-minute intervals, coinciding with the start of transmissions from fox number one. The people who place the transmitters are true connoisseurs of the radioscape and have a special skill: they have internalised the qualities of the new environment to such an extent that they can tell how the radio waves will reflect or be absorbed by different materials and features in the landscape. Radio orienteering is not just a sport, but also a community bound together by specialist knowledge and a sensitive appreciation of a new environment.

Another group of people with a heightened and more romantic appreciation of the radioscape are 'whistler hunters', natural radio enthusiasts who tune into radio transmissions created by atmospheric events. They search out VLF (very low frequency) radio waves or 'sferics', short for 'atmospherics': natural radio-frequency emissions in the ionosphere, caused by electromagnetic energy radiated from lightning. These signals – resonant clicks and pops called 'tweaks' and 'bonks' by scientists – occur in the audible range and may be picked up by antennas and amplified for listening. Occasionally sferics get caught on, and travel long distances along, the magnetic flux lines around the earth, producing 'whistlers', downward gliding signals which may last up to three seconds. These sounds are best received at night, far away from power lines and electromagnetic pollution. Whistler hunters travel far to unpolluted sites, sometimes camping out for days, listening for the elusive sounds of natural radio. Although the sounds are fleetingly beautiful, out of context they lose much of their charm; their beauty is entwined with the effort endured and the symbolic significance of receiving them, which for some is quasi-mystical, for others a defiant gesture against people's careless attitude towards nature.

Pylon enthusiasts, connoisseurs of the material culture of electromagnetic space, extend the pleasures of trainspotting into the electronic world, recording data and savouring the rare and the unusual. One website gathers information about pylons from all over the world and even has a section updated monthly called the 'pylon polemic'.

'This site is dedicated to the humble electricity pylon, whose beauty remains tragically unrecognised. Railed against by mis-guided environmentalists, these delightful constructions enhance and beautify their surroundings, providing a comforting reminder of Man's harnessing of the forces of nature. They also provide children and adults alike with the opportunity to engage in the fascinating and rewarding hobby of electricity pylon number collecting.'

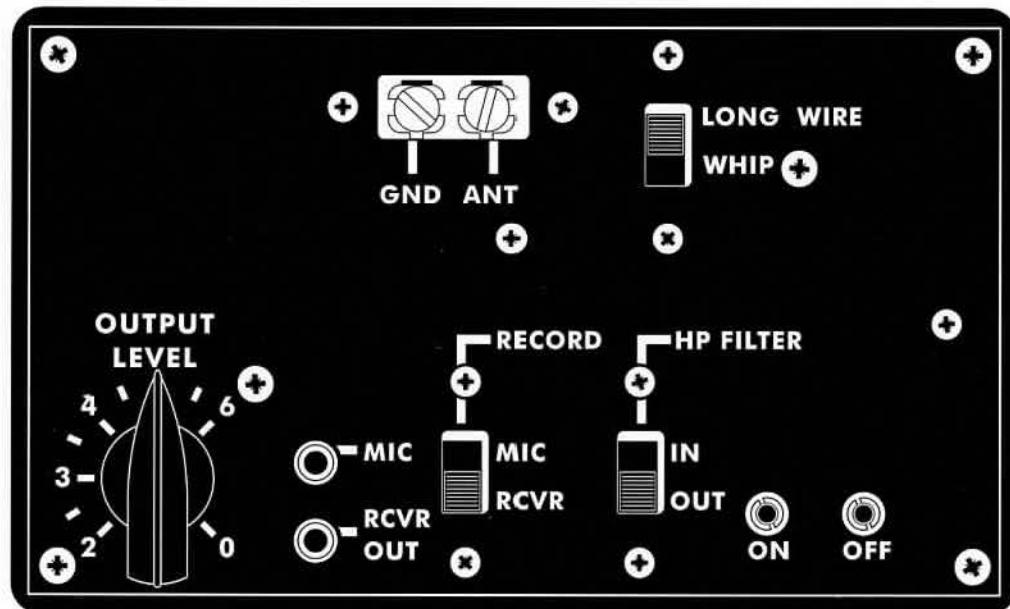
<http://users.tinyonline.co.uk/bigh/bigh/pylonof.htm>

Pylon polemic 17, for example, argues strongly for the notion of 'pylon tourism' and the benefits it would bring local communities. Apparently a site on the outskirts of Rochdale is a mecca for pylon enthusiasts. Just off the A680 to the north-west of the town is a pylon – National Grid Company Plc's ZP 226 – nicknamed 'The Pink Pylon', painted that colour for an appearance in a British film called 'Among Giants'. The author of the polemic regards this pylon as a potential revenue generator for the town.

Electro-sensitives

A growing number of people are discovering they are 'allergic' to electromagnetic fields and suffer from electrical sensitivity. The Breakspear Hospital near London specialises in the treatment of environmental illnesses including electrical sensitivity. Its director Dr Jean Munro writes:

'Just as abnormal food and chemical sensitivities can be tested for, so can electrical ones. The procedure is simply to sit in the same room as an electrical oscillator at about TV viewing distance. The tester then tunes the oscillator through all the frequencies likely to be giving problems. This is usually from less than the heart rate frequency of 1 Hertz (cycle per second) to more than 1 GHz (one-billion cycles per second). The patient reports on any symptoms felt. These will usually be the same as those triggered during the foods and chemical testing. The frequencies at which the symptoms are triggered and neutralised are recorded. There are usually one or more frequencies at which all the symptoms clear up. In addition, patients often get great relief in realising that symptoms that they have suffered from for years can be turned on, and off, at will from an electrical oscillator, not connected to them in any way.'

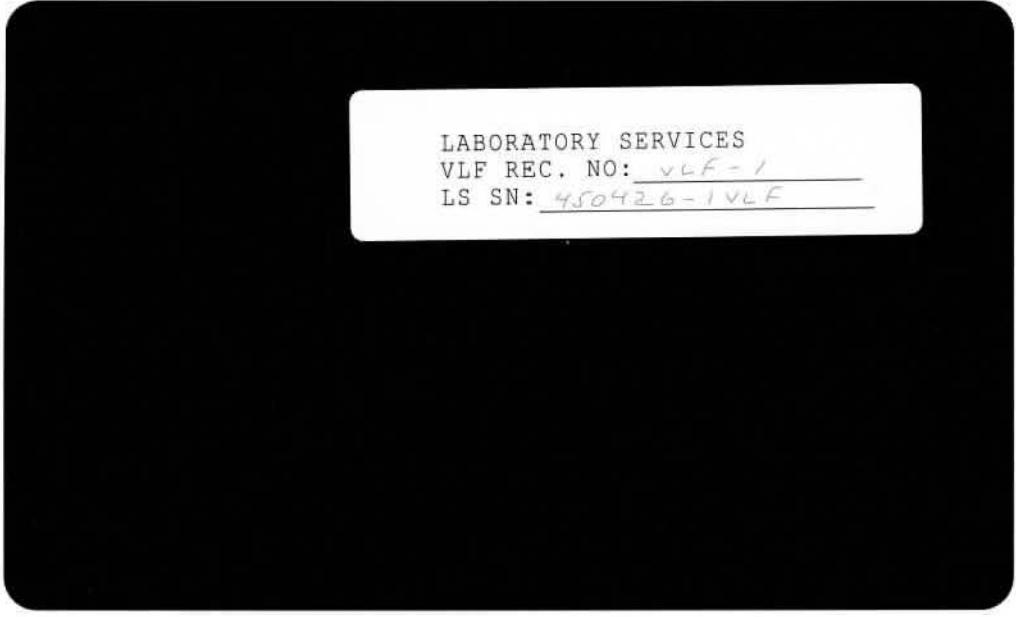


VLF radio, front

Many sufferers have developed their own DIY treatments to alleviate their symptoms, which can include nausea and the onset of headaches when using a telephone. One of the most common methods is described by Marcus Trower writing about the syndrome in Red magazine: 'When she can't sleep, Pauline plugs herself into the mains to drain her body of electricity. She shows me the flex she uses. At one end is a bare wire loop she puts round her fingers or big toe; at the other end is a plug with a single earth pin. She wears a helmet made from tinfoil when she has an attack. To cook she turns on the microwave, then runs to another room until it's finished cooking.' Another woman in Ireland lives in a small two-bedroom wooden chalet called a Scandinavian home. She has no electricity there, uses oil heating and lamps, gas to cook, and has two old fashioned irons that she heats on the fire. She tried a battery operated TV, but this still affected her. If she has to use the phone, she goes to the main house where her husband lives and takes out the main fuse first.

Environments and treatments designed for these electro-sensitive people embody knowledge and ideas about well-being and comfort that may eventually find their way into the mainstream. In the near future, more of us may feel the effects of the inevitable increase in usage of the EM spectrum. Hyper-sensitive people are the pathfinders for this changing environment, 'human canaries' alerting us to dangers and concerns that are bound to become more common as more technology becomes wireless.

We are not recommending that designers try to predict misuses of products, but rather that they refer to this rich narrative space as a context of use instead of the models of normality usually referred to when new functional possibilities are being developed. Designers could draw on the specialist knowledge, concerns and pleasures of beta-testers, early adopters, electro-connoisseurs and hypersensitives to evolve a deeper understanding of how to make ourselves at home in this new environment.



LABORATORY SERVICES
VLF REC. NO: vLF-1
LS SN: 450426-1vLF

VLF radio, back



Pylons featured on the Pylon of the Month website, p.38



Transmitter hunters, p.38



DIY treatment for electro-sensitives, p.40

Section 03: Design Noir

Electronic product as neglected medium

The unique narrative potential of consumer electronic products has received surprisingly little attention from artists and designers. Even though industrial design plays a part in the design of extreme pain (e.g. weapons) and pleasure (e.g. sex aids), the range of emotions offered through most electronic products is pathetically narrow.

When the Sony Walkman was introduced in the early 1980s, it offered people a new kind of relationship to urban space. It allowed the wearer to create their own portable micro-environment, and it provided a soundtrack for travel through the city, encouraging different readings of familiar settings. It functioned as an urban interface. Nearly twenty years on, there are hundreds of variations on the original Walkman, but the relationship it created to the city remains the same. This scenario reflects how product designers have responded to the aesthetic challenge of electronic technology. They have accepted a role as a semiotician, a companion of packaging designers and marketeers, creating semiotic skins for incomprehensible technologies. The electronic product accordingly occupies a strange place in the world of material culture, closer to washing powder and cough mixture than furniture and architecture. Form and texture are manipulated to evoke a world of fantasy and fiction, blurring distinctions between everyday life and the hyper-reality of advertising and branding.

Product genres

This is just one approach to product design, one genre if you like, which offers a very limited experience. Like a Hollywood movie, the emphasis is on easy pleasure and conformist values. This genre reinforces the status quo rather than challenging it. We are surrounded by products that give us an illusion of choice and encourage passivity. But industrial design's position at the heart of consumer culture (it is fuelled by the capitalist system, after all) could be subverted for more socially beneficial ends by providing a unique aesthetic medium that engages the user's imagination in ways a film might, without being utopian or prescribing how things ought to be.

Electronic products and services could enrich and expand our experience of everyday life rather than closing it down; they could become a medium for experiencing complex aesthetic situations. To achieve this, designers would have to think about products and services very differently. There could be so many other genres of product beyond the bland Hollywood mainstream: arthouse, porn, romance, horror – noir, even – that exploit the unique and exciting functional and aesthetic potential of electronic technology. Although many products already fall into genres – Alessi products attempt design as comedy, designs for weapons and medical equipment can shock and horrify, sex-aids are obviously a form of design porn and white goods express a wholesome and romantic idea of settled domesticity – they do not aesthetically challenge or disturb.

If the current situation in product design is analogous to the Hollywood blockbuster, then an interesting place to explore in more detail might be its opposite: Design Noir. As a genre, it would focus on how the psychological dimensions of experiences offered through electronic products can be expanded. By referring to the world of product misuse and abuse, where desire overflows its material limits and subverts the function of everyday objects, this product genre would address the darker, conceptual models of need that are usually limited to cinema and literature.

Noir products would be conceptual products, a medium that fuses complex narratives with everyday life. This is very different from conceptual design, which uses design proposals as a medium for exploring what these products might be like. Conceptual design can exist comfortably in book or video form, it is about life whereas conceptual products are part of life. With this form of design, the 'product' would be a fusion of psychological and external 'realities', the user would become a protagonist and co-producer of narrative experience rather than a passive consumer of a product's meaning. The mental interface between the individual and the product is where the 'experience' lies. Electronic technology makes this meeting more fluid, more complex and more interesting.

Like in Film Noir, the emphasis would be on existentialism. Imagine objects that generate 'existential moments' – a dilemma, for instance – which they would stage or dramatise. These objects would not help people to adapt to existing social, cultural and political values. Instead, the product would force a decision onto the user, revealing how limited choices are usually hard-wired into products for us.

On another level, we could simply enjoy the wickedness of the values embedded in these products and services. Their very existence is enough to create pleasure.

Many interesting examples of noir products already exist, but they are not created by designers. The best examples of how design responds to the psychological and behavioural dimensions of electronics can be found at the edges of anonymous design. These products and services work on a radically different aesthetic principle from traditional products: it is what they do that creates pleasure, not how they look and feel. It is the thrill of transgression that counts here. Even if we do not use them, just imagining these objects in use creates a strong and perversely enjoyable experience. They show how design products and services can function as a medium for producing complex psychological experiences.

The Truth Phone, a real product produced by the Counter Spy shop, is one example of how a Noir product might work. It combines a voice stress analyser with a telephone, and shows how electronic products have the potential to generate a chain of events which together form a story. If you consider products in this way, the focus of the design shifts from concerns of physical interaction (passive button pushing) to the potential psychological experiences inherent in the product. Imagine speaking to your mother or a lover while the Truth Phone suggests they are lying. The user becomes a protagonist and the designer becomes a co-author of the experience, the product creates dilemmas rather than resolving them. By using the phone, the owner explores boundaries between himself and the paranoid user suggested by the product, entering into a psychological adventure.

The Truth Phone and similar electronic objects generate a conceptual space where interactivity can challenge and enlarge the scheme through which we interpret our experiences of using everyday electronic objects and the social experiences they mediate. The effect is not only limited to products: as its name suggests, Ace-Alibi.com is a service for creating false alibis. When you subscribe, you might choose an option that involves being sent a letter inviting you to a conference. The letter will be postmarked with the correct area code, and you can also arrange to leave a contact number which will be answered in the correct regional accent. Franchises of this service are available, although the people behind the scheme are nervous about offering the service in the United States, in case they are sued for their part in helping employees bunk off work. We find this service interesting because it meets a real need not fulfilled anywhere else. You may not agree with it or choose to use it, but many people use this service. The pleasure provided by the existence of a service like this lies is in resolving the dilemma it presents. It is as though the internet reflects human nature in all its imperfections while the material world of consumer products only reflects idealised notions of correct behaviour.

Along similar lines to Ace-Alibi.com is the Alibi CD produced in Germany by Silenzio. It contains recordings of street sounds, airport announcements from different countries, train stations, bars and beaches. Designed for those 'little white lies in between', the CD is intended to be played in the background while you are making a telephone call from a place you should not be. This soundtrack CD allows you to cut and paste reality. Its very existence triggers a chain of thoughts and narratives in the imagination.

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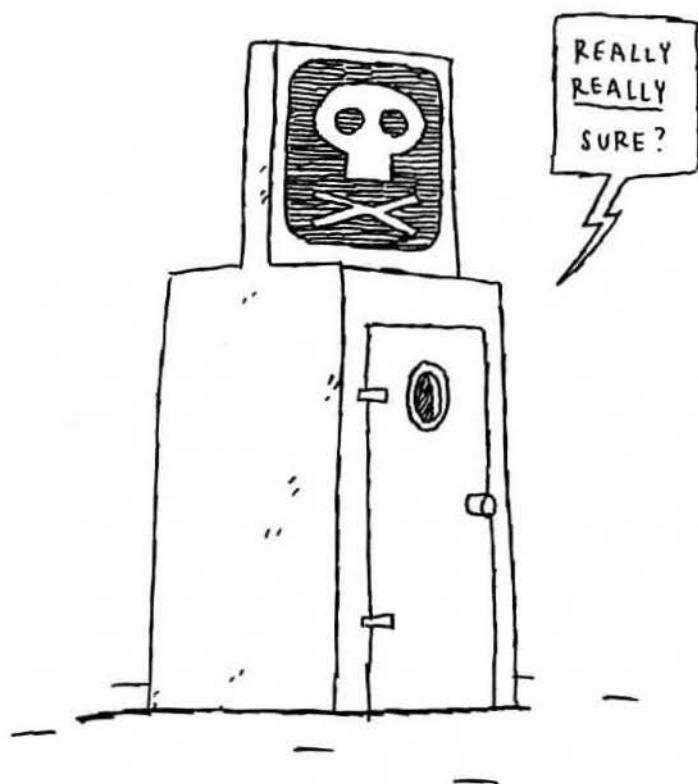
In Japan they have taken this idea one step further. One love hotel there allows you to select a variety of background environmental sounds to give the impression you are calling from a train station, street, bar etc. while you are really on the phone in your hotel room. Like Ace-Alibi.com, this service may not be to everyone's taste, but it uses technology to satisfy unacknowledged but genuine needs, rather than manufactured ones. On another level, this love hotel is an interesting counterpoint to the typical 'smart home' familiar from futurologists' design predictions, with fridges that automatically order more supplies when you are running low on milk. This is an example of what a really smart home would be like: it would help us lie.

The company that produces the Alibi CD also produce Nie Mehr Allein (Alone No More), a CD of the familiar sounds of everyday domestic tasks that became a cult hit. Bernd Klosterfelde had the idea for this product shortly after finding himself living alone after a divorce. He asked a friend to invite his girlfriend around, and then proceeded to record her doing everything from the washing up and the laundry to reading the newspaper. Imagine if this were one of many radio stations you could tune into. The producer claims this CD is a manifesto for singletons. This product not only recognises loneliness, but celebrates it.

Alone no more

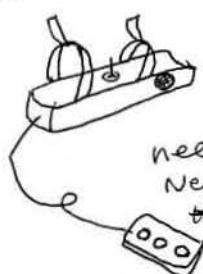
1. The fridge is full again at last
2. Cappuccino break
3. Reading the paper
4. Time to do the washing up
5. A shirt is quickly ironed
6. Baking a cake for the beloved
7. A bath is just the thing
8. And straight onto the sunbed
9. Getting out the hairdryer
10. Nature calls
11. Forgot to do the vacuuming
12. Just typing up that letter on the computer
13. There's nothing on TV again, at least the crisps are good
14. Better off reading and having a smoke
15. Slamming a roast into the oven

Many products like these have an existential theme. They perplex rather than comfort, even just thinking about them raises many important issues. Objects can be existential in other ways too, for instance in the form of computer-aided existentialism. A suicide computer built to kill patients legally was developed by Dr. Philip Nitschke in the Northern Territory of Australia, where euthanasia was legal for a brief period in the 1990s. The machine consisted of a computer that asked the patient three times whether they really wanted to die. If the patient agreed each time, then 100 ml of liquid Nembutal was pumped through a needle into the patient's arm. They fell asleep and died within a few minutes. The machine was first used in Darwin in 1996, and was bought by the Science Museum in London in 2001.

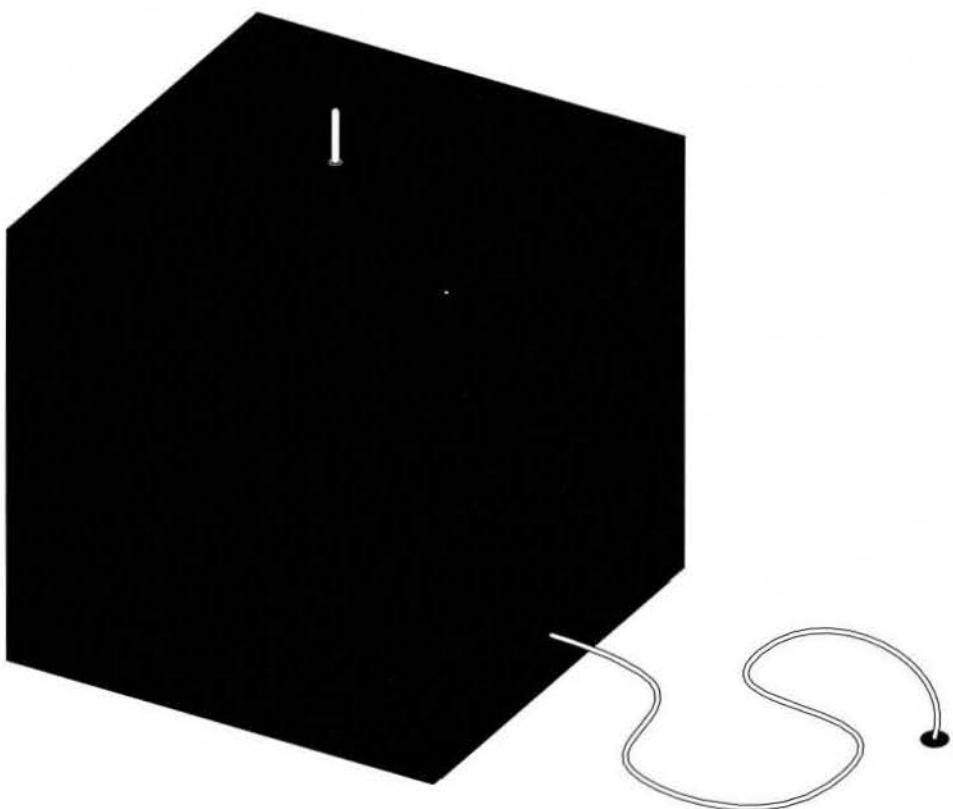


suicide computer

attach to the arm
voice comes from
the speaker
answer the question
with the bottoms



needle will come out to inject
Nembutal when patient answer
the yes to the question
3 times,



Orgasm implant

.....
this object is similar in size to a washing machine
.....

Even if we choose not to interact with this noir landscape ourselves, its existence acknowledges a far more complicated and realistic view of human drives, desires and values than official material culture. Loneliness, deception, paranoia, hopelessness and lust are just a few of the conditions these objects and services respond too. It is not just a matter of noir products, environments can also be designed to cater for complex and specific needs. On the outskirts of Rotterdam in the Netherlands, the local council has created a special drive-in facility for use by prostitutes and drug users called an afwerkplek, which roughly translates as a 'finishing place'. The prostitutes sit in shelters arranged along a well-lit driveway, on display to the potential customers driving slowly past. Once a driver has made his choice, prostitute and client can drive around the corner into one of the numbered cubicles, discreetly screened-off from the others. Rubbish bins are also provided, and there is even a sterile needle point for shooting up. Upfront and practical, this is a typically Dutch approach to dealing with controversial social issues. It also hints at another world where, once again, a realistic approach is taken towards people's needs. Artist Dennis Adams recreated a scale model of one of these places for the exhibition Hortus Conclusus at the Witte de With centre in Rotterdam in 2001. The piece looks like a children's play area: while parents wander through the gallery, their children sit in mini versions of the prostitute's shelters and drive miniature vehicles into the lay-bys.

Even the world of toys has its own parallel darker material culture. Anatomically correct dolls combine the playful and abstract world of children's toys with the sordid world of adult desire. Though these dolls are designed for use by counsellors working with children who have suffered sexual abuse, their anatomical realism, expressed through a language we associate with child-like abstraction, makes them very disturbing indeed. Again, the mere existence of the object acknowledges that all is not well. For us, they are more powerful than artworks.

Not everything about noir has to be disturbing though. This genre also includes humour, albeit a little black. A research company recently designed a prototype non-lethal gun called the A3P3 (A3 stands for Aerosol Arresting Agent, P3 for Pulse Projected Plume) for use by the police in crowd control situations. The gun has a sensor that gauges the distance a person is away from it, and adjusts the level of cayenne pepper spray accordingly. It also has a tiny built-in video camera that records the incident and wirelessly transmits the footage back to police headquarters. We like the idea that somewhere, many hours worth of digital imagery of a particular gun's victims would be stored. Of course this is done for legal reasons, but it has almost metaphysical implications: this is a gun with a memory, a personal history expressed through video clips of gesticulating victims.

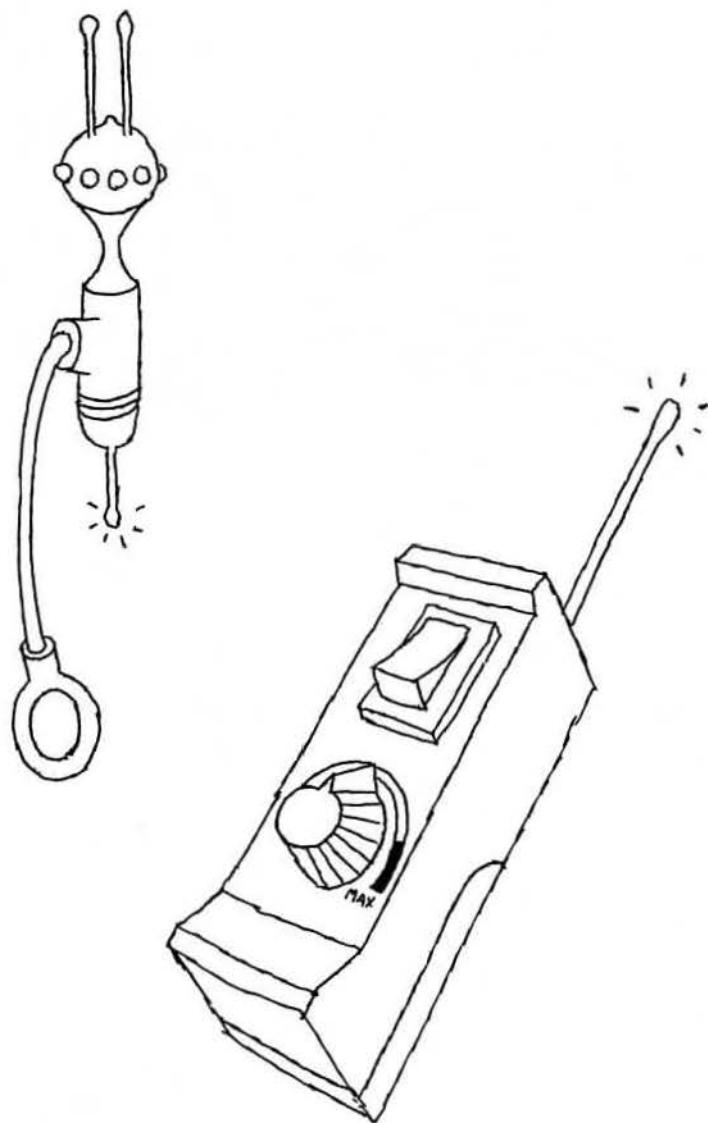
Noir also has an erotic dimension. A doctor in North Carolina recently built and patented an implant that produces an orgasm in a woman by electrically stimulating the spinal cord. He had the idea for the device when a patient he was treating for chronic back pain experienced unexpected side effects while electrodes implanted in her spine were tested. Operated via a wireless remote-control, the Orgasmic Dysfunction Device opens up all sorts of interesting possibilities: the existence of objects that activate it through proximity; relinquishing control and handing the remote to a partner; malfunctions where the device is accidentally switched on. A device like this, designed to alleviate genuine medical conditions, would be highly ab-user friendly and could lend itself to many functional variations.

Although discovered by accident, the orgasm generator is part of an almost secret history of inventions for pleasure. Very few of them have made it to the market place, but a look through patent records throws up some very interesting and strange ideas that again tell us more about the diversity of notions of pleasure than anything else. The US Patent Office provides a history of technological pleasure in the form of patents for sex aids collected over the last 150 years. The list includes contraception devices, anti-masturbation devices, wet dream prevention devices, impotence aids, bionic penises, anti-rape technology, mechanical stimulators, sex furniture, training/exercising devices, and safe-sex inventions (including sex robots). The strange narrative of pleasure documented in patent drawings offers a technological reflection of human frustration, fantasy, fear and pleasure. These objects are not science fiction or art, they were documented because they either solved a problem or provided exceptional pleasure. Their inventors were motivated by the hard reality of financial gain. They believed that each of these devices had a potential market, for example the need for methods of making sex safe in the age of AIDS. The contents of the patent office represent a material cultural history of desire.

Today, large corporations know that as many of our basic needs are met, we desire to satisfy more abstract ones, but they are unsure what these might be. The current focus is on wellness and well-being. We think it is necessary to go beyond this and embrace danger, excitement and transgression. In the search for new content, designers would need to become like authors, drawing from the fringes of material culture, where products and services satisfy difficult and unusual needs. Not everyone has to participate, but the fact these things exist means our material culture reflects more accurately the range and complexity of human desire and needs, and we might be faced with real choices at last.

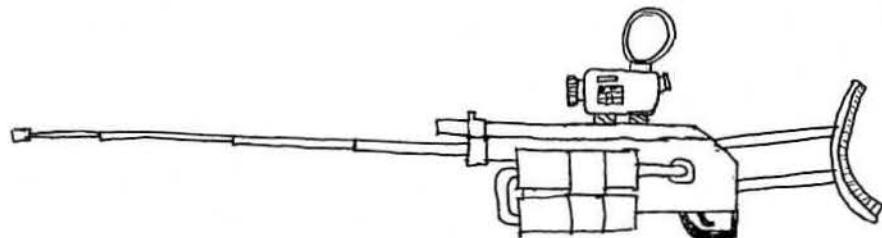
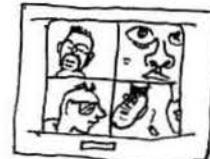
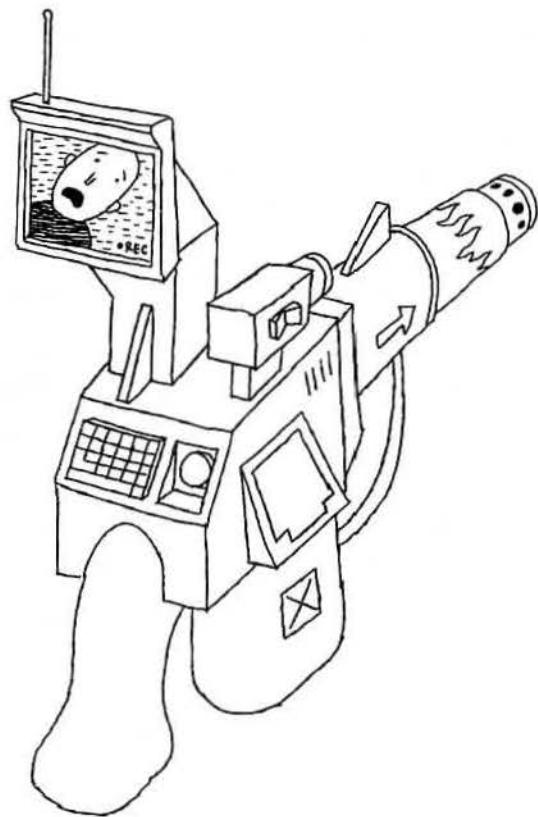
Noir products of the type we propose would not really be designed for mass consumption, they would probably be expensive, often exist only as prototypes or in low numbers. While their effectiveness would eventually wear off with increased familiarity, it would still be valuable to live with them for a while. What if they could be rented? Not like a video or library book – although the function is similar – but like musical instruments are today, and even paintings. We believe there is room for a new category of objects that provide complex aesthetic and psychological experiences within everyday life. They could come in a variety of genres of which noir is just one.

Orgasm implant, drawn by Tom Gauld, p.51





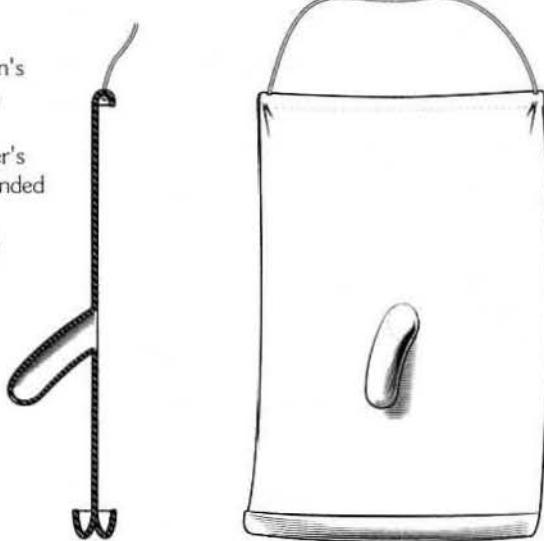
Anatomically correct dolls, p.51

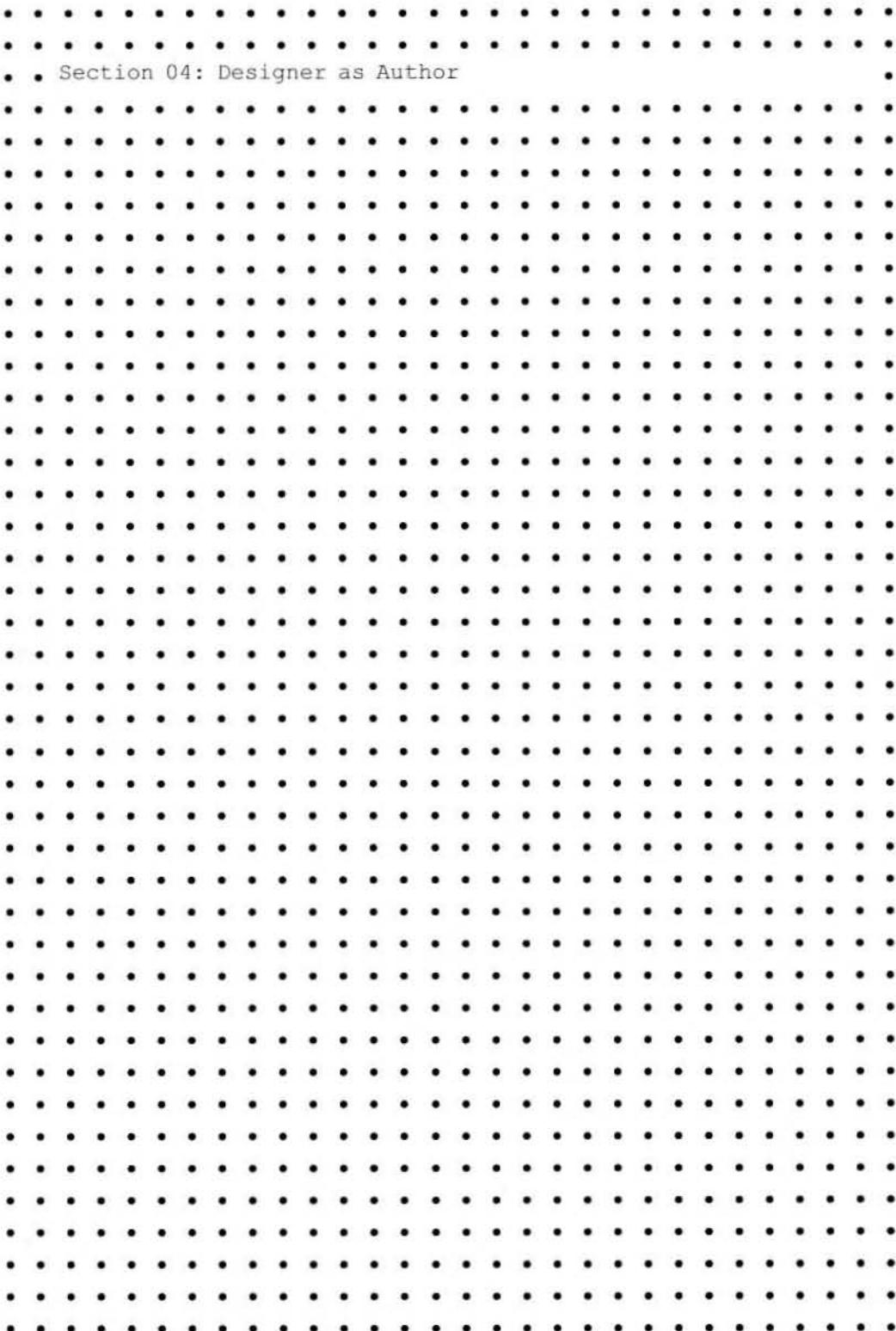


A3 P3 gun drawn by Tom Gauld (top) and Alex Rich (bottom), p.51

— *Safe Sex Inventions for the Age of AIDS* —

Mark Grubman's
condom apron
invention tied
around the user's
waist and extended
to mid-thigh.
No. 4,781,709
(1988)





Section 04: Designer as Author

Design is ideological

When technology is developing as rapidly as it is now, reflection and criticism are particularly important. We need to consider alternative visions to those put forward by industry. Design, being accessible, contemporary and part of popular culture, is perfectly positioned to perform this role. But in order to achieve this, some significant shifts need to occur. We need to develop a parallel design activity that questions and challenges industrial agendas.

Most designers, especially industrial designers, view design as somehow neutral, clean and pure. But all design is ideological, the design process is informed by values based on a specific world view, or way of seeing and understanding reality. Design can be described as falling into two very broad categories: affirmative design and critical design. The former reinforces how things are now, it conforms to cultural, social, technical and economic expectation. Most design falls into this category. The latter rejects how things are now as being the only possibility, it provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical or economic values.

Critical design

Critical design, or design that asks carefully crafted questions and makes us think, is just as difficult and just as important as design that solves problems or finds answers. Being provocative and challenging might seem like an obvious role for art, but art is far too removed from the world of mass consumption and electronic consumer products to be effective in this context, even though it is of course part of consumerist culture. There is a place for a form of design that pushes the cultural and aesthetic potential and role of electronic products and services to its limits. Questions must be asked about what we actually need, about the way poetic moments can be intertwined with the everyday and not separated from it. At the moment, this type of design is neglected and regarded as secondary. Today, design's main purpose is still to provide new products – smaller, faster, different, better.

Critical design is related to haute couture, concept cars, design propaganda, and visions of the future, but its purpose is not to present the dreams of industry, attract new business, anticipate new trends or test the market. Its purpose is to stimulate discussion and debate amongst designers, industry and the public about the aesthetic quality of our electronically mediated existence. It differs too from experimental design, which seeks to extend the medium, extending it in the name of progress and aesthetic novelty. Critical design takes as its medium social, psychological, cultural, technical and economic values, in an effort to push the limits of lived experience not the medium. This has always been the case in architecture, but design is struggling to reach this level of intellectual maturity.

(Un)Popular design

Developing a critical perspective in design is made difficult by the fact that the design profession, and product designers in particular, see the social value of their work as inextricably linked to the marketplace. Design outside this arena is viewed with suspicion as escapist or unreal. At the moment, the only alternatives to the Hollywood genre of corporate design are design consultancies promoting themselves to corporate clients with slick mocked-up products that are never intended to be developed any further. These objects are purely about PR, they are designed to sell the consultancy's potential for innovative and creative design thinking.

To be considered successful in the marketplace, design has to sell in large numbers, therefore it has to be popular. Critical design can never be truly popular, and that is its fundamental problem. Objects that are critical of industry's agenda are unlikely to be funded by industry. As a result, they will tend to remain one-offs. Maybe we need a new category to replace the avant-garde: (un)popular design.

The design profession needs to mature and find ways of operating outside the tight constraints of servicing industry. At its worst, product design simply reinforces global capitalist values. It helps to create and maintain desire for new products, ensures obsolescence, encourages dissatisfaction with what we have and merely translates brand values into objects. Design needs to see this for what it is, just one possibility, and develop alternative roles for itself. It needs to establish an intellectual stance of its own, or the design profession is destined to lose all intellectual credibility and be viewed simply as an agent of capitalism.

We are not against industry, although it could direct more of its profits into serious design research rather than facile PR exercises. Industry is after all in the business of making money for its shareholders. More disturbing is the unwillingness of the design profession to take on a more responsible and pro-active role within society. Before this can happen, designers will have to redefine their role, embracing and developing new methods and approaches that simultaneously appeal and challenge in the way a film or book does. More could be learnt from fine art where there is a history of critical strategies for asking questions through objects and stimulating debate in engaging ways.

Instead of thinking about appearance, user-friendliness or corporate identity, industrial designers could develop design proposals that challenge conventional values. But critical design must avoid the pitfalls of the 1970s by developing strategies that link it back to everyday life and fully engage the viewer. Things are far more complex today than they were 30 years ago. It is not enough to simply offer an alternative, new strategies need to be developed that are both critical and optimistic, that engage with and challenge industry's technological agenda.

Global corporations are becoming more powerful than states, as Noreena Hertz points out in *The Silent Takeover* (2001) – the annual values of sales of each of the six largest transnational corporations, ranging between \$111 and \$126 billion, are now exceeded by the GDPs of only 21 nation states, and as a result, governments and politicians are losing power. Corporations have a bigger influence on reality than government, and buying power is more important than voting power. A world where shopping has more political impact than voting is a threat to democracy.

etoy.SHARE-CERTIFICATE No.124,
courtesy of etoy.SHAREHOLDER
Richard Zach, representing 1900
etoy.SHARES (value on
10.08.2001: \$6'593, actual
value: www.etoys.com/value)



There has also been a shift in the intellectual landscape as relations between popular culture, the market and critical positions have changed. The marketplace is viewed as the only reality, or as Thomas Frank writes in *One Market Under God* (2001) a form of 'market populism' has taken hold, where people's true desires are expressed and fulfilled through the marketplace. Anything outside of the marketplace is regarded as suspicious and unreal. This state of affairs makes critical positions almost impossible, they are dismissed as elitist. It is almost taboo for an industrial designer to reject what the market wants.

As the intermediary between the consumer and the corporation, the design profession is in a perfect position to host a debate in the form of design proposals about technology, consumerism and cultural value. But first designers will need to develop new communication strategies and move from narratives of production to narratives of consumption, or the aesthetics of use. That is, they will have to shift emphasis from the object and demonstrating its feasibility to the experiences it can offer.

Designers can learn much about this from the approaches developed by artists during the 1990s, when a general blurring of distinctions between fine art, design and business began to develop. For instance, the artist collective Atelier Van Lieshout has worked on the design of a Dutch abortion ship to be anchored off the coast of Ireland and other catholic countries where abortion is illegal. Liam Gillick, who explores decision making mechanisms in corporate culture and their impact on history, also designs exhibitions, interiors and is working on a building.

Other artists have concentrated on appropriating the business world's organisational structures to produce work that fused fictional and real, legal, economic and cultural systems. Probably the best known example is etoy, a corporation, art group and brand formed in 1994 by a group of architects, lawyers, programmers, artists and designers. Their original aim was to create a purely digital identity (www.etoys.com) and break out of narrow art world constraints. All participating artists agree to sell their individual identity to etoy corporation for shares and to live an anonymous life as etoy agents.

It is not possible to buy etoy products, its art exists solely in the form of stocks. The value of etoy in share units is equivalent to the cultural value of etoy corporation which in turn consists of the electronic brand etoy.

Etoy do not merely adopt the rhetoric of the corporate world though, they play big business at its own game. In 1999 etoy embarked on a campaign called Toywar, financed through experimental investment strategies. This campaign was directed against the multi-national corporation eToys, an on-line toy store (www.etoys.com) that attempted to use its superior size and financial power to force etoy to give up its domain name, even though the artists' site had been established long before the retailer's. Afraid that potential customers might confuse the two similarly named sites, eToys originally tried to buy out the etoy brand, but their \$500,000 offer was turned down. The toy company then set out to sue etoy, accusing the internet artists of unfair competition and trademark delusion. With the help of 1,800 volunteer etoy agents and activists, who served the cause by publicising the case on the net and in the news media, filing counter suits and establishing alliances, etoy succeeded in getting eToys to back off. During the course of the Toywar campaign, the value of the on-line toy store's stock dropped from \$67 to \$15 a share.

Not all artists choose to wage war against the corporate world. Instead of seeking arts funding, Lucy Kimbell preferred to present one of her projects as a business proposition and look for investors. Her proposal was for a vibrating internal pager (VIP) using the same technology as vibrating mobile phones. If you liked someone, you could give them your VIP number and receive a gentle buzz when they called you later. The product was never realised, in fact there is not even a picture of what it looks like. VIP exists as a description, a business proposal and an on-line application form.

Artists presenting themselves as employees of imaginary organisations or companies can also yield some interesting results. Originally from an engineering background, Natalie Jeremijenko now describes herself as a staff engineer working for the Bureau of Inverse Technology (BIT). She has left the idea of artist as individual behind to work on a fictional organisation where she is just one employee. In Suicide Box (1996), BIT installed a motion detector and video camera near San Francisco's Golden Gate Bridge to count the number of people jumping off. Later, a report was produced (engineer's report SB03: Jan 23-97) with recommendations for how the BIT Suicide Box data could be used to calculate a 'robust and market responsive value of life'. There is something more sinister about the idea of an organisation rather than an individual carrying out subversive work like this.

One of the most comprehensive fusions of art and corporate culture has to be Maywa Denki, an art unit set up in 1993 by two Japanese brothers, Nobumichi and Masamichi Tosa. Describing themselves as 'parallel world electricians', they are organised as a business whose core activity is producing a variety of devices. They even produce a Maywa Denki company profile explaining all the company's activities for potential job applicants. During their performances, or product promotions as they like to call them, they wear costumes designed to look like those of a typical Japanese small to medium sized enterprise (SME). Maywa Denki produce three kinds of object: prototypes (NAKI), which are one-of-a-kind products and are not for sale; multiples (GM-NAKI), which are reproductions of NAKI products and are for sale; and industrial Goods (TOY-NAKI) which are mass-produced in a factory and sold in the mainstream marketplace. They also produce CDs, videos, books, uniforms and stationary.

Their NAKI series is a collection of fish-inspired nonsense machines. Many of the products in the NAKI series have a darkly humorous side. Uke-Tel is a cage with a tank at the bottom, with two or three fish swimming around in it. The cage is connected to a speaking clock. When the number is dialled, a spike is released and drops on to the fish below. It may or may not kill one. Sei-Gyo is a cross-shaped, water-filled container mounted on a robotic vehicle. The direction the vehicle takes depends on which arm a fish inside the container swims into. Grafish consists of a sheet of paper surrounded by a box into which a living fish dipped in ink is placed. The dying fish leaves a graphic pattern on the sheet: 'as each fish has a unique life, it also has a unique death'. Maywa Denki's industrial goods (TOY-NAKI) are so popular that some Japanese department stores have a dedicated Maywa Denki department. Most of these products are not unlike the merchandising used to promote a new film – plastic miniature versions of fictional characters.

Although their work borders on entertainment, Maywa Denki offer another way of thinking about design in relation to both art and product markets, cutting across several genres and types of activity. Originally signed to Sony Music Entertainment as musicians producing CDs and performances, they later transferred to the amusement and entertainment division of Yoshimoto Kogyo Co. Ltd, a well-known agency for managing TV personalities and comedians. In 2000 they were awarded 'A good design award for theme category' by the Japan Industrial Design Promotion Organisation. Maywa Denki use design as a form of entertainment, a dark counterpoint to the 'happy-ever-after' world of Alessi products.

Similarly subversive, Surrender Control is a poetic service by Matt Locke and Tim Etchells that was delivered to participants through their mobile phones. An experimental narrative in the form of SMS messages, Surrender Control drew users into an evolving game of textual suggestion, provocation and dare through instructions such as 'break something and pretend it was an accident', or 'call somebody and tell them something that you have already told them. Don't explain'. The idea was to invite people to live life in a strange dialogue with a distant other; to surrender some control.

Television is medium ripe for subversion. Watched by millions, it touches nearly everyone's life but is heavily policed, in the US especially. The fear of being boycotted by the extreme Right, of alienating sponsors and incurring the wrath of the Federal Communications Commission (FCC) means serious issues are rarely addressed on the main commercial TV channels. One attempt to change this situation was a project to infiltrate the American soap opera Melrose Place, which is set in a Los Angeles apartment complex. Artist Mel Chin had the idea of using TV as a medium for 'public art' that raises important issues about gender, violence and infectious diseases. He approached the set designers of Melrose Place and offered to provide free art to put in the background. When they agreed, Chin formed the GALA Committee, made up of students and teachers from University of Georgia and CalArts (Los Angeles), to collaborate on the design of props for the show which they called non-commercial PIMs (product insertion manifestations).

On closer inspection, many of the GALA paintings hanging in the Melrose Place apartments turn out to depict infamous LA locations where horrible violence or death occurred – Marilyn Monroe's bungalow on the day she died, the apartment from which Rodney King's beating was videoed, Nicole Brown Simpson's house. Having noticed that characters on the show have a lot of sex but are never shown using condoms, GALA produced bed linen for one bedroom scene that is covered in images of unrolled

condoms. Although it is not clear how many people actually noticed these subtle interventions, it is a fresh and playful combination of set design and art.

Complicated pleasure

We believe that in order for conceptual design to be effective, it must provide pleasure, or more specifically, provide a type of experience that Martin Amis has called 'complicated pleasure'. One way this could happen in design is through the development of value fictions. If in science fiction, the technology is often futuristic while social values are conservative, the opposite is true in value fictions. In these scenarios, the technologies are realistic but the social and cultural values are often fictional, or at least highly ambiguous. The aim is to encourage the viewers to ask themselves why the values embodied in the proposal seem 'fictional' or 'unreal', and to question the social and cultural mechanisms that define what is real or fictional. The idea is not to be negative, but to stimulate discussion and debate amongst designers, industry and the public about electronic technology and everyday life. This is done by developing alternative and often gently provocative artefacts which set out to engage people through humour, insight, surprise and wonder.

The suspension of disbelief is crucial – if the artefacts are too strange they are dismissed, they have to be grounded in how people really do behave. The approach is based on viewing values as raw material and shaping them into objects. Materialising unusual values in products is one way that design can be a very powerful form of social critique. The design proposals portrayed in value fictions derive their interest through their potential functionality and use. One of the main challenges of using value fictions is how they are communicated: we need to see them in use, placed in everyday life, but in a way that leaves room for the viewer's imagination. We don't actually have to use the proposed products ourselves, it is by imagining them being used that they have an effect on us. Value fictions cannot be too clear or they blend into what we already know. A slight strangeness is the key – too weird and they are instantly dismissed, not strange enough and they're absorbed into everyday reality.

The following examples, drawn from recent graduate projects at the Royal College of Art in London, show how design proposals like this might work. The projects explore the psychological and behavioural dimensions of our relationship to objects and services, rather than the technical, formal or structural possibilities of consumer technologies. The emphasis is shifted from the aesthetics of production to the aesthetics of consumption, an imagined aesthetics of use. Like the examples from the art world described earlier, these projects mix fiction and reality, borrow commercial structures and combine different media in an effort to engage and challenge the viewer.

Ippei Matsumoto uses product design to explore the powerful need for individual identity and meaning within a context of global culture. With *Life Counter* (2001), you choose how many years you would like to or expect to live for and start the counter. Once activated, it counts down the selected time span at four different rates: the number of years, days, hours or seconds to go are shown on different faces. Depending on which face you choose to display, you may feel very relaxed as the years stretch out ahead or begin to panic as you see your life speed away before your eyes. The counter is designed to be visually unassuming and could easily fit into the slightly retro-futuristic style of the moment. It is a classic noir product, its power lies in its precise function and low key display of disturbing information.

In *After-Life* (2001), Jimmy Loizeau employs design to dramatise a taboo subject. Although he is an atheist, Loizeau felt a need for an alternative idea to a spiritual afterlife when a relative and then a pet died. He imagined the consequences of a long term cultural shift where people fully embraced an electronically mediated culture, a time when electrical culture took on some of the dignity of more traditional cultures. Could a battery be as significant as a ceramic urn? Loizeau's exploration of value resulted in a device for maintaining an 'after life'. It consists of a raised bed/trolley, body bag, zinc/copper wet cell battery, extraction tube, voltage meter and 1.5v battery and holder. When someone dies, their stomach contents are drained off to provide acid to charge a special 'after-life' battery, which is engraved in the way a gravestone might be. As an object, it allows an atheist to grieve. Once the battery is charged, it can be used to power all sorts of existing and specially designed devices: night lights, torches, vibrators.

In Noam Toran's short film *Object for Lonely Men* (2001) the protagonist desires to be at one with Jean-Luc Godard's 1959 film *A bout de souffle*. Toran explains: 'In the film, the whole set-up was that the character was preparing for his night out, which was no more absurd than our normal nights out. He stays in, and goes out in a different way.' The project explores not only our relationship to electronic objects but how these objects mediate fantasies. The physical design consists of an extended TV dinner tray which includes among other things a child's steering wheel, a female head and a cut-out gun. It could be used as a kit you borrow when you rent a video, or it could be a place-setting in a special restaurant for lonely men where you choose your meal, and you interact.

Another project by Noam Toran, *Accessories for Lonely Men* (2001), consists of a collection of eight products designed to provide some of the incidental pleasures of shared existence for those who live alone. The idea for these products arose when the designer began to wonder whether we missed an individual or the generic traces they leave. During the night, the Sheet Stealer winds the bedclothes up into a tube attached to the side of the bed. Once woken by the cold, the sleeper can pull the sheet out again and reclaim it for himself. In another piece, a cut-out female silhouette is placed in front of a light to throw a shadow. The lamp even has a small drawer to store the silhouette in. Other objects are devised with more intimate moments in mind: once placed on the user's body, the steel finger of the Chest-Hair Curler starts to rotate gently, playing with his chest hair, while Shared Cigarette comes into its own after a solitary sex act. This device has two holes, one for the cigarette, and the other for exhaling smoke. The rapid-fire Plate Thrower, on the other hand, is to be used in moments of high passion. The collection also includes a pair of cold feet-like objects to place at the bottom end of the bed, an alarm clock that wakes you up by flicking a strand of hair across your face, and a device that expels breath-like bursts of warm air, to be placed on the pillow while you drift off to sleep.

These objects are clearly not intended for production, but are designed to provide mental pleasure and stimulate reflection. They are products for the mind. Their generic form raises issues about the use of form in conceptual design. If they are too realistic – that is, if they look as if they really should be used – objects like these can quickly become ridiculous. Their abstract form signals that they are intended to be used in the imagination.

Rather than designing objects that mimic people's actions, James Auger explores the psychological aspects of technologically augmenting our bodies, and uses value fictions to draw attention to values that could well emerge in the future, even though they are very different from anything we have now.

He is interested in how new technological possibilities will affect the way we treat other people in our search for new pleasures, and asks us to think about the desirability of his scenarios becoming reality.

Auger's device allows someone to be somewhere they are not. Wearing a head-mounted display, the user receives information from a second person whose own headset is equipped with a video camera and binaural microphones. So for example, a person might be hired to spend time in a peep show, attend a meeting, go on a blind date or even shopping on somebody else's behalf – verbal instructions would be relayed from the user to the host via a speaker in their helmet. Should the host be able to enjoy the experience too, or are they just renting out their body? One version of the device masks the host's ears and eyes, dehumanising them and clearly reminding them that they are just a rented body. In another scenario, a dog is used as a host, transmitting images and sounds of the countryside back to the customer. A more advanced service might allow the customer to tune into a range of different hosts as though they were TV channels. Of course, this device could have socially beneficial uses too, providing the housebound with a means of connection to their environment, for instance.

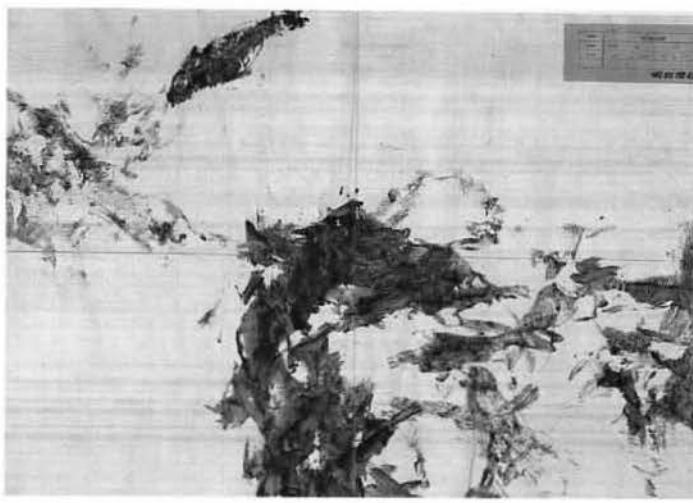
Design proposals like these can really only exist outside the marketplace, as a form of 'conceptual design' – meaning not the conceptual stage of a design project, but a design proposal intended to challenge preconceptions about how electronics shape our lives. These ideas might even be expressed in the form of films and books rather than products. Designers need to explore how such design thinking might re-enter everyday life in ways that maintain the design proposal's critical integrity and effectiveness, while facing accusations of escapism, utopianism or fantasy.

One way this could happen is if the design profession took on more social responsibility and developed its own independent vision, working with the public to demand more from industry than is currently on offer. This would require not only a shift in the way designers view their own position, but also how professional design organisations and associations see their role. Perhaps they could follow the lead of some architecture institutions, and focus on the need to encourage diverse visions through competitions and workshops for practising designers, as well as trying to engage the public through more challenging exhibitions and publications.

Or is this a role for 'academic' designers? Rather than writing papers and seeking conventional academic approval, they could exploit their privileged position to explore a subversive role for design as social critique. Free from commercial restrictions and based in an educational environment, they could develop provocative design proposals to challenge the simplistic Hollywood vision of the consumer electronics industry. Design proposals could be used as a medium to stimulate debate and discussion amongst the public, designers, and industry. The challenge is to blur the boundaries between the real and the fictional, so that the conceptual becomes more real and the real is seen as just one limited possibility among many.

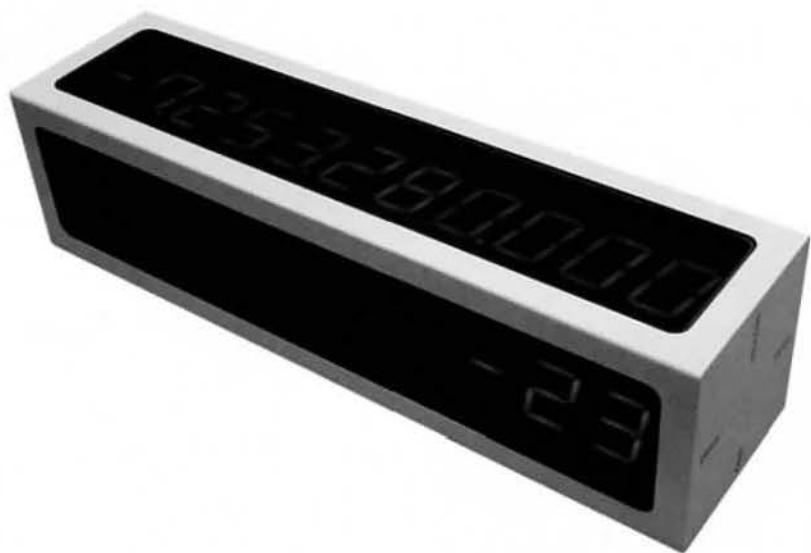


Three products by Maywa Denki: Sei-Gyo, Uke-TEL and Grafish, p.62





After-Life, by Jimmy Loizeau, p.64



Life Counter, by Ippei Matsumoto, p.63



Social Tele-Presence, by James Auger, p.65



Object for Lonely Men, by Noam Toran, p.64



Accessories for Lonely Men, by Noam Toran, p.65



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• Section 05: The Secret Life of Electronic Objects •

Placebo project

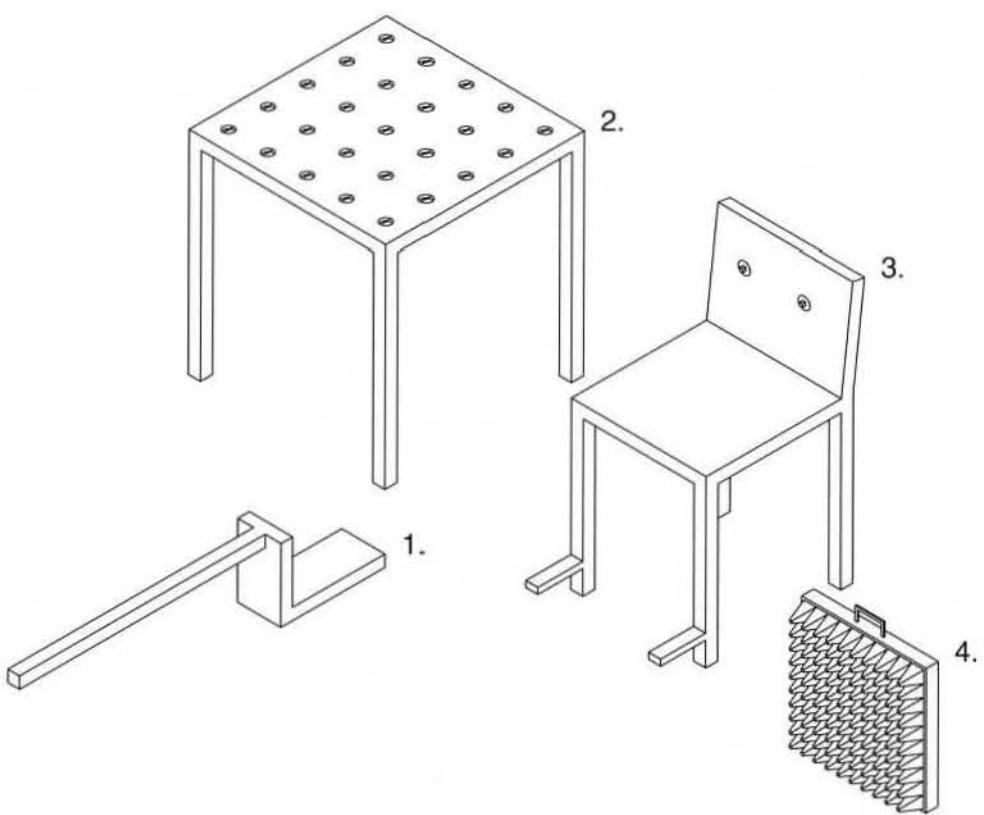
The Placebo project is an experiment in taking conceptual design beyond the gallery into everyday life. We devised and made eight prototype objects to investigate peoples' attitudes to and experiences of electromagnetic fields in the home, and placed them with volunteers. Made from MDF and usually one other specialist material, the objects are purposely diagrammatic and vaguely familiar. They are open-ended enough to prompt stories but not so open as to bewilder.

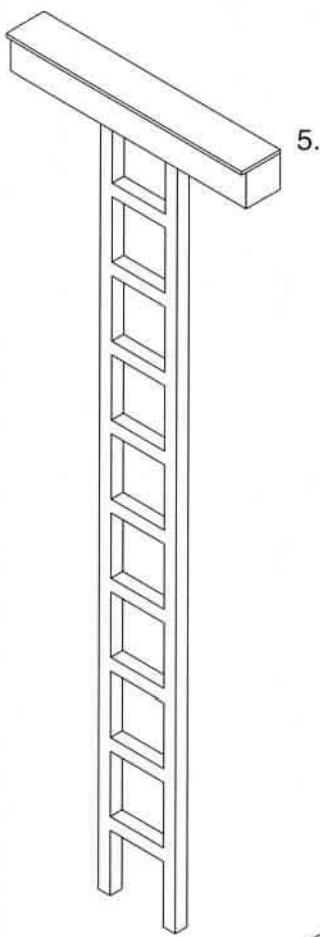
Once electronic objects enter people's homes, they develop private lives, or at least ones that are hidden from human vision. Occasionally we catch a glimpse of this life when objects interfere with each other, or malfunction. Many people believe that mobile phones heat up their ears, or feel their skin tingle when they sit near a TV, and almost everyone has heard stories of people picking up radio broadcasts in their fillings. We are not interested in whether these stories are true or scientific, but we are interested in the narratives people develop to explain and relate to electronic technologies, especially the invisible electromagnetic waves their electronic objects emit.

The Placebo objects are designed to elicit stories about the secret life of electronic objects – both factual and imagined. Homes for the objects were found through a variety of means, including adverts in a London listings magazine, workshops at the Victoria & Albert museum, a window display in Selfridges department store on Oxford Street and an article in a national newspaper. Potential adopters filled out application forms detailing any unusual experiences with electronic products, their attitude to electromagnetic waves and their reasons for choosing a particular object. Once their allotted time with the adopted object was up, we interviewed the people taking part in the project and collaborated with photographer Jason Evans to create images that pick up on and amplify details revealed during the interviews.

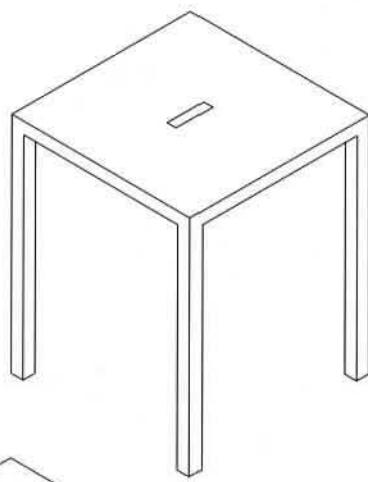
Designers cannot always solve problems, we cannot switch off the vast electromagnetic networks surrounding us all. Although we cannot change reality, we can change people's perception of it. Like a medical placebo, the objects in this project do not actually remove or counteract the cause for concern, but they can provide psychological comfort. The Placebo project is definitely not scientific: although aware of ethnographic and anthropological methodologies, we chose to adopt a more informal process in this case. We wanted to find out if people are more receptive to radical ideas than industry acknowledges, and to test our ideas about aesthetic meaning and electronic technology. We accept that the group of adopters was self-selecting. We also accept that they are probably exceptional people. But they are real people, and anything we discovered would be grounded in reality rather than fiction.

It is unlikely that any of the Placebo prototypes will make it into 'reality', at least not through the commercial marketplace. As one-offs, these products would be prohibitively expensive, and even if they were affordable, or mass-producible, their highly specific aesthetic function would mean they might only be useful for a limited period of time, like a book or video. We like the idea that these products would be available for rent, providing a service in the form of a reflective experience. Living with them for a while might encourage the borrower to think about their environment in a different way, especially in relation to electromagnetic fields.

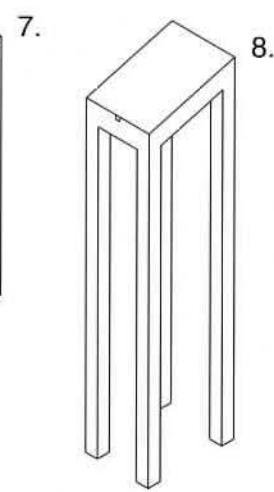




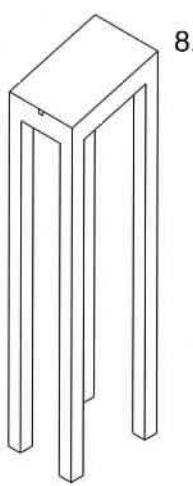
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1. Parasite light

This light is a 'needy object' - it only works when it is placed near an electronic product. Its shape provides a place to put an electronic product like a radio, and allows the lamp to be integrated into a stack of books to achieve the right height. The parasite light does not feed off EM fields and is in fact battery powered. Like the nipple chair, it uses an electric field sensor to relate the intensity of its function - in this case the amount of light emitted from 20 LEDs - to the strength of the field it senses.

2. Compass table

This table reminds you that electronic objects extend beyond their visible limits. The 25 compasses set into its surface twitch and spin when objects like mobile phones or laptop computers are placed on it. The twitching needles can be interpreted as being either sinister or charming, depending on the viewer's state of mind. When we designed the compass table, we wondered if a neat-freak might try to make all the needles line up, ignoring the architectural space of the room in favour of the Earth's magnetic field.

3. Nipple chair

An electric field sensor and antenna are mounted beneath the seat of the chair. When the chair is placed in an electromagnetic field, two nipples set into the back start to vibrate, and the sitter is made aware of the radio waves penetrating their torso. It is up to them whether they stay and enjoy the gentle buzz, or move to a 'quieter' spot. As fields can also flow up through the sitter's body from electric wiring running underneath the floor, the chair has footrests so that you can isolate your feet from the ground. We like that it is slightly anthropomorphic; it's as though you are sitting on its lap.

4. Electro-draught excluder

This object is a classic placebo. Though the draught excluder is made from conductive foam, it is not grounded, and therefore does not really absorb radiation. We were interested in whether or not it would make the owner feel more comfortable. If you are working near a TV, for example, you might place the object between you and the TV to create a sort of shadow - a comfort zone where you simply feel better.

5. Loft

This lead-clad box on top of a ladder is a place to store precious magnetic mementoes such as answerphone messages, audio cassettes or floppy discs away from potentially harmful electromagnetic fields. It is a loft for people who live in flats. This object signals to visitors that you have a special place for special items, but that it is out of bounds. Accessing the loft might become part of a ritual.

6. Electricity drain

Some people who are hyper-sensitive to electricity drain excess electricity from their bodies to alleviate their symptoms. They wrap a piece of wire around their fingers which is connected to a plug that only has an earth pin. This literally grounds the person, by enabling electricity to flow from the body out into the system. This stool works in the same way: you plug it in and sit naked on a stainless steel plate in the seat. We are particularly interested where people will keep this object: in the bathroom? Bedroom? Sitting room? Is it a hygiene product, meditative piece or functional chair?

7. GPS table

This table has a global positioning sensor inside it. It can only display its position in the world when it has a clear view of the satellites, the rest of the time it is lost and indicates this fact. The ideal owner will need a conservatory or large window, or a garden so that they can at least bring the table outdoors from time to time so it can connect with a satellite and fulfil its potential. We like the idea that people might feel a little cruel keeping it indoors.

8. Phone table

This table is an attempt to domesticate the mobile telephone, whose synthetic and urgent squawk can be difficult to resist. On returning home, the phone is placed inside the table with its ringer switched off. Whenever the phone is called, the top of the table glows gently. The table suggests how electronic objects can use a more gentle language to capture our attention or mediate human contact. When it does glow, it is much easier to resist than a ringing phone. The phone table can be positioned behind the TV if a call is expected, or out of sight if you would prefer not to be disturbed.



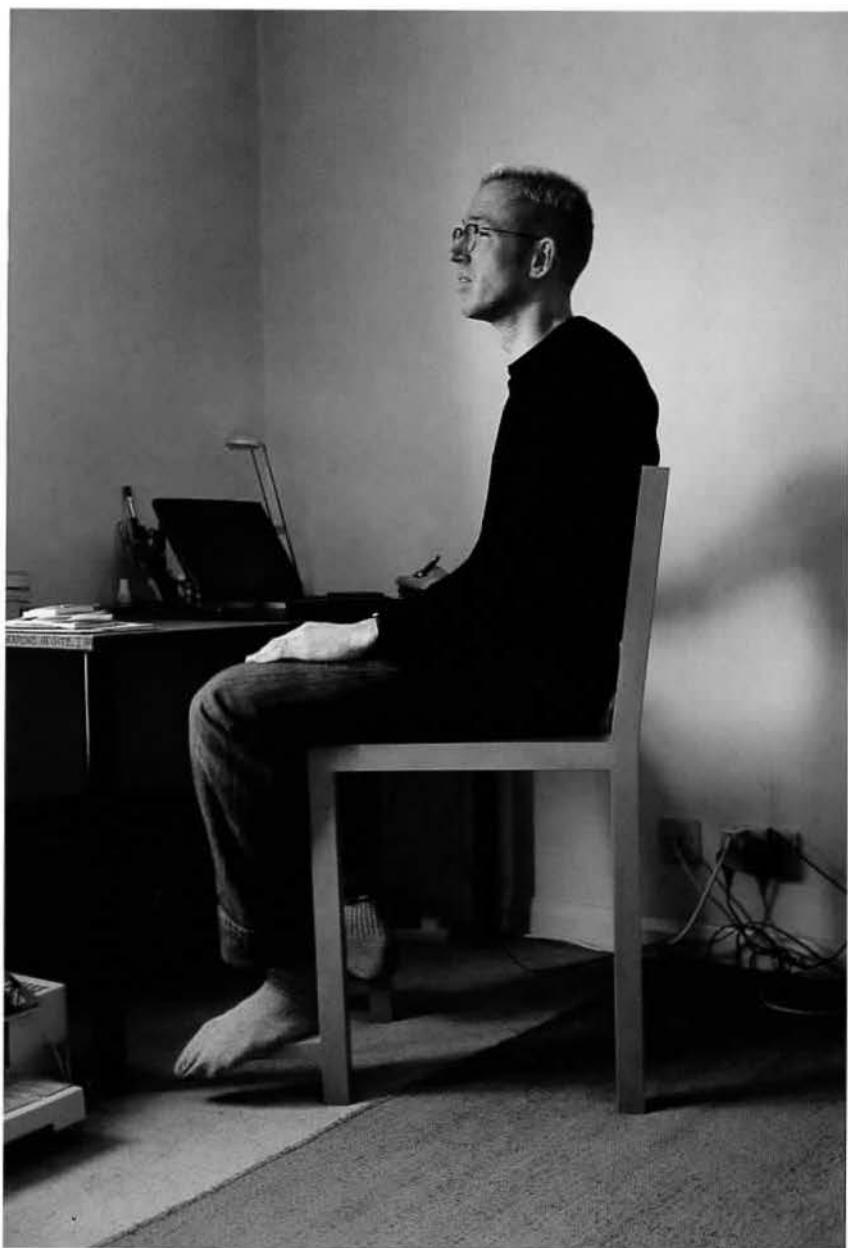
Diane & Arabella

9/06/01



Emma & Constance

11/06/01



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Lauren

6/07/01



Sophie

7/07/01



Denis, Harry & Lida

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