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By Edward Lovett

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Contents

Introduction

The study of media and it's many manifestations is relatively new. The rise of Communication Theory has come to represent a growing awareness of the crucial role of media to the production and direction of culture, history and society. It is the realisation that all mediums have "…**an ideological bias, a predisposition to construct the world as one thing rather than another**…"

I will explore in this thesis how, as digital technologies have become the predominate channels by which we receive and distribute information and affect more and more aspects of our lives, artists and designers the visual producers, reproducers and representatives of culture begin to reflect this shift within their work. I want to investigate how, for example, the shift away from media, which is restricted by time and/or space to technologies which, have in theory, infinite storage capacities and allow for the documentation of events over periods of time previously unimaginable.

Does the way we receive data now, change our relationship to it; as the mediums we use become more transient and immaterial the value we place on them declines, the only value we take is from the information itself. People own beautiful books but can you own a beautiful 'e-book' or webpage in the same way. Does this emphasis on the value of information in itself, when information is so readily accessible and infinitely reproducible, will this make an increasingly equal distribution of knowledge? Is digital media a force for fair and equal distribution of knowledge, where users now assimilate data, reconstruct then publish it, there is now a decreasing space between the producer and consumer culture, ideas can be the calmative expression of many and is always developing? Or is all this irrelevant and there are other reasons why a digital society could just as exclusive as society built on print?

When an artist or designer creates work digitally, unless they have a knowledge of programming, there are only a certain amount of prescribed options all of which have been made available by someone else independent of the user of the software, the programmer. Does the computer or more specifically the microprocessor then become a more restrictive tool of cultural production and discourse?

With the rise of digital technology the aspect peculiar to analog technology become apparent and when designers or artist have learnt to access the binary code and programmed their own tools, many seem intent on re-creating those aspects, namely the randomness and possibility for errors natural to the medium. I will consider why this is the case and whether it serves a new function when expressed digitally.

Digital data is constructed entirely from zeros and ones, on or off, start and stop, there is nothing that lies in-between these two states,

So in the turmoil and maelstrom, as the users and communicators of our cultures visual vocabulary we can attempt to translate and make comprehensible these changes, one day maybe being viewed as societies software, translating our societies cultural code into comprehensible, useful information? The realisation that a revelatory, accidental liminal space is no longer necessarily a tangible linear area between two points and can now be a physiological, intangible link between any number of points in time is, I believe, another step along that journey.

this is unlike an analogue system which uses a continuous, linear range of information, many of the aspects prized in analogue media today are precisely these that make apparent those in-between periods. How does a movement away from, say a dial to drop-down menu influence the creative act and is there now any allowance for unintended results or for the appreciation of the transition from one state to another? Are the in-betweens present in binary data in wholly new ways, which are still to be appreciated? Can we see evidence of this in, for example, the linking of information across the web, are the liminal states now the mental links or journey one makes when navigating across the Internet? A mental conception rather than a material one, where the in-between allows you to reinterpret the content you want in a new or unknown context?

Time Vs Space

In 1930 Harold Innis published 'The Fur Trade in Canada : An Introduction to Canadian Economic History' one of the first critical inquiries into the affects of the media on the society it inhabits, one of his basic premises described the differences between two cultures, that of the industrialised, literate West and that of Northern America or the New World, an illiterate, oral culture.
The concepts of time and space reflect the significance of media to civilization. Media which emphasize time are those which are durable in character such as parchment, clay and stone. The heavy materials are suited to the development of architecture and sculpture. Media which emphasize space are apt to be less durable and light in character such as papyrus and paper. The latter are suited to wide areas in administration and trade.

The West was a culture, which had developed rapidly through mechanization, largely thanks to the printing press. Books allowed ideas to spread over great distances to millions of people, repeated without dilution or alteration; it created empires built on administration and bureaucracy whereas the people of the New World existed in a reality shaped by time. Their knowledge was passed down by repetition from generation to generation between relatively small groups of people, the elderly held an important place in society; they were the bearers of knowledge and the story tellers of the community, stories which defined the community and placed it historically rather than geographically. The technology of spoken language encouraged and allowed an understanding of the world without, for example, exact dates or a value on exact details because there was no feasible way of recording these therefore people where the possessors of knowledge, not books or other physical records.

Thirty four years later Marshall McLuhan published 'Understanding Media' in which he elaborated on and took inspiration from Innis' time and space bias theories. McLuhan contends that media is not only the extension and definer of culture but of individuals themselves, for example, he equates television with sight, which by allowing us to see further extends our sight to places many thousands of miles away and thus distorting or changing our sense of distance or space. McLuhan uses the example of the light bulb to argue his idea that the medium or, in other words, technology shapes the environment and the messages transmitted by that medium as opposed to the content forming a technology to suit the message.

Whether the electric light is being used for brain surgery or night baseball is a matter of indifference. It could be argued that these activities are in some way the "content" of the electric light, since they could not exist without the electric light…the medium [that] shapes and

Corey Archangel and Simon Faithful have both used digital technology to create work which is unique to that medium and would be impossible to imagine let alone produce outside of it.

As our relationship to data has changed so, inevitably, has our understanding of it's value, when knowledge is instantly reproducible and malleable it no longer has a fixed state, this challenges the traditional view of the producers and consumers of knowledge. If a set of operating instructions, which is what software essentially is, is modifiable and can be duplicated with the click of a mouse, as in the case of Scriptographer, then there is never a point at which the idea stops, it is constantly in flux. The posts of different programmers are more like snap-shots or freeze frames of that data's current state, then it will go onto be re-written to fulfill a new purpose. Much like Lust's Poster Wall information is caught, re-calibrated, displayed and then stored the next set are then generated and the process starts once again.

Knowledge can no longer exist in geographical planes either in reality or physiologically, it exists wherever and whenever it needs to, shifting duplicating and fluctuating as the user sees fit, this new relationship is and will continue to manifest itself in almost every part of our lives, however the foreign and incomprehensible nature of binary requires an intermediary which many will not be able to influence. Whilst the divide between producer and consumer narrows and accepted notions of ownership of knowledge are being challenged on a daily basis the power to truly affect the mechanics of the way we access and create knowledge will likely belong to the minority.

The changes thus far, of which I have touched on but a few and the potential changes, which lie ahead because of the digital revolution, are so massive they are likely to be beyond comprehension, much of the time we can merely search out for clues as to the direction of this movement. As Gutenberg could not have foreseen that his attempt to spread the word of God would in fact initiate a sequence of events bringing about rationalism and the rise of science, almost bringing the Christian Church to it's knees in the West we cannot hope at this moment to predict what may happen to our culture as we move from a print to a digital society. This position does however place us at a possible advantage, in the words, once again, of Marshall McLuhan:

The main advantage in translation is the creative efforts it fosters, as Ezra Pound spent his life in telling and illustrating. And culture that is engaged in translating itself from one radical mode such as the auditory, into another mode like the visual is bound to be in creative ferment, as was classical Greece or the Renaissance. But our own time is an even more massive instance of such ferment, and just because of such "translation."

and the consumers after production but during the generation of the journal **“one group makes everything and everyone has equal responsibility and interest”** in it’s creation, again replicating the new realities of ownership of knowledge in a digital culture. This is absolutely within the physical print world but it reveals an attitude more akin to that of the digital, an acceptance that knowledge is in constant flux and something which is built upon by many without any one particular author; that lives through time rather than space, there is a concerted effort by Dexter Sinister to avoid both the traditionally linear mental and material production of print for not only economic but philosophical and conceptual reasons.

Conclusion

If we are entering a period when knowledge will be thought of in terms of time and duration, the concept of the end user is itself also at an end, it implies a final destination, if we are now more akin to what Harold Innis described as a ‘Time based’ culture rather than a ‘Space based’ culture knowledge doesn’t have destinations it perpetually travels, as Jan Verwoert said:

‘[there has been] a decisive shift in the relation to the object of appropriation – from the re-use of a dead commodity fetish to the invocation of something that lives through time…’

In many ways we are returning to, as Marshal McLuhan suggested, an ‘oral and auditory mode’ our date storage is durable, the nature of it’s durability is fundamentally different, it relies on it intangibility, it cannot be physically destroyed and it’s vast proliferation means it can be in many places simultaneously, mutating, adapting and surviving. Like the oral cultures of the past our relationship to information is often momentary and incidental but unlike them we also have the ability, should we wish, to store this information to store almost any human experience, ad infinitum. Any data accessed on line, for example (as a requisite of it’s existence) has been or is being recorded and potentially stored. This can be the retrieved at any moment unlike the spoken word, which exists only in the present.

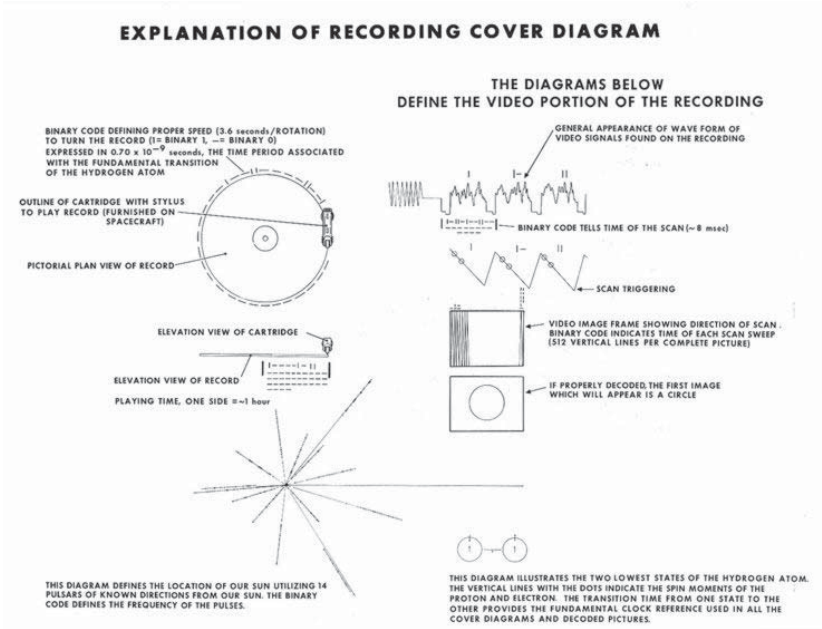
Binary code; the universal medium, which enables the recording and communication of so much of our lives is also unintelligible, without the use of software which currently acts as a barrier to the true mastery of digital as a craft and this lack of comprehension and ability leads many to replicate those traits that are unique to analog because the Error has become a powerful, nostalgic visual signifier. Now that we, as a culture, have begun to gain sufficient historical perspective over the previous technological hegemony, artist like Douglas Gordon and Miltos Manetas have been able to use the metaphorical cachet of analog technology to create their work, whilst

controls the scale and form of human association and action.
These ideas quickly spread and had a significant effect on communication theory, in the 1990’s Neil Postman published ‘Technopoly: The Surrender of Culture to Technology’ and in the chapter ‘The Judgment of Thamus’ he describes the “tool”, or mediums as having “…**an ideological bias, a predisposition to construct the world as one thing rather than another, to amplify one sense or skill or attitude more loudly over another.”** Innis, McLuhan and Postman all emphasise the idea that human beings as the producers and consumers of content are in fact directed by the medium they use to transmit their content, the ‘medium’ encourages certain modes of thought and constructions of reality because the content is societies dialogue, by another name; culture.

Voyager’s Golden Disc.

Roughly 83,635,475,968,465,335 km from Earth one of the more extreme instances of narrative compression floats further away from us everyday, aboard NASA’s Voyager I probe, launched in 1977 is a golden 12 inch record which attempts to explain in some small way the essence of humanity both pictorially and audibly. One side illustrates man, our position relative to 14 of the nearest pulsars and instructions of how to use the record if and when it is found.

VGRCOVER.JPG



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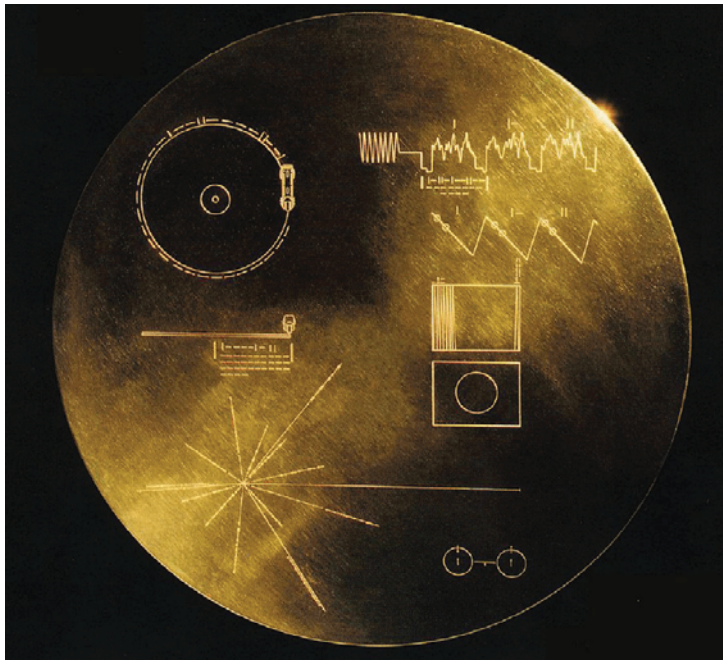


The browser window is filled with rectangular spaces, which contain image and text all of which have been subject to an automatic design process where the retrieved data is processed and given new forms all apparently unique. Although ostensibly concerned with the future and role of Graphic Design and the Graphic Designer, indeed posing the question **“Do we still need graphic designers?”** the work functions on a wider level.

It reveals, I believe, a new attitude towards information, this project is not only about the automatisation of the design process, these ‘posters’ don’t actually function as posters in the way their print counterparts do, however they do visually illustrate the distillation and freezing of dispirit information previously in flux. I doesn’t matter where the data originated it is simply important that it has been collated and reinterpreted to create new meaning, it seems to express a digital sensibility, an attitude to data as a commodity in of itself and an acceptance that whilst all the constituent meanings or purpose may be completely unrelated it is seen as legitimate, even useful that they be brought together. Not only the virtual existence of each ‘poster’ but the rapidity of the process, the period that the ‘poster’ remains relevant is so short (twenty four hours) that it is impossible to truly grasp it as a singular event, Poster Wall insists we **“…be prepared to relinquish the claim to full possession… [to] loosen the grip on the object and call it forth, invoke it rather than seize it.”.** We cannot literally get a grip on the object in any physical sense and the amount of information is so rapid and so impermanent that we are forced to gather what, relatively little we can and draw any meaning and purpose from that. There is no owner of any one piece of information, the data is seen as **“something that lives through time”** it is accessed, affects meaning then is lost again to be ‘mined’ in the words of Bruce Sterling, at a later date. Knowledge no longer exists on a plane where clear distinctions and states in between those distinctions can be made, all data is connected and can be joined, one thing will not necessarily follow from the other.

Back to the realm of print, Dexter Sinister, the pseudonym for Stuart Bailey and David Reinfurt, will, in October 2008, again attempt to produce the next issue of Dot Dot Dot a critical arts and design journal using a ‘live’ process **“which would exist in ‘real’ time and space before being hardened into printed form.”** This involves the gathering, editing and collation of information, up until and then throughout its reproduction into printed form using ‘Just-in-time’ production techniques so that in theory changes or adjustments to the construction or content of the data can be changed at anytime during it’s production, mimicking that essential and unique quality of Digital Technology, it can do this fairly successfully up until the point of material production, there is obviously a distinction between the producers of knowledge

POSTERWALL.JPG

The other contains 55 minutes of sounds and music entitled ‘Murmurs of Earth’ selected to best represent the earth and it’s peoples, what would have been selected if a compact disc or Hard Drive had been sent up instead? A significant and truly unique feature of digital ‘tools’ is the unparalleled rapid expansion in the scale of storage of information. There are ‘24,000 differing words to be found in the complete works of Shakespeare, about 1,700 of which he invented.’ using the UTF-8 system of coding binary information each of the individual letters or characters in his complete works would represent one byte of information, each of these consisting of 8 bits, that means the works would consist of approximately, if an average word contains 4 letters, 96,000 bytes or 96 kilobytes a figure which represents a minute fraction of the storage space on the laptop I’m using to write this dissertation, which has, just under 120,000,000,000 or 120 thousand million bytes. This obvious and simple example still illustrates the now great disparities in storage capacity required by an analogue technology, that of print, and it’s subsequent translation into the digital binary code. Even when we consider the physical space required for a computer or other electronic device such as an e-book they still pale into insignificance when compared to the thousands of printed pages used to store essentially the same content. Many norms in Western popular culture are founded on the restrictions of past technologies, the 3-minute pop song is only three minutes because the first widely available music format the 78 or 10 inch disc, which was designed to spin at 78 revolutions per minute could only accommodate 3 to 5 minutes of audio data. The same applies to the standard length and number of songs on a musical album indeed the concept of an album is the result of decisions made by record companies as to what the most cost efficient use of music playback technologies where at the time, the sixty minute, twelve inch vinyl long player. As Lev Manovich a prominent contemporary writer and artist said:

A drama, a novel, a film, a narrative painting or a photograph compresses weeks, years, decades, and even centuries of human existence into a number of essential scenes.

He is involved in communication theory and has used many of the ideas proposed by the McLuhian school of thought to analyse current technology like the internet and mobile communications. In his essay Metadating the Image he describes how traditional notions of narrative are being challenged and developed due to the recent ability to recorded almost indefinitely “…**digital recording and storage technologies greatly expand how much can be represented/recorded.**” New media allows the arts to record the range of human experience without the need to compress the content to a manageable time scale or physical volume this is precisely because the digital language used for transmission and storage has no direct relation to the thing

it later represents whether it be still image, moving image, text or audio it is all eventually really only a series of electronic impulses on a chip or hard drive. The entire works of Shakespeare in print may weigh tens of kilos but the digital equivalent stored on a memory stick will weigh only tens of grams and the actual mass of the electronic pulses would be infinitesimally small.

How does this reconfiguration of information affect our relationship with it? Would you value the complete works of Shakespeare more in print than when viewed from your memory stick on screen or even as computer print outs despite the fact they contain the same information. More precisely, in print do you value the complete works of Shakespeare not only for it's literally greatness but also for the inherent material value of the object itself? When the access point to the information becomes one, which is essentially not real in the physical sense does all or most of the value of the information being presented shift almost entirely to the information itself. If the conduit that translates binary code into intelligible information is one, which is in an apparent state of permanent flux, the graphic of a web browser for example, how can they be seen to have any significance in relation to the information, the web page is subservient to the information it contains it can be altered at any time to incorporate any changes to the data it is representing. It is literally as well as mentally the conduit rather than the carrier of content, an important distinction, as with the spoken word the deliverer of content is relatively worthless, it has no physicality and therefore no material value and it is distinct say from an idea which can be given a material value under Intellectual Property law, it functions by representing the data through time tracking it's changing states rather than fixing it into a particular space.

If we take a Postmanian reading of these ideas then how and where are the 'predispositions' of digital technologies making themselves apparent? All of the following works examine this question in part, they are intentionally or un intentionally utilizing there technological medium to fundamentally shape it's form, in fact none of these works I believe, would have been possible to conceive without their chosen modes of production. They highlight the beginnings of a "translation" from one communicative mode to the other.

Translation and creative ferment

Simon Faithful a British artist was commissioned to take a trip with the British Antarctic Survey over a two month period running from the end of 2004 to 2005. He was asked to produce work in response to this trip to the Halley Research Station, Antarctica; he decided to send images everyday of what he saw electronically over email to anybody who had wished to take part. Accordingly

This new relationship with data and a new understanding or conception of knowledge and ideas initiated by digital technology is still something which is very much in its infancy, I know from personal experience that web design has no where near as many standards or accepted ways of 'doing-things' as print design, if you access the World Wide Web Consortium's Recommendations the number of rules and also the level of scrutiny and testing each of those rules have been subjected to would not come close to that of typographical design and as Marshal McLuhan says:

We actually live mythically and integrally, as it were, but we continue to think in the old, fragmented space and time patterns of the pre-electric age.

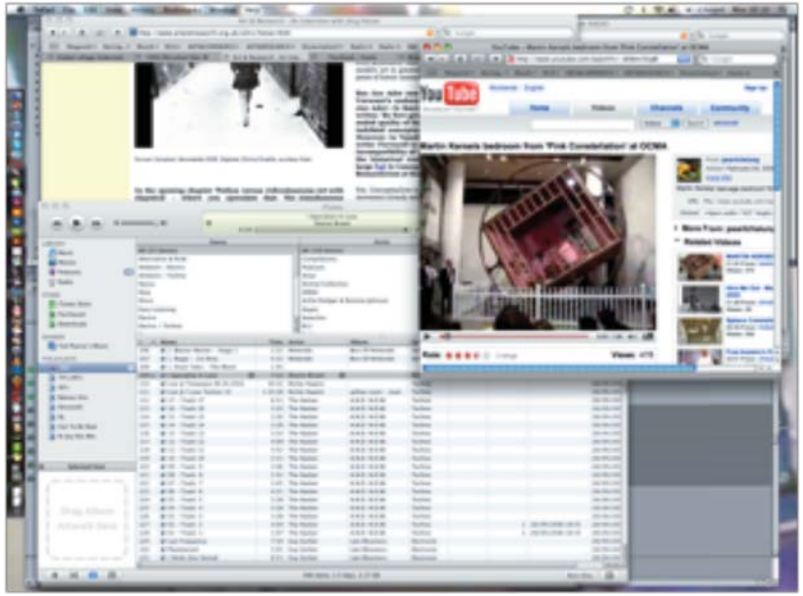
The legacy of print is still very much with us and as we saw earlier in the third chapter, the conflict between and subsequent victory of digital technology, to put in Postmanian terms, has allowed a reassessment of analog technology, which has manifest itself through the work of many artists. In Relational Aesthetics a theory laid out by Nicolas Bourriaud in a book under the same title, written in the late nineties began the process or examination of the way in which the mental landscape was being affected by primarily the Internet, he imagines

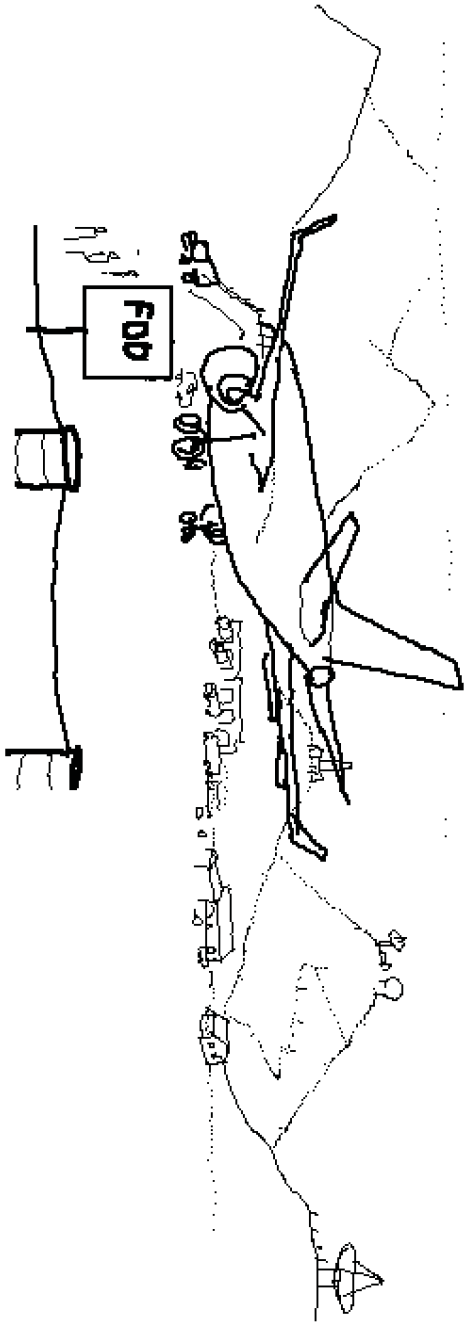
Arts as: taking as it's theoretical horizon the realm of human interactions human interactions and it's social context, rather than the assertion of an independent and private symbolic space

Bourriaud begins to unravel what was then a new experience in Art and a distinct way of invoking new meanings from our shared visual vocabulary. A decade later the Internet and the possibilities of digital technology are far more prevalent and more ingrained into the cultural imagination. Now this shift has caused others to experiment with the ways in which this is affecting their own professions and structures of accepted practice.

LUST a Dutch design studio play with a bastion of print culture, the poster, their project Poster Wall (2008) is a process led piece of work where six hundred 'Posters' are generated everyday by drawing and sampling data from across the internet, then processing this into something which resembles a wall or area of overlapping poster style images.

DESKTOP_EXAMPLE.TIFF





ANTARCTICA02.GIF

every twenty four hours at least one image was sent from Faithful to the recipients, the process involved the sketching of an image into a commonly available 'Palm Pilot' which was then sent from his ship over the Internet to his audience.

What strikes me as significant is the conscious decision to use a technology which is not considered precious or of particular worth. The Palm Pilot sketches do not carry any associated value within themselves, they neither give much to the viewer in terms of actual visual information or uniqueness. The images where made available to anyone who wanted them completely free of charge with no copywrite restrictions. The images are infinitely reproducible and by their nature transient being both delivered by email and available on the web. Considering the current discourse around climate change and in this case the Antarctic and North Pole one can argue that this technique was chosen to utilize the associations of impermanence, fragility and worthlessness associated with both this medium and aesthetic. A fine pencil drawing or photograph would have delivered much greater visual detail but because of the extremely loaded content could never communicate anything but the very narrow message within the current climate change conversation. By transfiguring extra ordinary content through an absolutely ordinary context Faithful lays down the associations of the medium the messages are traveling through.

The enlarged image reveals that despite appearing to be imperfect the image is actually perfectly organized each pixel is an exact shade of grey or black and each one occupies the exact same area. There is literally no space between the pixels which merely reflects the fact that as a piece of information you either are or you are not, on/off, yes/no; unlike analogue which is a continuous flow where comprehensible information comes to the surface then fades away again, with digital it is either comprehensible or not at all.

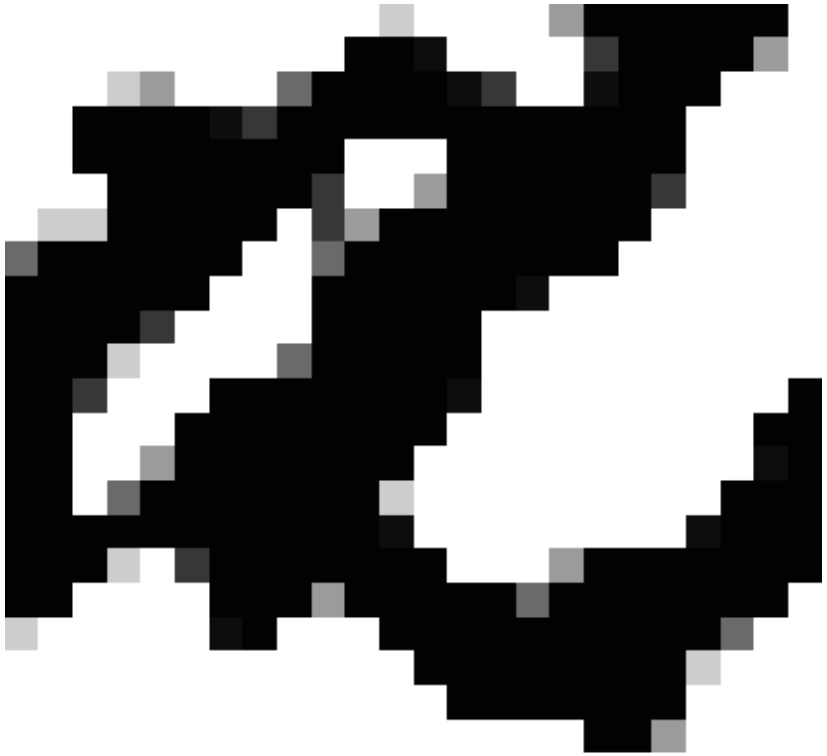
So if the digital structure is discontinuous and doesn't allow or is not capable of accommodating liminal states as an intrinsic part of it, does this mean the 'Happy Accident' is dead? Are we consigned to an endless existence of error emulation in the search for the human touch in our cultural products? I will argue that liminality is alive and well, it's just where it becomes evident has shifted totally and fundamentally to a new arena; from the material medium to the ephemeral and conceptual imagination of the user.

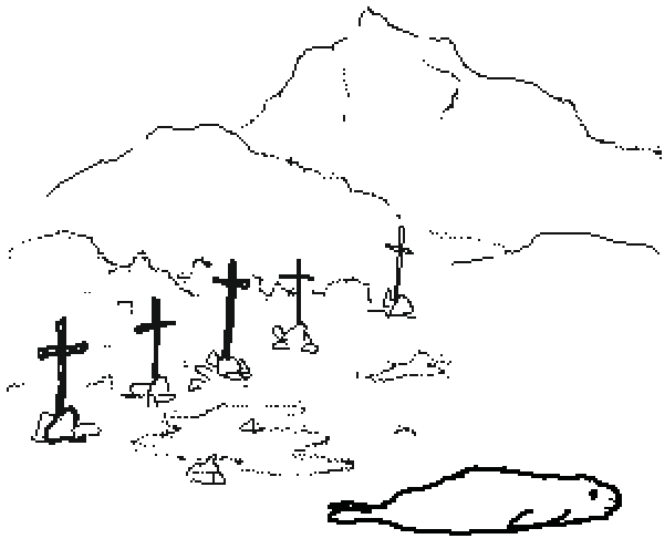
Digital Liminality

Binary code's universality means many incarnations of that data can potentially sit side-by-side, videos, texts, sounds, music, perhaps in the future, the sense of touch similar to the 'Feelies' in Aldous Huxley's Brave New World? Many divergent and diverse meanings, narratives and sets of information can exist within the same space at the same time, many 'asynchronous temporalities' converge to create new meanings, new contexts.

Then there is the Internet the perfect structural model to help us understand the new plane of knowledge; all data existing in a fleeting present whilst also in the past, resurfacing when requested, adaptable, repeatable, appearing in relation to other data in the form of embedded links in text or 'tags' in discussion forums. One direction through data can lead of into a multitude of other routes and at each link the possibility of a new context exists. All of these bringing-togethers are by their very nature made within the imagination of the user, they cannot be physically linked but their mental associations with one another can be just as unexpected or accidental.

TREE_PHOTOCOPY_CLOSE.TIFF





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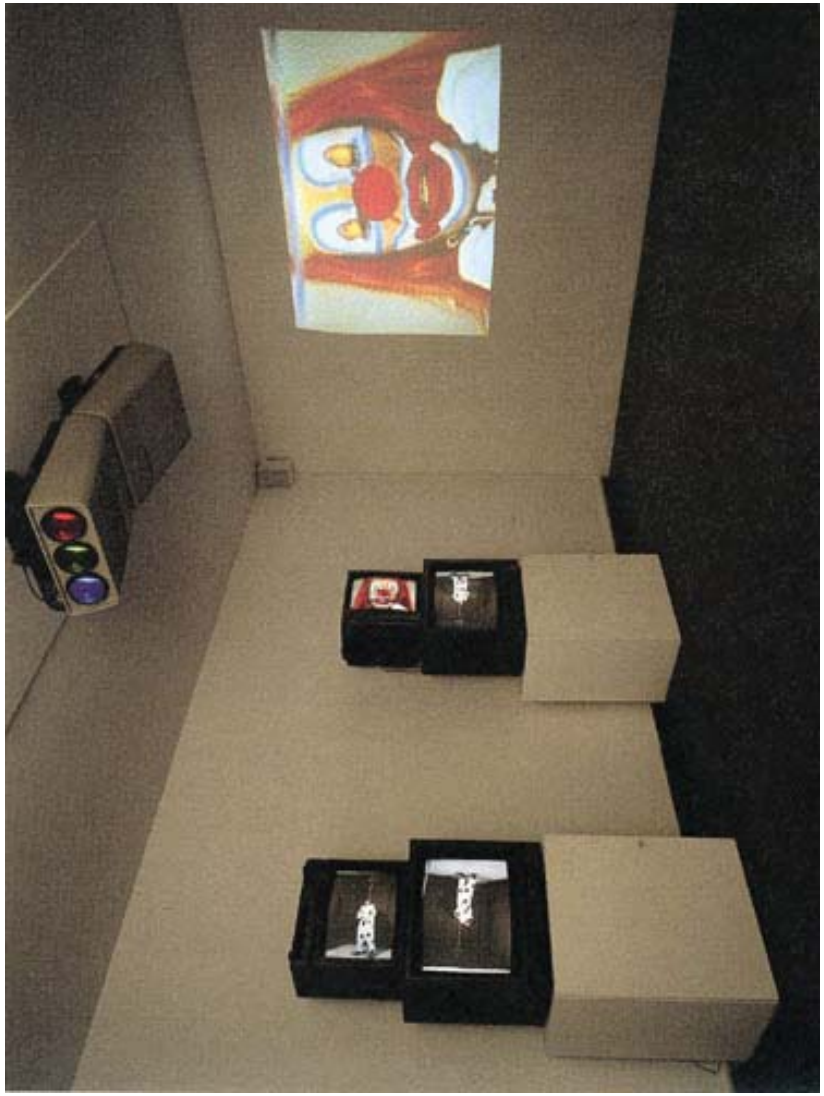
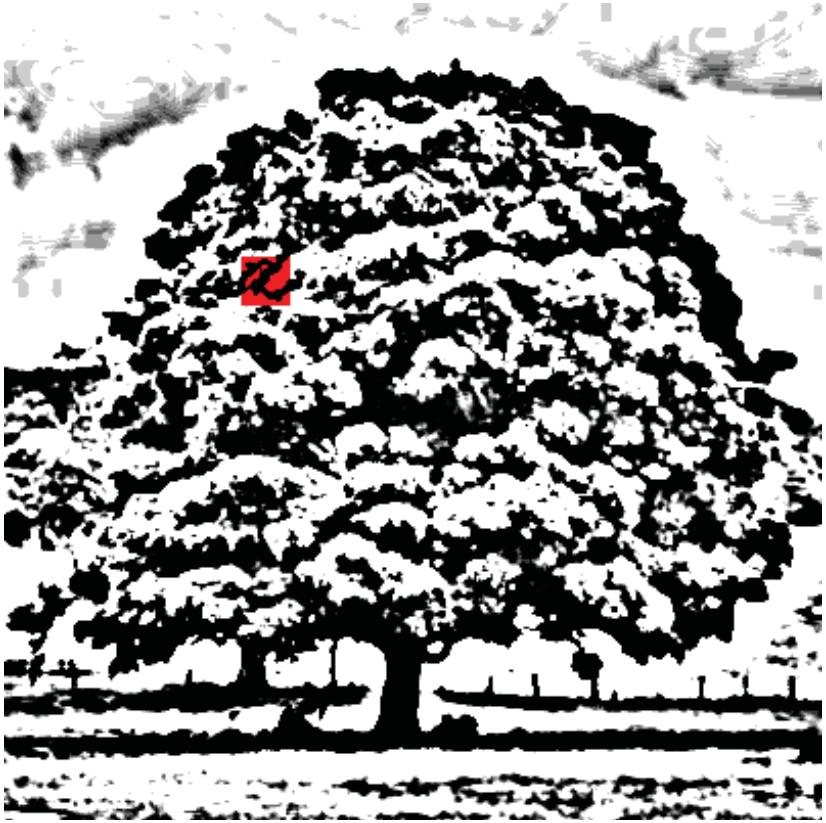
CLOWN-1-22.JPG





TREE_PHOTOCOPY.TIFF

appreciate why location is so important. This is why when the state from ink and form to the state of paper and neutrality is disrupted the reading of that data will be affected, even if it is in the most minute and subconscious way it is still there and will change the significance of that data. The disfigurement of the original form invites new interpretations. Unlike print, the experience of a space between two states is mandatory when tuning an analogue radio with an analogue tuner but it still encourages the same understandings of content in relation to it's neighbor or neighbors. If we understand that these channels of data exist on a physical plane together we can also draw their meanings together, we, in someway, re-contextualise each context in relation to the other. Analog technology frames knowledge in planes, which are navigated in a linear way from one to another it therefore makes sense that the liminal spaces feed from one to the other in a geographical sense, this is often implicit in the language used to describe the technology, a good example being radio stations, they are understood as two separate pieces of information but which neighbor each other. So what are the implications for the way we conceptualise knowledge when we consider the nature or implicit predispositions of digital technology? As I discussed in the previous chapter there are many ways in which digital technology tries to emulate the idiosyncrasies of analogue technology by replicating the aesthetics of imperfection, this however, will essentially not serve the same function or initiate the same outcomes because each byte has been processed, consequently any smudge or rough edge will have been preconceived and premeditated the parallel to it's random and unwanted predecessor.

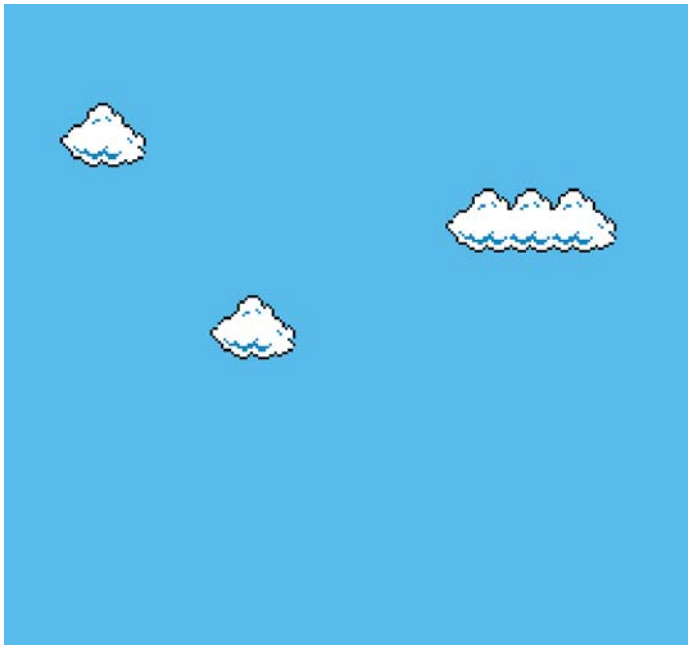
The emulation of errors will not generate the unexpected coming together of two previously separate states and therefore the state of transformation between them. Within it's very structure digital does not allow in-betweens there is no liminal space between bytes; 'representing data as a series of numerical values' data is discontinuous and this is reflected in it's output, any truly digital product will not have any errors within it's representation, this is an important note because of course the input could have errors, this could contain spelling errors for example, but the representation will be an exact translation of the information input into the system.

Twenty years previous to this piece, Bruce Nauman and his piece 'Clown Torture' used 4 televisions, 4 speakers and 2 projectors to simultaneously playback images of a clown reciting the same elliptical sentence **"Pete and Repeat were sitting on a fence. Pete fell off; who was left? Repeat. Pete and Repeat were sitting on a fence**…" frustration builds as on the other 2 screens clowns try to balance various objects without success, an uncomfortable disjuncture between familial objects (TVs) and media being displayed is produced making you hyper aware of both the images being shown and the way in which they are being shown. Just as Faithful used a Personal Digital Assistant in 2005 Nauman used Televisions in 1987, both unremarkable and less visible technologies of their day. A collision of the mundane and the unusual that accentuates their differences and adds strength to each competing message.

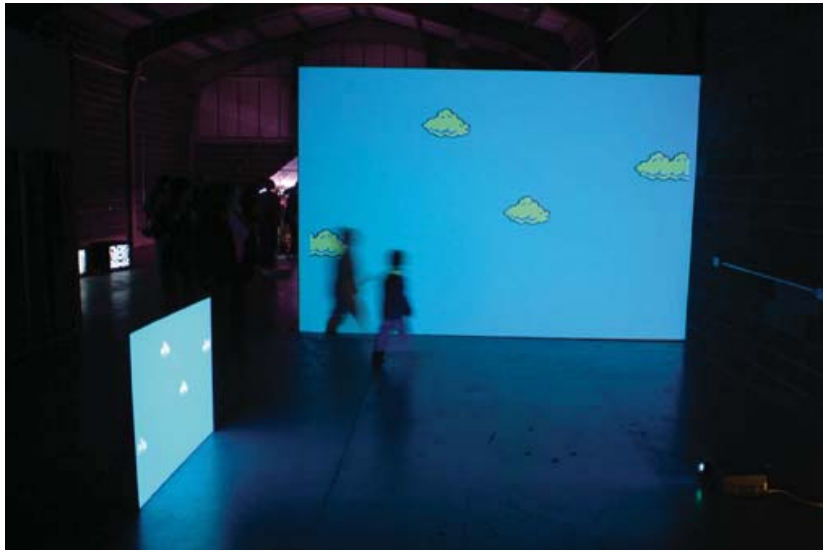
In his book Digital McLuhan: A guide to the information Millennium Paul Levinson considers the fate of the Television in the chapter Television as art in the digital age he describes the sequence in which objects or processes that were once mundane and everyday become outdated by a new technology and take on a wholly new purpose and meaning precisely because they no longer exist to fulfill their useful technological role, their inner workings and functionality are visible as they become no longer the norm, they become significant in of themselves rather than simply the apparently invisible conduits of meaning.

The television prescribes certain modes of production and those modes become more apparent when they are no longer the modes of production of new technologies If the web excels in the accidental hypertext connection, how could the carefully plotted performance of a Playhouse 90 not loom large in nostalgic cachet?

A more contemporary example within digital technology is the work of Corey Archangel, an American artist and musician who produces work exactly along these lines; dismantling and reassembling Nintendo Entertainment Systems (NES) re-wiring the hardware and re-writing the software to produce work which is symbolically and nostalgically potent. For his piece Mario Clouds (e) produced in 2005 he erased a significant proportion of the programming from Super Mario Land games cartridge whilst leaving the graphics information intact.



CLOUDS.JPG



CLOUDS2.JPG

takes can afford new ways of seeing. The recognition on the page that there is a state in which neither the paper or ink function as they should do or are not where they should be exposes the liminal aspects of print, from the 'off' of the paper to the 'on' of the print a new space is created. In other analog technologies the liminal spaces are always apparent, all analogue radio, FM, AM, Long Wave and Short Wave are continuous waves of energy with the recognisable content, the radio stations, inhabiting areas within that. We are all familiar with the hiss of a radio but how does that affect our perception of the information we are trying to access? Does the turn of the dial from one content to another affect the way we interpret the next and how we remember the last and what if the information overlaps on the far ends of each frequency with the other? If one uses digital tuning on an analog system or a DAB radio there are no areas in between, the liminal spaces between and possible meaning is hidden or in the case of DAB simply not present, there is no way to access them. Analog technology wears its liminal states on it's sleeve they exist materially, you can see them, feel them, hear them, it's form as a continuous flow of data means that it is impossible for the data to stop you'll instead have data without useful information encoded into it, which appears in the form in the form of, for example, bleed, audio and televisual static. I believe that this exposure of the state of transformation, the manifestation of two states together, the liminal state, can lead to new ways of understanding and comprehending the information or ideas at either side. Coming back to the example of bleed in printing, most commonly associated with screen-printing, occurs when either too much ink is pushed through the silkscreen itself or too much pressure is applied to the 'squeegee' (the rubber blade used to drag ink along the screen) and the ink spreads around behind the stencil leaving a mark similar to a smudge, next to where the ink should have stopped, this area represents a liminal space. If we understand print, in it's most basic and fundamental terms, as paper being used as a carrier of information where a dye is laid down onto the substrate in particular areas and into a particular order then if this order and location is changed new meanings will be drawn from the print. Imagine two pieces of print both identical in size, one a article which lists the wealthiest cities in the United Kingdom with the richest coming first, the other representing the geography of the UK. The list, following Western print convention, will put London at the top of the page because the system of ordering information, as we know, runs from left to right, top to bottom whereas the geographical representation would put London around the bottom area of the page because it is attempting to relate to the physical characteristics of Britain. Here we see that the placement of ink on the page is fundamental to the reading of that information, print in it's broadest sense is the changing states of areas on the page, if we understand the page as a landscape which is to be surveyed then we can

Accidents-on-purpose

So why is there such an apparent need to randomise the working process and how is this different from the random or chance products of analog technology? To address my second point the creation of chance, or what would have been described as errors previously, is fundamentally different to an error which is sought out. In fact apart from sharing the same name they are entirely different phenomena, errors or chance where traditionally to be avoided in analogue technology, the understanding that something is technically good rested on the idea that it had been produced with as few errors as possible, nothing was left to chance, an imperfect piece of printing was not a desirable attribute, digital technologies do not allow errors as we understand them in the analogue sense, for example you cannot smudge the type of a digital file and word will not accidentally assemble these words with upside-down u's as an n as can occur in letterpress printing, it simply is not possible. It is precisely because of this intrinsic inability to make, as we understand them in the traditional sense, mistakes that errors or unpredictability take on a wholly new meaning. The Error holds a new significance, which is entirely devoid and unrelated from actual, real mistakes. It's thought to bring a tactility, a real or human touch to a work which would otherwise been seen as sterile and soulless. This shift in meaning suggests a completely new conception in the role of the error, it has now become a visual commodity with connotations and signification for any work which utilises it.

These examples all illustrate the desire to create something which although is still digital has the appeal of the 'handmade' and by handmade I mean essentially individual, because none of these are actually crafted materially as we would recognise in an analog sense, they are infinitely and exactly reproducible unlike their physically counterparts. If we acknowledge that the Error now has a purpose and a role within the visual vocabulary of digital culture how did it function in a productive way in the previous analogue, print culture?

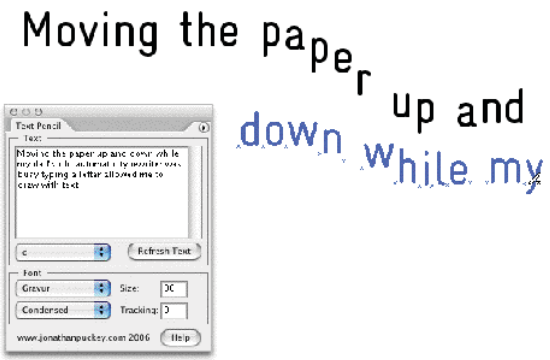
Happy Accidents

If we think of an analogue error as the point at which the mechanical process is revealed by a fault in that process, for example when we see a poster the medium stays relatively invisible to us but if we see that the process has malfunctioned we see the bleed of ink or the mis-registration of colours we are suddenly made aware of the process which has created the image. With the revealing of the technology one reads the content in a new way; it has been recontextualised and because of this new meanings can be drawn from it, mis-

What resulted was a continuous and possibly infinite looping sequence in which the iconic sky and cloud background section of the original game pass by the screen, these were then projected on **"as many projectors that were available**…" to create a space "…**where you'd like to take a pinic**…" Archangel seems more focused on the idea of re-appropriating or "stealing" the aesthetic of the NES and placing it in the context of an art gallery this is made possible by his technical proficiency but also made culturally viable because the disembodied visuals hold a new status within contemporary popular culture, Archangel readily admits to only dealing with this type of subject matter because it's "all he knows". What, however, I find more interesting is the act of erasure itself, with the NES cartridge lies an example of another truly unique characteristic of digital technology, the ability to erase or adjust from one state to another without any evidence whatsoever of any change having taken place. If you weren't aware of Super Mario you would have no idea that the 'Super Mario Clouds' where a seriously reduced form of their former selves because digital technology doesn't leave behind any trace of any deleted material. The technique of translating binary code into something comprehensible to human beings will not give away any sign that the data may have existed in any other state.

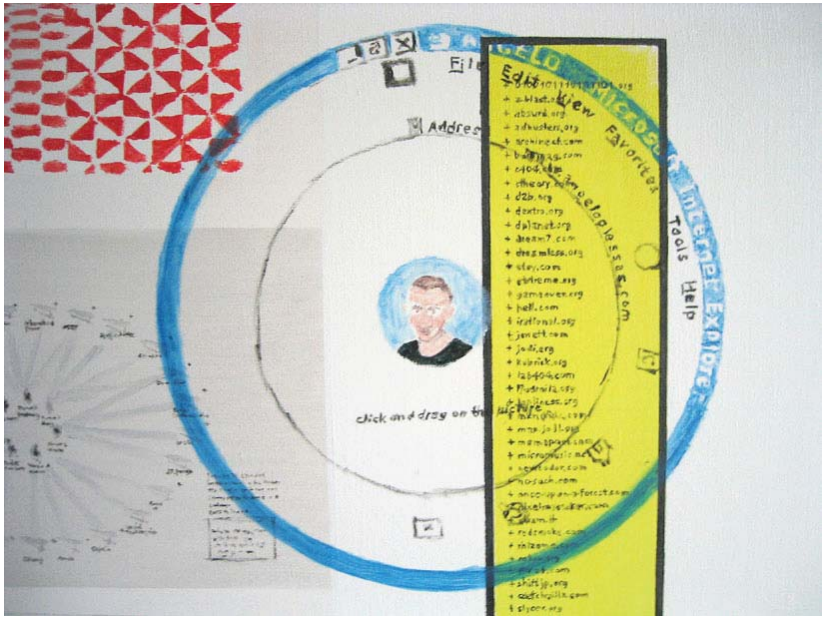
Miltos Manetas' piece Internet Paintings attempts to records a snapshot of each website he finds of interest by painting these images onto one of two large canvases. He describes them as "infinite paintings" which he will continually add to and subtract from as the painted websites change online to create a "painted collage" which resemble, as closely as possible, it's virtual counterpart. This process is interesting because it takes the digital from it's binary roots and attempts to superimpose it onto an analog surface. As the online adapts and evolves with no trace, distortion or degradation to the information being displayed the 'real' reproduction is, however left with a legacy or memory of it's previous state which eventually leads to the visual degredation of the information, his work exposes the inadequacies of analog technology when attempting to mimic one of digital's unique attributes.

MILTOS_MANETAS_ON.JPG



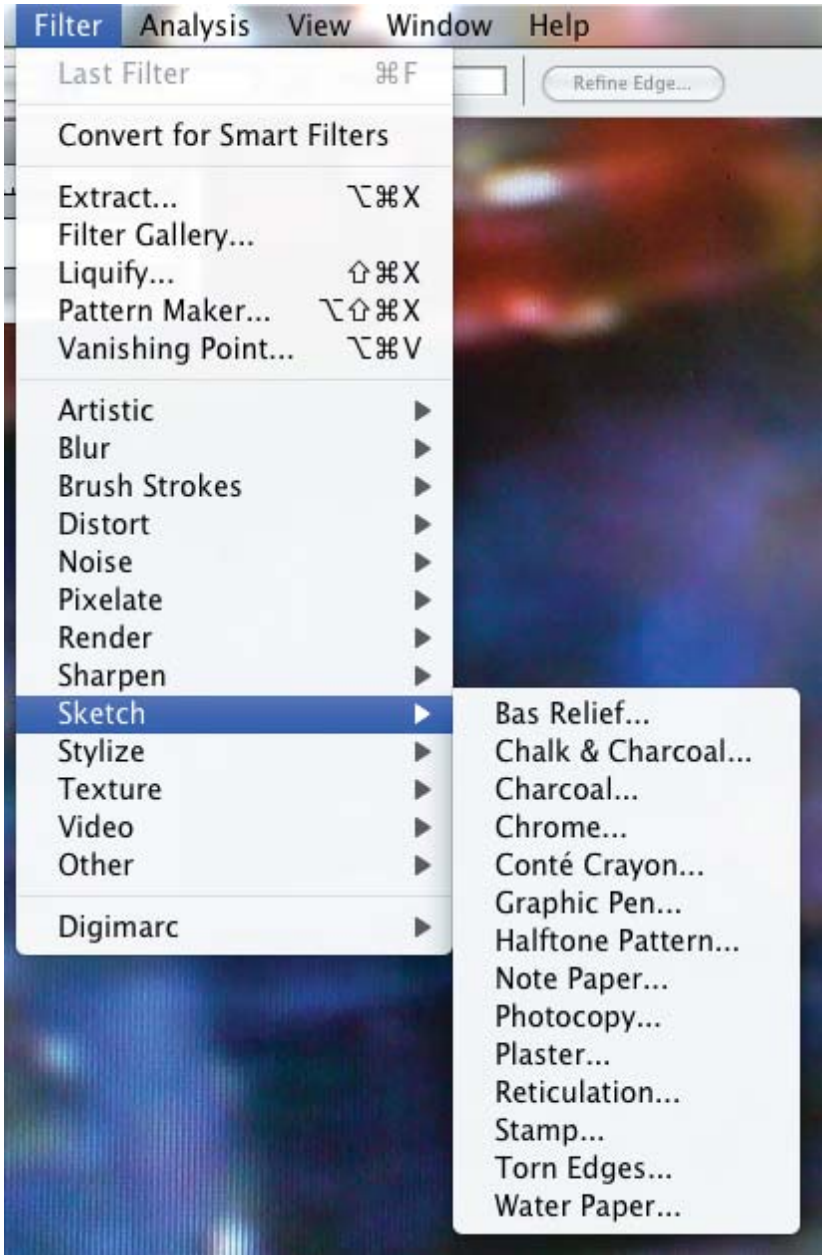
SCRIPTOGRAPHER_CROPPED_MULTI.PNG

if not willing to describe themselves as programmers are at least program savvy, users who can achieve a technical mastery over their tools which is comparable to that of the mechanical manipulation of analogue technologies. Interestingly many if not the majority of these scripts seem to be attempts to randomise the normally completely controlled and predictable effects of Adobe Illustrator a desire for an unknown outcome seems to prevail.



NET_PAINT36.JPG

2005 Turner Prize winner Simon Starling also explores how the change of state of physical objects makes itself apparent in his piece Shedboatshed. To do this he collapsed a shed which sat next to the River Rhein, Germany, re-assembled it as a functioning boat then took it 10km down stream and there re-assembled it back into it's previous state.



DROP-DOWN_PICTURE 4.PNG

As discussed in the previous chapter the architecture which lies behind digital media is binary code; an unintelligible language that makes the transmission and storage of almost all human and non-human senses possible. It is also potentially something which prevents a direct relationship with the 'real' data by virtue of the fact that all dealings with that content must be handled through a piece of software or programming which the user has had no hand in creating.

The Drop-down menu, something that is as much a key part of the navigation of a computer system as the cursor. It is the area in any program where the user can find all the available options within the software. The example above shows the 'Filter' menu within Adobe Photoshop it has an expanded subsection in which a variety of different effects can be applied to an image, all of these aim to replicate, as with the Printed Bible, it technological predecessors, with this software you can apply, for example, a 'Photocopy' or 'Chalk & Charcoal' effect to an image, desirable aesthetics in themselves because of the obsolescence of their respective real technologies. Within just this menu (one of a total of eight variables directly related to the manipulation of images) there are approximately 150 different processes any one image can be transformed through. Within the majority of these options there yet another subsidiary number of settings which can be tweaked to create the desired affect. All of these possibilities open up to the user a myriad of possibilities and offer them access to many more visual treatments within one space than could ever have been imagined previous to the computer, the fact that binary code can be translated into all of these diverse visual effects is testament to it's universality. However one cannot escape the fact that there may be 500 or even 1000 different ways of manipulating an image but all of these treatments have been predetermined, there may be an 'error' filter but there is no real room for mistakes or subversion.

Some artist and designers have attempted to overcome this issue and put the power to understand and consequently the power to manipulate the software back into the hands of the user, Scriptographer is one such example, originally released in 2002 by Jürg Lehni, this Javascript Plug-in allows any user of Abobe Illustrator to in effect create their own tools with which...

to produce their work using a program called Scriptographer to crack open the mother of all design software – Adobe Illustrator – [they] adapt it to their own devices. In the process, … rediscovering the pleasures of making and breaking their own tools.

Each script produced can, potentially be published on the Scriptographer website and has created a community of artist/designers who

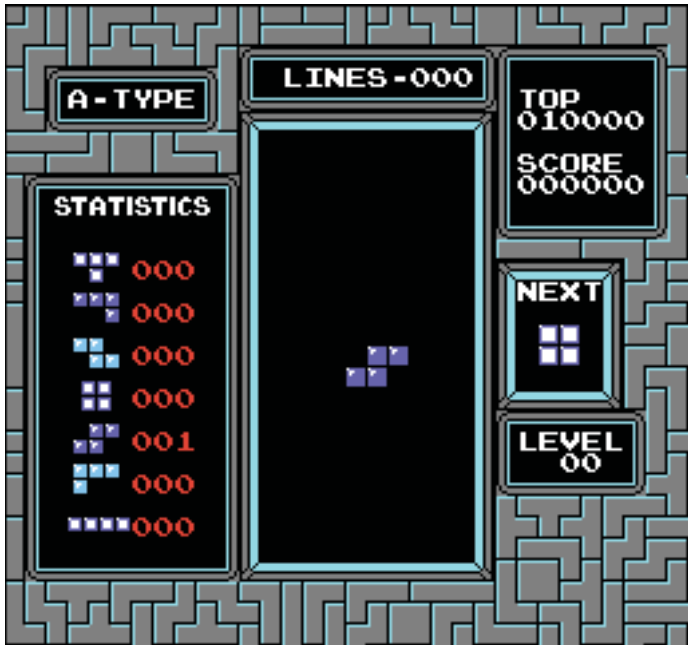
STARLING_SHEDBOATSHED.JPG

The now shed was left with the scars of it's journey and previous state. This evidence imbued the structure with a new resonance beyond that of it's previous one either as a shed or a boat, making the process literally visible gave the shed something more.

The cuts in the walls corresponded to the contours of the former boat; the now redundant holes were where bolts had been holding the craft together. Coming back to Corey Archangel and the digital realm but focusing on how change of state becomes apparent within digital. He produced a piece called Super SIow Tetris in which he adjusted just one piece of coding associated with the timing of the game in a NES Tetris games cartridge from a one second to a three second, significantly affecting the chronological functioning of the game.

Because the average user of digital technology has to construct their work with a piece of software, which has been created by an exterior other, can they truly, completely realise and express their artistic vision through it? The typesetter can understand the mechanics of the letter press and therefore subvert the system, of course, the system has it's limits but those limits are the result of the physical capabilities of the mechanism rather than those which an unknown other with an unknown agenda has determined is the useful parameters of the program.

24HOURPSYCHO2.JPG



NES_TETRIS_SS1.GIF

This method of neither addition nor subtraction but adjustment, which he described as "…**the smallest thing I could do to make the game art.**" Archangel changed one small but absolutely fundamental element of the data, in contrast to Mario Clouds where data was removed, replicating digitally the same characteristics we have seen in both 'Internet Painting' and 'Shedboatshed', however because this is done digitally the result is quite different the work becomes one of revealing to us the systems and structures of the game whilst leaving it visually reduced but intact rather than a process of illuminating past states. Previous to this Douglas Gordon performed an identical process in 1993 with '24 Hour Psycho' when he slowed down Alfred Hitchcock's 'Psycho' so that it ran over a 24 hour period in an attempt to expose and allow the viewer to truly appreciate the technical mastery he "…**wanted to maintain the authorship of Hitchcock so that when an audience would see my 24 Hour Psycho they would think much more about Hitchcock and much less, or not at all, about me**…" Would this idea have been possible or relevant before the digital revolution. Is Douglas Gordon's approach not a reflection of a new understanding of traditional cinema. A type of cinema which is seen and appreciated with the techniques and structures the medium facilitates in the mind as much as the original content

These examples also demonstrate what is possible when the technology of the medium is understood from a historical perspective and the artist has the technical ability to modify it, indeed I believe all of these works become or are as much about their mediums as they are about their content, the information and technology rely equally on each other to create an effective artwork. Although the digital revolution has necessitated a new understanding of it's predecessors and has made us conscious of it's '…emphasis [toward] logic, sequence, history, exposition, objectivity, detachment and discipline.' Digital technology is still very much in it's infancy, personally speaking the internet has only really been an effective tool for accessing information for, at most, 9 years. Because it is now one of and will become the predominant vehicle by which humanity converses with itself it is impossible to truly grasp it's implications, we are often too immersed in the digital world to be able to step outside of it and survey the landscape. Computing can lend itself to a vast array of applications, from word processing to piloting a 747 so it is easy to imagine computers providing an infinite number of functions and therefore have the ability to help us produce an infinite number of outcomes.

A major problem arises, however, when we consider that the way in which the majority of users interact with digital technology is through the intermediary of software, for example, as a commercial Graphic designer you must, inevitably, use design programs to create your work. As a filmmaker you will more often than not use editing software to capture, edit and produce your moving image work? All of these programs are built around the standards and conventions of the technology they have replaced, Adobe InDesign the industry standard software for print designers globally, measures type in Points and Picas and line spacing is described as leading all terms which are derived from the technology of Letterpress which first appeared with the Gutenberg Bible five centuries ago. Why do we now not measure the printed page in terms of millimeters or even pixels, surely a more accurate and honest understanding of the way the technology functions. It is tempting to imagine the computer as having all the attributes of it's predecessor plus; or as a way of producing the same thing with greater ease and rapidity, this is true in many cases, as with Gutenberg's Bible it sought to mimic it's predecessor, the hand produced, illuminated Bible, whilst being able to manufacture it en masse, comparatively instantaneously. However, through this process the object lost, to a large degree, the individuality of the previous method of manufacture.