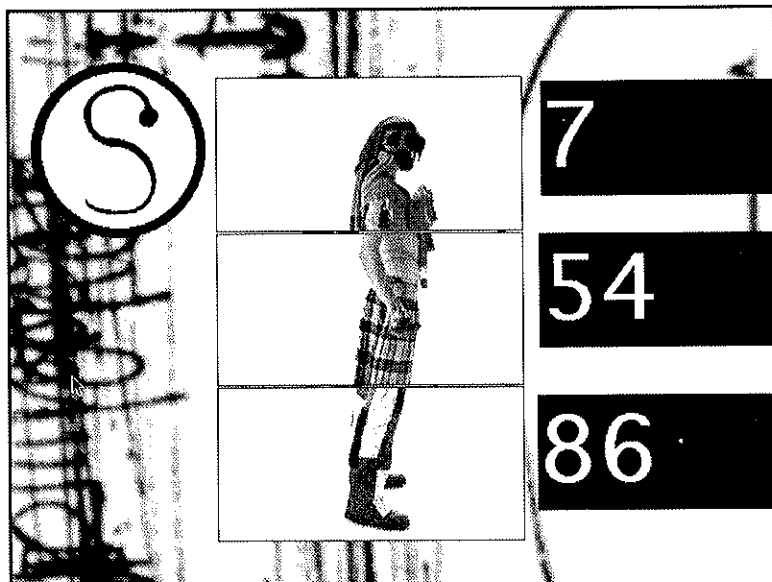**MIKE LEGGETT**

CD-ROM: THE 21st CENTURY BRONZE?

Anti-rom SASS artists UK 1995

Burning the Interface <International Artists' CD-ROM> was presented at the Museum of Contemporary Art (MCA) in Sydney between March and July 1996. Thirty discs representing the work of some 100 artists from a dozen different countries surveyed the progress of developments in this area, the latest round of artists' involvement with technology in general and computers in particular. The selection of work focused on the experiments and exploration artists are making of the 'interface' – that intimate space between the image on the monitor screen and the computer user. The work was presented at the MCA with sponsorship from Apple Computers Australia, the Australian Film Commission and Sony using an exhibition design that was intended to ameliorate technophobia and clear away any studio clutter left on the artist's desktop.

This essay describes the issues which have made the adoption of this computer storage media by artists so widespread and outlines some of the innovations achieved that are part of the claim that the CD-ROM can be described as a creative medium.

The model worlds developed by the artists represented in Burning the Interface illuminate the significant difference between the image from a computer and the image from a videotape – the computer providing non-linear options for guiding or navigating the order and duration of events. In many of the selected works, the interaction is cathedral-like in complexity: blocks of images, movies, sounds and texts, assembled complete with nave, transept, choir, chapels and chapter house; and of course crypt (not to say dungeons). In Graham Ellard and Stephen Johnstone's

Passagen, the subterranean arcades of the modern city replace the medieval model; George Legrady's *Anecdoted Archive from the Cold War* adopts its ground plan from an obsolete state museum, the church of the centralised economy; Brad Miller's *A Digital Rhizome* develops elaborately rendered 'virtual' architectures; Philip George and Ralph Wayment's *Mnemonic Notations* creates a two-dimensional space as complex as the paths of a tantric painting; and in *Anti-rom* by the group SASS, the extensive dimensions of the whole are never revealed to the viewer. In David Blair's *Waxweb*, images, texts and movies have multiple and complex interconnections.[1]

ART AND THE COMPUTER – THE CUMBERSOME TOOL

For many years visual artists have used the computer as a tool to perform more quickly the often mundane task of making something visible. Designers and architects have had much experience with computer-aided-design (CAD) software capable of producing drawings which can incorporate design changes and thus save hours of repetitive re-drawing. The ability of the computing apparatus to respond flexibly and rapidly to changes in a project, in a multitude of work applications, is a result of the design intuitions of visual artists skilled in the use of tools combining with the computer scientists' ability to develop potential tools.

For more experimental work artists have customised computer hardware and software to the requirements of artforms such as installation and performance, where the configuration is unique for each occasion. This of course makes the work fresh and new – but also ephemeral. Such work is not tradeable in the conventional sense. It requires public or private patronage, or another source of income. Or if the ephemeral is promoted as a virtue, the artist needs to develop a tolerance for poverty.

At complex levels of data management (another way of saying multimedia) it is not only the time invested by the artist that needs to be taken account of but also the patience of the audience. The machine system must be able to reproduce accurately the instructions used by the computer for the execution of a design or sequence of visual and sound events; one bit out of place on the fresco might not be noticed but something missing from the crownstone brings the lot crashing down.

To prevent a computer 'crash' requires well-designed software running smoothly from the memory store. The CD-ROM has more stable attributes than the memory storage devices normally linked to a computer's processor, such as floppy discs, hard discs, cartridges or digital audio tape (DAT), which are based on magnetic media and so subject to both electro-magnetic and physical interference. In brief, CD-ROM has offered a reliable and consistent computer storage format.

During 1993, various manufacturers marketed desktop CD burners capable of making an individual CD-ROM, a desktop technology initially intended for the archiving of company accounts and records. Besides attracting commerce, however, the technology attracted the attention of artists. The advent of this medium of storage could be said to mirror the impact of the arrival of bronze casting on the development of Greek sculpture in the fifth century BC. Both technologies provide plasticity and permanence.

CD-ROM: A MEDIUM REVEALED

As the availability and viability of CD-ROM as a storage and distribution medium began to be felt, various problems traditionally associated with making computer art were resolved. Quite rapidly the positive characteristics of the new medium emerged.

PLASTICITY AND PERMANENCE

The ephemeral and fugitive nature of much computer-based work has restricted its exhibition potential to one-off installations, or playout through video and film. The archival specifications of CD-ROM can more or less guarantee that a completed work as 'art-on-disc' cannot be:

■ erased, tampered with or altered;

■ duplicated (if the correct safeguards are in place), thus preventing the unauthorised copying of artists' work and its illicit commercial exploitation.

CD-ROM also has very good physical properties and archival specifications and therefore good prospects for financial return to artists through:

■ purchase by collections, both private and public, of limited editions of a work;

■ the editioning of multiple runs for wider distribution by niche publishers;

■ the licensing of titles to networks via servers or linked CD-ROM players.

These advantages are capable of giving assurance to the artist concerning the time and material resources invested and offer better prospects for financial compensation than rentals on films and videotapes, or fees for installation.

COST EFFECTIVENESS

The cost of transferring computer files from 'the studio' (the workstation with hard disc/server) to 'the gallery' (the compact disc) has been reduced, enabling a relatively low cost of 'casting' a copy. This can be as little as the cost of a 'raw' disc if a 'burner' is available. The relatively low cost of making test and 'artist proof' editions enables the work to be seen easily by other artists and researchers, curators and publishers. With a worldwide CD pressing industry now established, the cost of producing multiples and editions has reduced, further extending the potential for a financial return.

INDEPENDENT PRODUCTION

During the early development of the personal computer in the 1970s and 1980s, competing companies produced huge variations of computer components (hardware) and the coded instructions necessary to run them (software). The economical Amiga, Commodore and Atari brands were popular with artists during the time, in spite of their crude imaging capacities. Computer labs and commercial companies around the world, using a myriad of other systems, would occasionally grant access to artists to experiment. However, this was usually during unsocial hours, in unsympathetic working conditions, often tolerated by artists with no income or professional support. Independence had its price. The range of computer systems and standards since then has streamlined. Now it is quite common for any single CD-ROM to be readable on both major but incompatible systems — Macintosh and Windows. Now cross-platform developers' software can address 95% of the installed CD-ROM user-base, and has encouraged the artist to invest time and develop production resources.
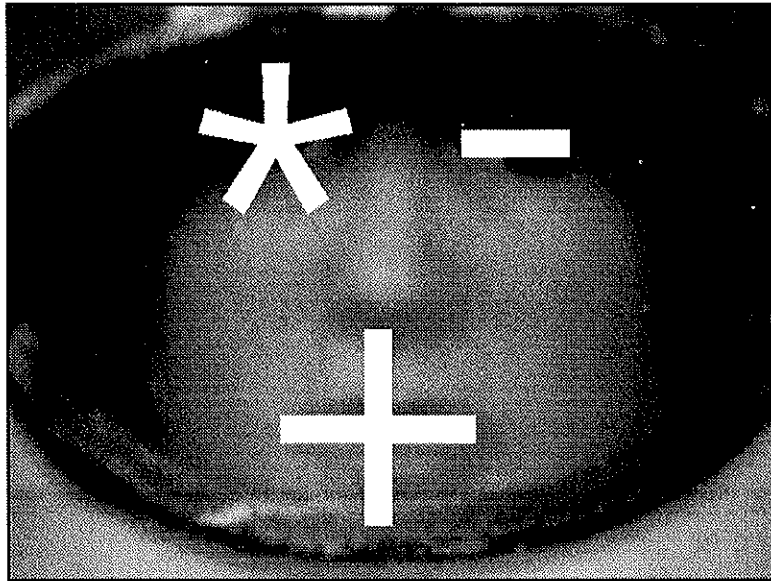
Alongside the marketing of computers for the consumption of CD-ROM, the computer industry has developed software tools for production designed for specialist users rather than programmers — thus offering artists independence from commercial production companies. Nevertheless, the number of craft skills required of an individual to make a CD-ROM are considerable and include those of a photographer, film/video camera operator, lighting director, graphic designer, writer, picture and sound editor, typographer, sound recordist, computer programmer and line producer. While some artists are capable of undertaking all these skills to a high professional standard, most restrict their expertise to a few, and work within these limitations or go out and raise funds to pay for the expertise required.

Developing a studio practice of techniques specific to computer art is greatly aided by CD-ROM. For instance it facilitates the magpie approach of amassing working material. Having converted images, text and/or sound into digital form, artists can catalogue the stuff onto a CD-ROM and use discs as an archive, retrieving to the working disc as and when the need arises; no backups, no maintenance. Working experiments and 'sketches' can be economically stored for later reference.

DISTRIBUTION AND EXHIBITION

Art produced using computers can be reproduced using home or office equipment connected to a CD-ROM player — in the home or over lunch at the office. The computer-with-CD-ROM-drive, or multi-media computer, is the standard computer of 1996, capable of connection via a phone line to the Internet and other computer networks. It is being marketed in a way reminiscent of the selling of domestic video cameras — as a universal enfranchiser.

During 1995 the number of World Wide Web sites expanded exponentially, continuing to define what the 'superhighway' might become, with artists setting the pace for works of imagination and depth. However the arrival of data from many Web sites is sluggish, particularly where memory hungry images are concerned. For this reason, many regard the Web as primarily a publishing and distribution system with limited potential for fully interactive artworks, at least at its

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Anti-rom SASS artists UK 1995

current stage of technical development. CD-ROM, by comparison, has to be regarded as the best compromise among computer technologies available to artists, because the full range of multimedia (text, images, movies and so on) is able to fully function.

BURNING THE INTERFACE

The works in this exhibition approach interface design and interaction with the 'audience' or 'user' or 'interactor' in different ways.

The interface is the conventional and pragmatic shorthand description that most users have inherited from computer scientists and the computer trade to describe the organisation of the screen, keyboard and mouse that enables the user to control the functioning of the computer; functioning described most simply as input/output, or I/O to use the jargon. The 'interface' services the basic computer function: input-process-output. In response to output, interaction occurs, resulting in further input, thus initiating a cyclical progression. Input is effected by the computer using the meta-language of computer code, or by the viewer interacting with the highly organised surface of the graphical user interface (GUI), which conceals the code by substituting images and icons. The term 'desktop' (adopted by Apple Macintosh computers at an early stage in the development of the personal

computer) equates the design of the interface with a well-ordered office.

The interface paradigm is central to the explorations of artists represented in this exhibition. The writer Darren Tofts (1995) asks:

What, or more specifically when, is an interface? [The assumption is] it only exists in the cybernetic domain, when someone sits in front of a PC and clicks a mouse. An interface, on the contrary, is any act of conjunction which results in a new or unexpected event. A door-handle, as Brenda Laurel reminds us, is an interface. So too (quoting Andre Breton), is the 'chance encounter, on an operating table, of a sewing machine and an umbrella'. James Joyce didn't write books. Marcel Duchamp didn't create works of art. John Cage didn't compose music. They created interfaces, instances into which someone, (you), intervened to make choices and judgments that they were not willing to make ... You are empowered, you are in control. Cough during a John Cage recital and you are part of the performance. That's an interface.

Artists like the three cited above are much less concerned with the details of technology when it comes to employing the tools that technologists invent, whether a typewriter, a urinal, a piano – or a computer. Tools simply enable the material evidence, the artwork, to be presented to the viewer.

The active response of the viewer, either through internal reflection, or a more innate and reflexive external gesture, such as physically walking around a three-dimensional object (or coughing during a John Cage performance), completes the meaning of the work. The CD-ROM interface includes a physical link between the viewer and the artwork – the mouse – making response necessary rather than optional.

Many works in the exhibition explore the potential of the interface, by navigating through the various 'screen spaces' that make up the whole work.

INTERACT/IMMERSE

The terms 'interactive' and 'immersive' describe the primary responses to the options of progression through a CD-ROM interface.

Immersion follows a tradition within art history of contemplation, exploring the work through a reflective and cerebral process based on the perceiver's response to the actions of the artist. Interaction often follows innate responses more closely related to the hunter's instinct or, in less primitive terms, the existential experience, where reflection is subordinated to action.

Encountering a work's interface for the first time involves establishing a *modus operandi*: first, find the way in; then determine a system for movement through the work. Most works in the exhibition require quite attentive interaction but the actual method of progressing through a piece is different in each one. It could be by simply clicking on the image of a labelled button that one is led on to further options. Less obvious opportunities for interaction need to be determined by trial and error – very often without recourse to rational deduction!

A Digital Rhizome by Brad Miller has been seen extensively around the world in the last twelve months. It was the first interactive computer piece I encountered and the notes I made then I feel apply as a general strategy for many other works which place the emphasis on interaction rather than immersion, and use the mouse click intensively – on buttons, labelled or unlabelled, and zones, concealed or indicated with an image. By contrast the anti-button attitude struck by Gerald van der Kaap's *Blind Rom* and the British work by the SASS group, *Anti-rom*, entertainingly explore a-thousand-and-one things to do with a mouse except click it.

The printed book is one interactive model used frequently in popular retail CD-ROM titles. The interacting subject, by definition, is in the same kind of close proximity to a work as the reader of a book. Even the various genres are repeated: the reference book, the tutorial, the travelogue, the biography, the salacious peepshow and the novel. Some artists have experimented with this model. John Colette commences with three options for exploring the collected data on his disc *30 Words for the City*: a random selection plays a loop of the entire work; the entire work plays in a loop until Quit; or the work can be viewed in 'a book format'. The clues provided in Colette's 'book' as to 'content' are not found through a contents or index page but simply through combining the two processes of interaction and immersion sequentially. Having selected an item, the linking feature particular to interactive multimedia computer work, hyperlinking, takes the 'reader' straight to the text, sound and images, without pages to thumb. You select from one of the button images, you watch until the sequence ends, then you decide what to watch next. The equation with a physical book is thus only partial.

Similar processes of interaction and immersion, which function together to produce electronic catalogues of discrete 'movies', occur in works such as *ScruTiny in the Great Round* by Jim Gasperini, *Die Veteranen* by a group of Leipzig artists, and Peter de Lorenzo's *Reflections, Abstractions and Memory Structures RAMS* – which goes to the 'extreme' of using interaction to simply start-stop-start the entirely linear image progression.

The question of motivation remains – why should I want to interact?

The established protocols of screen culture are questioned to greater and lesser degrees by work on CD-ROM. The promise of more to see (the scopophilic drive), and more to follow (the narrative drive) both propel the interacting navigator forward. Or, like multi-channel television, simply encourage the easy option of finding and alternative distraction.

NAVIGATING LEVELS OF MEANING

The title screen for a work in this exhibition may present multiple options for beginning the interactive process. Often no clue is given as to the consequence of making one choice or another. A first level of meaning is thus quickly established: that whilst sequence will have significance, a specified order will not – hence the narrative encountered will be the unique result of how an individual interacts with the work.

The process of interacting by clicking on images or words is quickly learnt to influence progress, but is recognised as not being a process of 'control'. This becomes the second level of meaning.

Now a process commences whereby the interacting subject attempts to delineate the furthest extent of each section of the work, clicking outwards in a conceptual circle, attempting to plot 'landmark' images along the way, before returning through the maze to the starting point, to then set out to test the path again before beginning again from another point.

With so little to go on, the 'mazing' process itself offers the third level of meaning as the motivational drive changes into a pleasurable era of reflexivity. Without knowing the consequences of taking options (as opposed to making choices), the form of the exploration is accepted as being purely aleatory – a result of chance not choice. But the interacting subject's memory of images, text clusters, button slogans, etc, is severely stretched in an effort to map the topography. The work may suddenly subvert a viewer's imagined game-plan. As mazing continues 'control' is not wrested by the interactor but is at best shared.

A fourth level of meaning comes as the interactor invokes that familiar defuser of subversive strategies – interpretation. On what basis were these images/sounds/texts selected, created and combined? Does the interactive construction create space in the mind of the viewer to interrogate the images? What is the relationship between the structure of the work and its overt content?

An initial encounter with *A Digital Rhizome*, for example, suggests that the basic element in this work is the moving image. Most of the movies refer to technology, particularly the technology of war – the innate eye of the hunter is thus appropriately served. The viewer reels under the weight of mass-disseminated paranoia – the brutality of the Age of Print; the callousness of the computer-imaged Gulf War. Does the ability to interact with this work – for example to 'choose' to steer again the route which will rerun the image of Iraqi squaddies running from their vehicles as a missile homes in – make the events it pictures more meaningful than their appearance on TV? Or give them a wider context? Does the juxtaposition with original images created by the artist establish a dialectic space to enable us to see a way through such terror?

During the process which I outline above there is an option of interacting with 'one-dimensional' images grabbed from media-space. Whilst CD-ROMs may confront us with what appear to be overdetermined images, the interactive process can enable us to comprehend the narrative process to which the media often subjects us. We know that constant repetition can render words and images meaningless, but to be in a position to determine for oneself the number of repetitions returns the formation of meaning to the perceiver.

Linda Dement's *Cyberflesh Girlmonster* subverts the conventional model of the fragmented female body by assembling body parts to make new images that are both humorous and horrific – overlapping sounds and texts underpin accounts of brutal social realities. Repulsion and fascination are successfully interrogated through the process of interaction.

Celebration of the intimacy of the interacting process is enacted in *Flora Pentrinsularis* by Jean-Louis Boissier (after Jean-Jacques Rousseau), where the smallest of physical movements or a click of the mouse is reflected by movement on the screen. This gentle and sensuous correspondence, requiring the responding gesture, places the interacting subject clearly in the frame of the screen.

INTERFACE TO PARADISE?

The cultural shift that comes about with the advent of a new medium marks a movement away from the 'private universe of mind to the public world of the cathode ray tube', as Derrick de Kerckhove (1995) has suggested. CD-ROM anticipates the computer networks

that in their initial stages propose a collective intelligence of hyperlinked human activity. It is where modes of 'listening' are being re-defined and where the oral tradition is being redeveloped.

Engaging the audience in a productive relationship is the interface we are currently seeking to imagine and create. Such a project of engagement, an ontology of the everyday, is something that fascinated Walter Benjamin. I was struck on re-reading Hannah Arendt's introduction to *Illuminations* (Benjamin 1970) by her paragraph describing Benjamin's essay *Passagenarbeit* (The Arcades). The contemporary arcades accessible through our personal computers, which define the potential of the interface in so many ways, seemed to be being described:

> And just as one inhabits an apartment, and makes it comfortable, by living in it instead of just using it for sleeping, eating and working, so one inhabits a city by strolling through it without aim or purpose, with one's stay secured by the countless cafes which line the streets and past which the life of the city, the flow of pedestrians, moves along ... What all other cities seem to permit only reluctantly to the dregs of society – strolling, idling, flanerie – Paris streets actually invite everyone to do. Thus, the city has been the paradise of all those who need to chase after no livelihood, pursue no career, reach no goal – the paradise then of Bohemians, and not only artists and writers but of all those who have gathered about them because they could not be integrated – either politically, being homeless and stateless, or socially.

If Paris was paradise then, is the modern paradise the Web? Though somewhat eclipsed by the current fashion for things on the Web, the CD-ROM combines the potential to create complex model worlds with material immutability – its major advantage. At this transitional stage of movement towards multimedia computer networks, the CD-ROM also enables the most sophisticated development of the interface, and, besides affirming aspects of an art-historical tradition, reveals opportunities for extensive research by artists to create interfaces of the future.

ENDNOTES

1. For further discussion on this work by the author see *Photofile* No 45, 1995. The VRML version (3D 'virtual' animation) to 'go live' during the exhibition proposes limitless narrative dimensions.

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