

PAGE SIXTY TWO - SPECIAL TERMINATE CACHe ISSUE

Bulletin of the Computer Arts Society - Northern Hemisphere Autumn 2005

EDITORIAL

CACHe (Computer Arts, Contexts, Histories, etc...) - the three-year project researching the origins of the computer arts in the UK - finished in September 2005. It has produced a number of important outcomes which are detailed in this special issue of PAGE.

In 1999 I was awarded an Australia Council for the Arts New Media Arts Fellowship. It offered me a two-year income to pursue my practice and, for the first year of the fellowship (2000) I accepted an invitation to become artist-in-residence at the Centre for Computational Neuroscience and Robotics and School of Cognitive and Computer Science at the University of Sussex. I had left England 12 years before, resigning my post as Head of the UK's National Centre for Computer Aided Art and Design (NCCAAD) and Centre for Advanced Studies in Computer Aided Art and Design (CASCAAD) at Middlesex Polytechnic (now University) to become Director of the Computer Imaging Program at Swinburne Institute (also now a University) in Melbourne, Australia. My successor as Head of NCCAAD & CASCAAD was John Lansdown.

John was an old friend and mentor. We had first met in the mid 1970's when I joined the Computer Arts Society. After I left for Australia we bumped into each other in the most unusual places. Once it was in the bar of the Holiday Inn, Fisherman's Wharf in San Francisco – an unusual encounter as John was a teetotaller. Another time I was sharing a coffee with a friend in one of the trendy confectionary shops in Sydney's Glebe Point Road when Dorothy, John's wife, came in to buy some cakes.

In general I had not maintained many contacts with professional colleagues in the UK after leaving for Australia. Trips home had focussed on relatives. So my fellowship offered a unique opportunity to re-network into the community I had left 12 years before. Almost the first news I heard was that John had died. I phoned Dorothy to give my condolences and couldn't resist asking about the amazing collection of artworks and memorabilia that John had accrued over the years in the basement of their Russell Square apartment. Dorothy told me that George Mallen had moved most of it into System Simulation's offices in Covent Garden Plaza.

I met George for lunch and we convened a meeting to discuss how to properly conserve this important historical collection. Tony Sweeney, then Deputy Director of the National Museum of Photography, Film and Television and now Director of the Australian Centre for the Moving Image (ACMI) in Melbourne was there. Phil Husbands and Owen Holland who were then researching their history of cybernetics in the UK also attended. But I think it was Bronac Ferran of Arts Council England who suggested that we should apply for a grant from the then relatively new Arts and Humanities Research Board (AHRB), now Council (AHRC).

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Guest Editor
Sub-Editor

Paul Brown
Celeste Brignac



CAS members viewing the Patric Prince Collection at the Victoria and Albert Museum at a meeting convened and led by Doug Dodds (centre left). This important donation to the V&A was facilitated by the CACHe project and is one of its many outcomes.

We would need an academic base for the project and George introduced me to Charlie Gere who was then in charge of the computer program in the History of Art, Film and Visual Media Department (HAFVM) at Birkbeck. The three of us worked together to develop an application to the AHRB which was submitted in 2001. We proposed to focus on the first two decades – the 1960's and '70's – prior to the introduction of the "user friendly" PC systems. In December 2001 I was back in Australia and, as the deadline for notification had passed, had given up much hope of being successful. Then, late one evening, I got a call from Charlie. It was first thing in the morning in London and he'd just opened his mail. We'd got the money!

Mid-year 2002 saw me back in the UK and we interviewed for the two funded positions. Nick Lambert, who was just about to complete his DPhil in the Art History Department at Oxford under Professor Martin Kemp, was appointed as Research Fellow and Catherine Mason joined us as our PhD candidate. At Oxford Nick had specialised in the computer arts with a focus on the USA-based Algorist Group. He had also looked after the department's computer systems and had a significant experience in the systems and software that we would need to meet the challenge of building the large online database, based on Software Simulation's MUSIMS product that would act as the repository for our research.

Catherine had graduated from the HAFVM department at Birkbeck before running a successful artist's agency. She was keen to upgrade her qualifications and had a special interest in the arts history of the period we were investigating.

The project officially began in October 2002. We sifted through the old CAS records and began to Google the names of pioneers as they came to light. Amazingly many were found and most had their own archives of the period. It soon became obvious that we had underestimated the amount of material that still existed and that we had been wildly overoptimistic about our ability to process and assess everything we found.

Elsewhere in this issue each of the team members has the opportunity to tell their story. For my part I was pleased to meet up again with friends and acquaintances I had not seen for decades. One major outcome of this was the re-formation of the Computer Arts Society in 2004. I am also working with Catherine to co-author one of the book outcomes of CACHe. **A Machine That Makes Art** is intended to be a popular book about the origins of the computer arts with a broader – international – context than CACHe's other outcomes which focus on the UK. During CACHe we ran a number of seminars and birds-of-a-feather sessions at major international gatherings like ISEA and SIGGRAPH. We were pleased to find many other

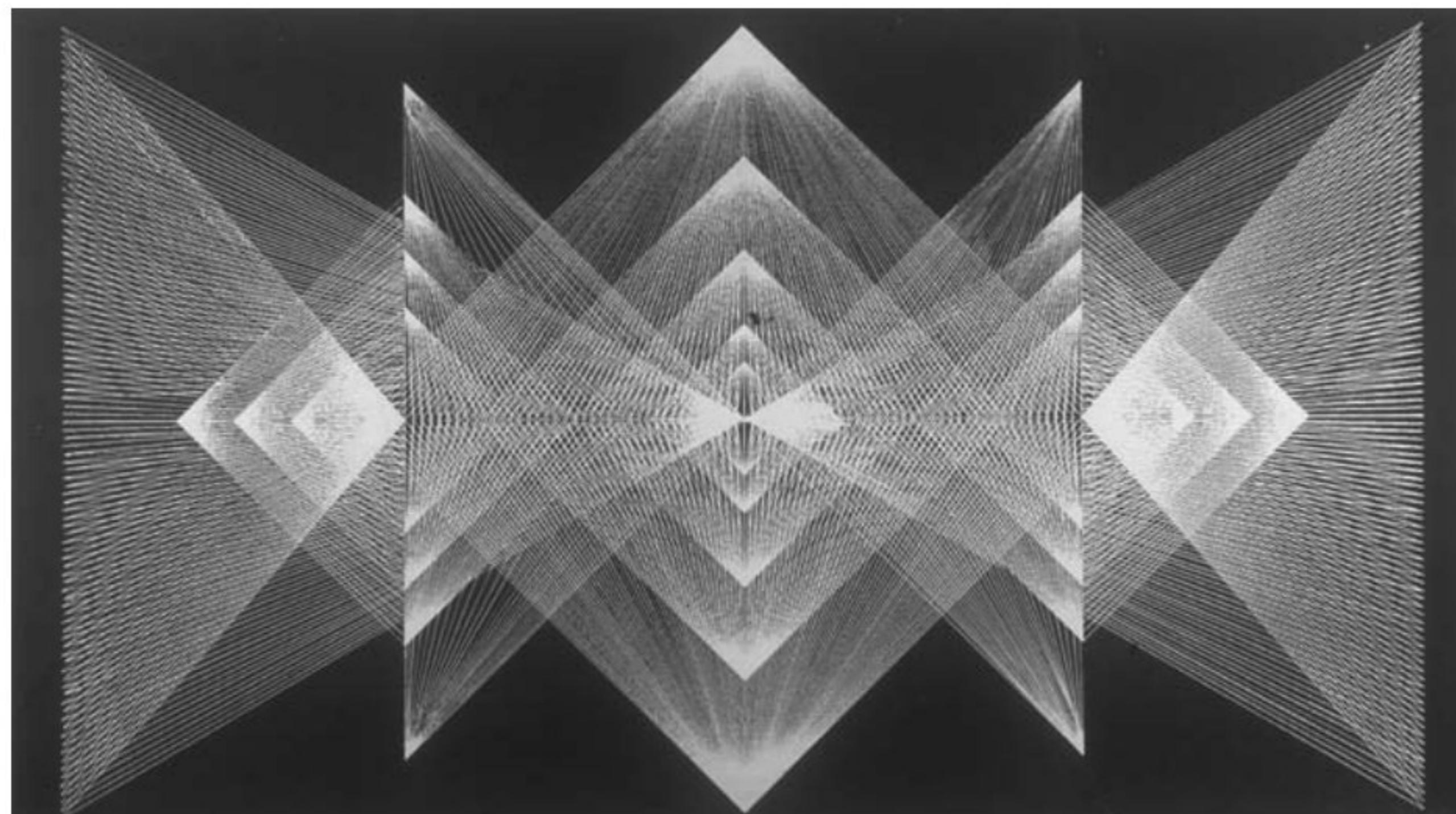
projects with similar goals. In particular we met a broad spectrum of teachers of "new media" who confirmed our belief that there is an urgent need for documentation of these largely forgotten histories of the discipline. So this popular book is intended to fill this gap and will have lots of images and a short, non-challenging text. It is aimed at the interested layperson, undergraduates and high school students and will be published by the ICA, Singapore in late 2006.

Nick, who now works permanently for Birkbeck, together with Jeremy Gardiner (of Thames Valley University) and Doug Dodds from the V&A have recently submitted an application to the AHRC to continue the work of building a national record of the development of the computer arts. They will extend the period to include the advent of the personal computer in the 1980's which introduced the computer to a much broader franchise. I'm sure all the members of CAS will join me in wishing them success in this important venture.

And now I should leave it to my colleagues to tell their own stories but, before I do I would like to take this opportunity to thank everyone who has contributed to our research over these past three years. They are far too numerous to mention individually and I hope they will not feel neglected by this blanket acknowledgement.

*Paul Brown
Guest Editor - PAGE 62
Melbourne, January 2006*

Paul Brown is an artist and writer and was the Visiting Research Fellow on the CACHe project. He is currently Visiting Professor in the Informatics Department, the Centre for Computational Neuroscience and Robotics (CCNR) and the Centre for Cognitive Science (COGS) at the University of Sussex where he is involved in a project that attempts to evolve robots with creative behaviour.



Antonio Berni; B/W silkscreen - untitled - date not known - one of the many images discovered in the CAS collection.

ARTFORUM

667 MADISON AVENUE • NEW YORK, NEW YORK 10021

MESSAGE

TO
Mr Matthew Baigell
Aeas Prof., Art History
Ohio State University
College of Ed; School of Art
126 N Oval Dr
Columbus, Ohio, 43210

DATE

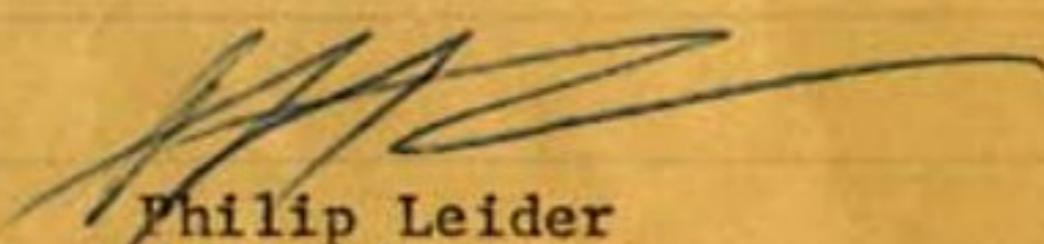
DATE

10/30/67

Dear Mr Baigell,

Thanks for the ~~xxxxxx~~ enclosed manuscript on Chuck Csuri; I ~~xxx~~ cant imagine ARTFORUM ~~xhxt~~ ever doing a special issue on electronics or computers in art, but one never knows.

In any event, thank you for letting us see the manuscript,



Philip Leider
EDITOR

SIGNED

INSTRUCTIONS TO RECEIVER:

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INSTRUCTIONS TO SENDER:

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3. WRITE NAME. 4. DETACH STICKER. KEEP PINK COPY. RETURN WHITE.

Letter from Art Forum to Matthew Baigell (1967) regarding a manuscript on the work of computer arts pioneer Charles "Chuck" Csuri. This was just a year before the Studio International special issue - the catalogue of *Cybernetic Serendipity*. Courtesy Chuck Csuri.

COMPUTER ARTS SOCIETY BRITISH COMPUTER SOCIETY SPECIALIST GROUP

APPLICATION FOR MEMBERSHIP

PLEASE ENROL ME AS A MEMBER OF THE COMPUTER ARTS SOCIETY
AND KEEP ME INFORMED OF ITS ACTIVITIES AND EVENTS.

- My full membership fee for one year (£1.0.0) is enclosed.
- My student membership fee for one year (10/-) is enclosed.

NAME *Gustav Metzger*

ADDRESS *B.M. B.O.X. 10151*

London W.C.1

.....

TELEPHONE NUMBER

AREA OF SPECIAL INTEREST

Signature *G. Metzger* Date *30.4.1969*

Return this form to

Alan Sutcliffe, ICL, Brandon House, 61 Broadway, BRACKNELL, Berks.

FROM PAGE 11, OCTOBER 1970

Art today is the end of the road / It is a result / It is a static thing / The final result (and we really mean final) of creativity today is art pollution

All artists who prostitute their functions in this way –

All artists who use the title of avant-garde to help conserve the old elite –

All artists who refuse to join in attacking the present system –

Are shit.

There is only one solution

We must liquidate this crazy thing called art to make it possible for all people everywhere to be creative. ... The artist must liquidate the art world by closing down art magazines, art councils and art museums because they are the tools of an irrelevant society. ...

Manifesto of the International Coalition for the Liquidation of Art, Gustav Metzger

Application for membership of CAS from Gustav Metzger - the first editor of PAGE

SOME REFLECTIONS ON THE HISTORY OF EARLY BRITISH COMPUTER ART AND THE CACHe PROJECT

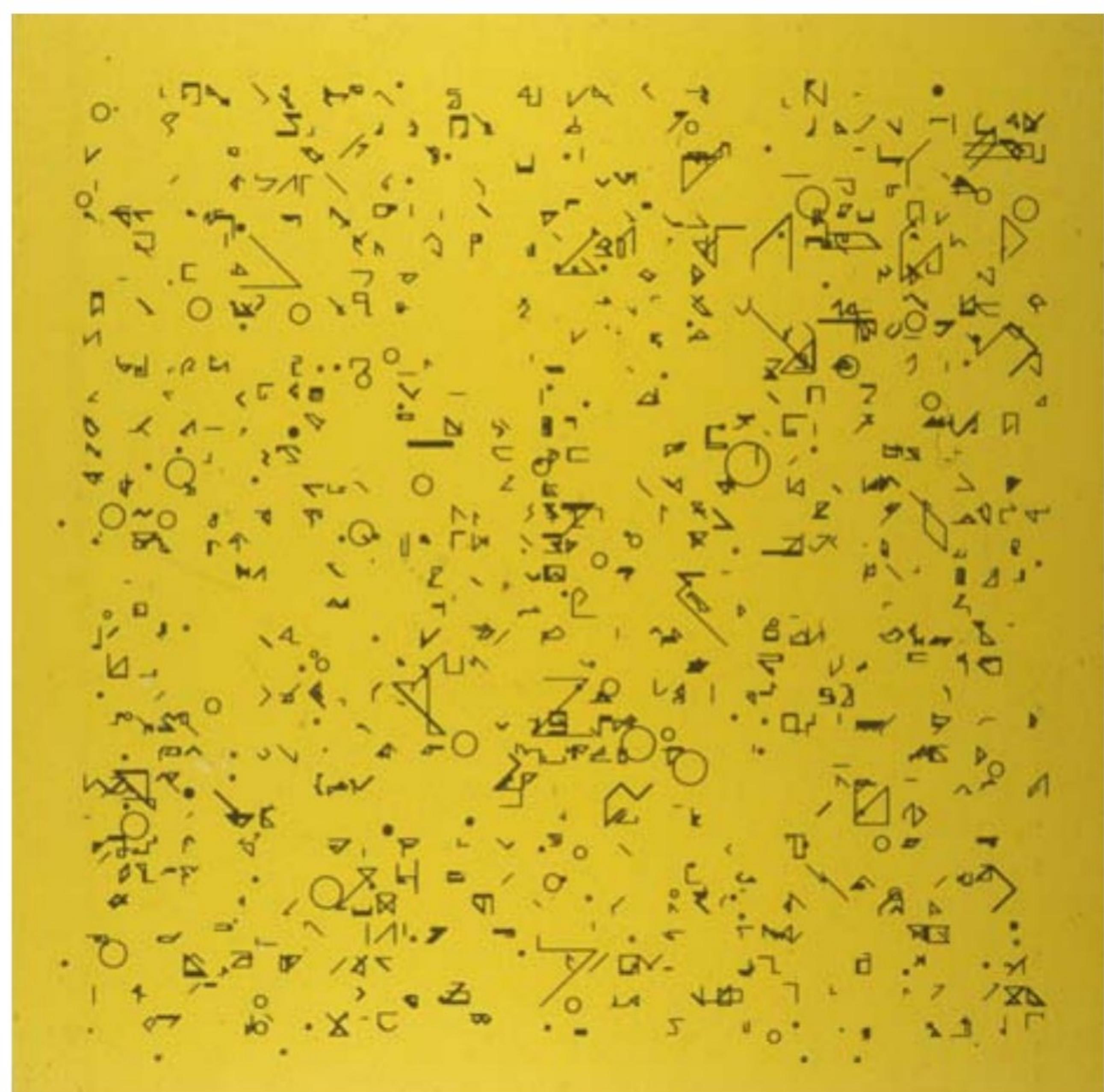
In the early nineteen nineties I studied for a Masters Degree in Computing in Design at the Centre for Advanced Study of Computer-Aided Art and Design (CASCAAD) at Middlesex Poly (as it was then), in North London. It should have been called Computing in Art and Design, but the use of the word 'art' in the course title would apparently have been detrimental to getting government funding. At the time, the late eighties and early nineties, doing either art or design with computers was regarded as odd. Friends would look bemused and confused as I explained what I was studying. The coupling of art, with all its humanist implications of creativity and inspiration, and computers, supposedly so rational, mathematical and inhuman, seemed perverse and arbitrary to many. This encouraged a strong sense of doing something special, something radically new and innovative. We imagined that, though nobody understood us at the time, in the future they would recognise us as pioneers of an entirely new form of art and design practice involving the use of new technologies.

What we did not know at the time, because nobody told us, was that, far from being new, computer art and design had a long and honourable, if largely forgotten history, going back at least to the nineteen sixties. Furthermore the Middlesex degree was a direct result of this history. The course had been designed and set up in the mid nineteen eighties by the artist Paul Brown, one of the pioneers of the use of algorithmic and artificial life techniques in art at the Slade in the nineteen seventies. Later on Professor John Lansdown took over the running of CASCAAD. Lansdown had been a pioneer of the use of computers in architecture and in choreography in the nineteen sixties and had been instrumental in introducing the teaching of computing in art and design in higher education in Britain and Australia.

It was only when I started to work with Paul and the CACHe team that I realised how extensive the history of British computer art is. John and Paul were not just innovative practitioners themselves but part of an extensive network of similarly minded people who understood, against the grain, how important computers were going to be for all areas of art and design. Given that this was long before 'user-friendly systems', GUIs, computer multimedia, photoshop, desktop publishing and all the apparatus of modern, ubiquitous, networked computing, this was both prescient and courageous.

Chris Briscoe, Julian Sullivan, Stephen Scrivener, Stephen Bell, Edward Ihnatowicz, Ernest Edmonds, Harold Cohen, Paul Brown and Darrell Viner, among others. Other kinds of practitioners, such as cybernetics experts like George Mallen and Gordon Pask, programmers, such as Alan Sutcliffe (also a musician and composer) and John Vince, animators such as Stan Hayward, architects such as John Lansdown and John Frazer; groups such as Art and Language, the Computer Arts Society, Institute for Research into Art and Technology and the London Film-Makers Co-op, exhibitions such as Jasia Reichardt's Cybernetic Serendipity at the Institute for Contemporary Arts and the vital role played by art schools and polytechnics.

I once tried to make a diagram to show how all these people, institutions and groups connected together, but found the task impossible, given the proliferation of links and affiliations. This is what has made the CACHe project so interesting. It is far from simply an account of how a number of artists



Manfred Mohr, *Formal Language*, 1971

at a certain period in a certain place used a particular technology. It is rather an account of a pioneering community, drawn together by a shared vision of how technologies will change the way things can be done and the way they are done. This is especially admirable given the great difficulties of making such work at the time. It certainly puts me and my fellow students' sense of our claims of being pioneers in the early nineteen nineties in its right place.

Of course one of the notable corollaries of being a pioneer of this sort is that you are not understood in your own time. This is almost a given for any form of avant-garde art practice. Hal Foster suggests that *[T]he avant-garde work is never historically effective or fully significant in its initial moments. It cannot be because it is traumatic – a hole in the symbolic order of its time that is not prepared for it, that cannot receive it, at least immediately, at least without structural change* (Foster, 1996, p 29). But, unlike many more explicitly avant-garde movements, computer art has remained particularly resistant to recuperation and restitution by the institutions of canonical and orthodox art history. Perhaps this makes it more genuinely avant-garde. If so, maybe its moment has come, in that the structural changes required for it to be understood are taking place. I hope in particular that **White Heat and Cold Logic**, the edited collection of essays about pioneers and pioneering institutions of early British computer art that is one of the main outcomes of the CACHe project (to be published by MIT Press in 2007) will help hasten the recognition this area so richly deserves.

Foster, H. (1996), *The Return of the Real: The Avant-Garde at the End of the Century*, Cambridge, Mass.: MIT Press

Charlie Gere

Charlie Gere was the Chief Investigator on the CACHe project and is now Reader and Director of Research at the Institute for Cultural Research at the University of Lancaster.



Edward Ihnatowicz, *untitled (mid 1980's?)*

THE CACHe PROJECT AS SEEN BY ITS RESEARCH FELLOW

The Computer Arts Contexts, Histories, etc [CACHe] Project officially began in the autumn of 2002. I joined the team at Birkbeck as a nearly-qualified DPhil from the Department of History of Art at Oxford University. I came into CACHe as an art historian, albeit in a field which is still gaining recognition as a branch of art. However, I have always maintained a strong interest in computer graphics systems and software, which ensured that my contribution would be as much technical as scholarly and thus more in keeping with its subject matter.

My thesis dealt with the history of the term "Computer Art" and the variety of artforms which had been produced under this rubric. Thus I was already aware of the pioneering work performed by the Computer Arts Society in the 1960s to 1980s. Indeed, I had poured over copies of PAGE in the Bodleian Library, tracing the lively discussions between computer arts practitioners and theorists throughout the Society's most active period. The insights gleaned from CAS provided me with much material for my thesis and I was very pleased to be appointed as Research Fellow on the CACHe Project. This gave me the chance to focus on the British contribution to Computer Arts and investigate its sources in much greater detail.

It was a great privilege to be working in the context of a major AHRB-funded project at Birkbeck, under the direction of Charlie Gere, with Paul Brown as Senior Research Fellow and Catherine Mason as the project's PhD student. Each member of the CACHe team contributed a very different perspective and area of expertise, which ensured that the project was able to cover a great deal of ground in terms of British computer arts pioneers, their work and their legacy.

Charlie supplied a strong theoretical basis for studying the history of this area, which has proved invaluable whilst compiling and editing our book. His academic study of New Media arts and the Digital Art History MA he taught at Birkbeck also fed into CACHe.

Paul provided us with a living link to the period we were researching. From the mid-1970s he had studied at the Slade School, worked as a computer artist and animator on numerous pioneering projects, edited PAGE and taught at Middlesex. He had a vast list of personal contacts and folders full of primary image sources. Indeed, Paul's personal collection of unique visual material should be emphasised as a major component of the overall CACHe archive.

Catherine's research focused on the specific contribution of Computer Arts practitioners to arts education in the UK. Thanks to Catherine's diligence we undoubtedly uncovered much obscure and unusual historical material. Moreover, through her extensive experience in art galleries and with artists, we established an important personal rapport with many of the surviving computer arts pioneers. Later we also benefited from another diligent researcher, Simone Gristwood, whose zealous pursuit of obscure artists from the CAS lists brought us many fascinating contacts and personal histories.

I contributed a general overview of the history of computer art, combined with specific historical themes that traced the growth of certain specific ideas that appeared

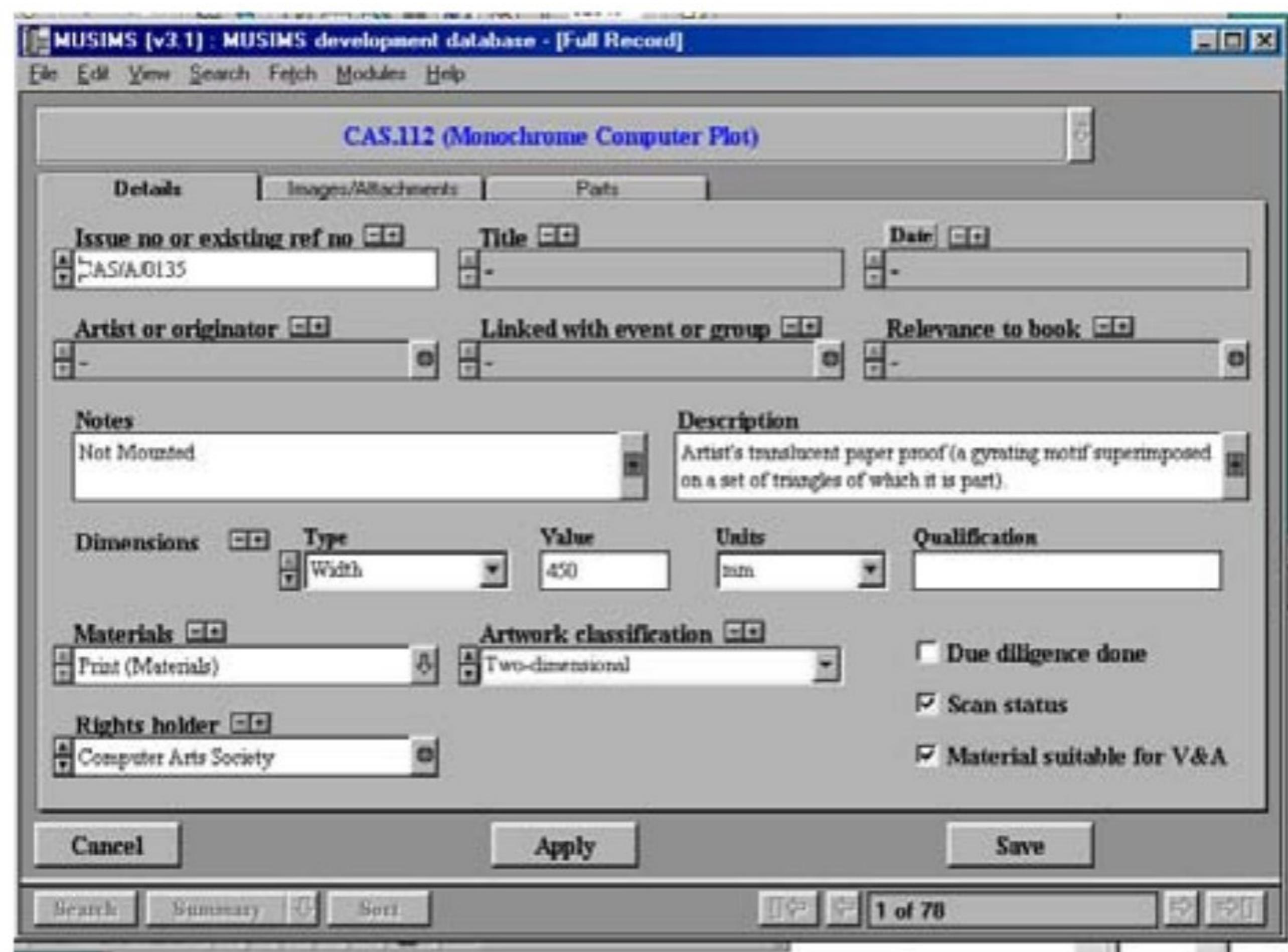


Figure 1 - Database Input Interface

quite early in digital art and continue to inform it to this day. My earlier work on aspects of British computer art enabled me to link these concerns into the current project and relate the British experience to the broader history of computer art since 1950. I was also able to leverage my outside interests in computer graphics technology and digital preservation, which informed our approach to scanning the archive.

CACHe's area of study initially centred on the legacy of John Lansdown as computer arts pioneer and educator; this was the starting point for Paul's outline of the project in 2001. By the time of the application to AHRB, CACHe's interest had widened to include the computer artworks held by the CAS at System Simulation and the Society's documentary archives. Later, the project encompassed the artists from the Slade School who had worked on the departmental computer in the mid-1970s, plus Edward Ihnatowicz and a host of other figures who had been closely or tangentially associated with CAS during the formative years of British computer art. Towards the project's end, the project latterly touched on the more distant connections uncovered by further research on the foreign contributors to CAS.

Material from all these contributors was stored at our

office in the Vasari Multimedia Lab at Birkbeck, whilst we considered how best to approach its digitisation and preservation. There has been much discussion about Digital Longevity in the past decade, as it has become clear that the rapid obsolescence of earlier digital formats has rendered much pre-1990 data unreadable. This can be due to incompatible physical media, such as non-standard floppy and optical disks; or because the computers that compiled this data are now redundant and unavailable. CACHe had first-hand experience of this when we found early computer artwork stored in the form of 1960s punch-cards and 1970s and 80s magnetic tapes and disks. Had we not possessed the prints and (in some cases) films of the works themselves, it would have been difficult to reconstruct the graphic images from the data stored on these disks. That assumes that the data would be readable in the first place: for instance, NASA has already lost a large proportion of the information from the Viking missions because in just 30 years the magnetic tapes have become too fragile to play.

Thus the problem is a two-pronged one involving both the stability of data storage media and the longevity of the actual formats used to record the data. Bearing these in mind, I decided to use

media and data standards that are the most widely available at this time and most widely supported across a range of operating systems. In this case, the Arts and Humanities Data Service provided us with a long-term storage solution and System Simulation's MUSIMS database ensured we observed industry standards in terms of metadata and database structure.

Whilst the ideal storage medium remains a pipe-dream, I have tried to preserve our data by duplicating it widely across network servers, websites, and CD- and DVD-ROM. Because storage space is cheap in itself, I believe this distributed approach will give our data a better chance of persisting into the mid-term future. Within the next five years, I anticipate a flash memory-based storage format to rival hard disks in capacity, but without the associated problems of mechanical drives, and the ability to retain data without a power source indefinitely. Until this format arrives a profusion of storage media will have to suffice.

Partly for this reason, and partly due to available technology, it was decided to capture the CAS archive of large-format artwork with a traditional slide camera and then digitise the images from film. This means we now have a near-complete set of the CAS images on glass slides and a

matching set of high-resolution TIFFs which were scanned directly from slides. Smaller pieces of art and photographs were scanned at resolutions between 300dpi and 400dpi, depending on the quality of the original. For instance, matte photo prints were scanned at 400dpi and newspaper clippings at 300dpi because higher scanning resolutions would not have improved the image.

With this in mind, all textual documents and catalogues were digitised at 300dpi for the purpose of recompiling them into PDF documents. The rationale behind scanning the entire run of PAGE magazine, for instance, was that it would become an online resource and the PDFs would be downloadable for on-screen viewing or printing. A balance thus had to be struck between document size and legibility both at screen and print resolutions. From the point of view of preservation, I have erred on the side of printing resolution and the files are larger than if they had been purely for screen usage.

To fully realise the potential of the CAS archive and our other collections, we collated them into a database which allowed the images and associated information to be served on the Internet. This fulfilled our *raison d'être* to make the material accessible to the non-specialist public whilst allowing

researchers to search the archives in some detail.

In view of the range of material we were serving and the need to integrate it with SSL's MUSIMS system, I modified the database input interface as seen in the first view [see Figure 1]. This interface was very close to a paper form I constructed for field data collection. To accommodate a variety of artworks and documents, I made some sections quite wide-ranging and others very specific. For instance, referring to "Artist or Originator" allowed us to cover non-artist creators, including authors and programmers. Further categories under Materials and Artwork Classification allowed objects besides two- and three-dimensional artworks to be included. Meanwhile, the "Issue no. or Existing ref no." enabled us to refer to prior classifications of the work, such as the issue of PAGE. The free-text Description and Notes boxes allowed for a broader range of other information to be entered, which may still be searched within the database. Meanwhile, the tick boxes identified stages of our process which had to be satisfied for each individual picture. The categories were more generalised versions of those that had been recommended for visual art metadata by AHDS's predecessors, the Visual Arts Data Service, VADS.

Once the data was in place, thumbnail images at screen resolution were added together with a facility to search the database by images alone. The resulting database entry can be seen in [Figure 2]. Here the categories of the entry page appear as headings on the page and the clickable thumbnail image comes up in the top-right hand corner. Clicking on it will open a window with a larger image at screen resolution. For document entries which have been compiled into PDFs, there will be an option to download the file from the database. Thus the database acts as the window into the CAS and other archives and may be browsed visually as well as textually.

The strength of the MUSIMS system lies in its inter-relation of other databases to the main

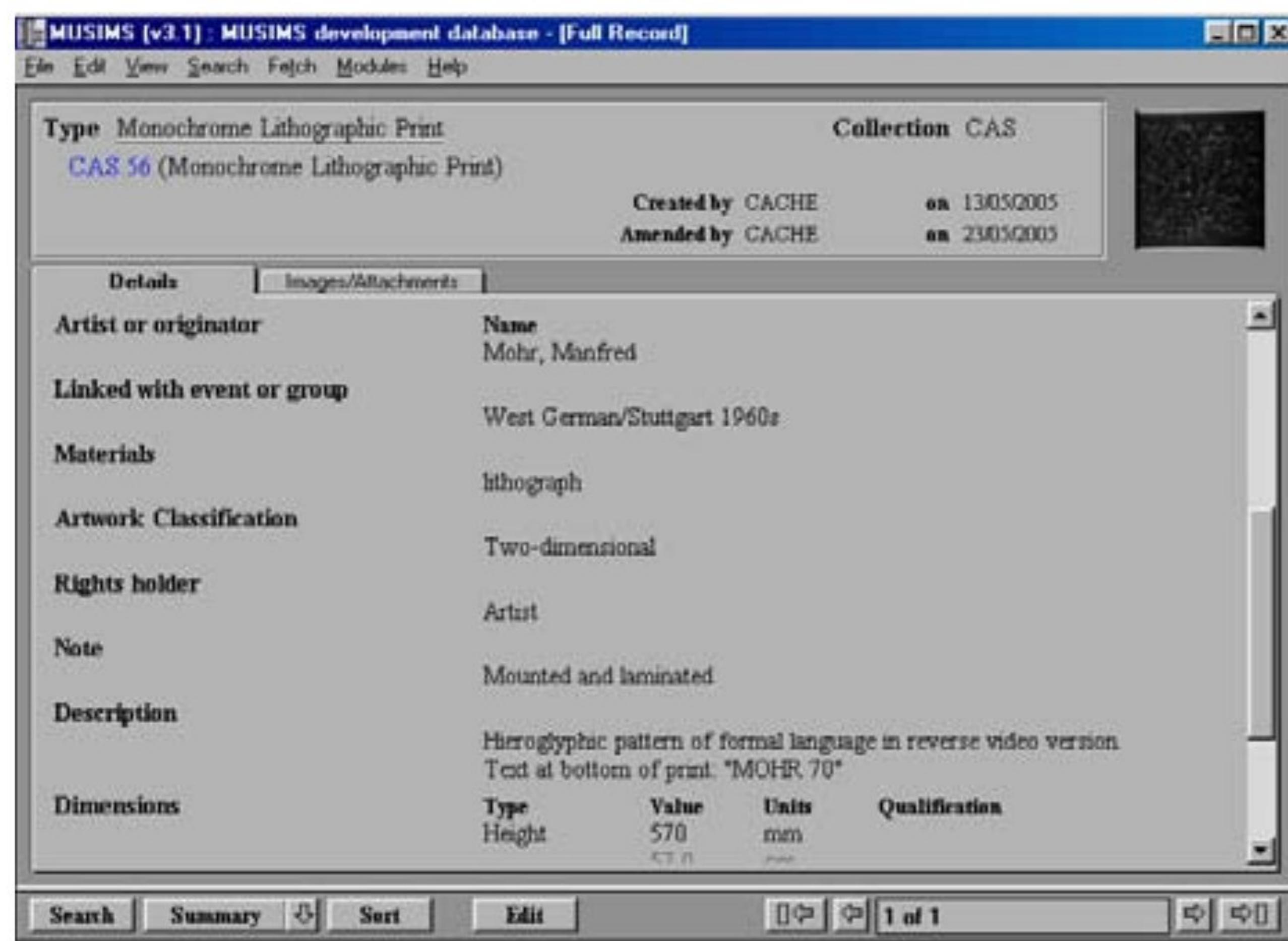


Figure 2 - Database Entry

screen; thus the artist listing links to biographical data about specific artists plus a further section on organisations and groups, and events. Thus our other findings could be integrated into the image database and displayed when it goes online and is queried via the web. Because the CACHe database will be served as part of the general AHDS Visual Arts site, its holdings can be searched within the larger framework of all the archives held there. This contributes towards the goal of making the AHDS a central resource for this area.

The CACHe Project developed a number of approaches to facilitate studying and cataloguing historic computer-generated art, which might apply more widely to multimedia artworks in general. Of particular interest should be our pragmatic strategy for dealing with

the issues of digital longevity by using widely available technologies. On the basis of experience gleaned from this side of CACHe, I was able to suggest technical procedures to the University of Westminster Archigram archival project, which recently received AHRC funding and will begin in March 2006.

The database is the major public outcome of our project, alongside our book which is being published by MIT. It should be noted that supplementary material for the book will be presented on our Birkbeck website, which will continue to be updated for the foreseeable future. This site will also serve as a portal to our AHDS site. Other public outcomes have arisen from the presentation of our historical research to other organisations in the area, such as the International Society for

Electronic Arts (ISEA) in Helsinki in 2004; and the Computer Conservation Society (CCS) at the Science Museum in 2003. We have also forged a very close working relationship with Doug Dodds, head of Central Services at the Department of Word and Image in the Victoria and Albert Museum. It is anticipated that the CAS archive will be permanently stored in a national collection, thus ensuring its survival in the historical record.

Although the close of the CACHe Project has brought this study to an end, it is in a sense only the data-gathering phase that has finished. The interpretation and consolidation of the images and documents we uncovered will take much longer and involve an increasingly larger group of people as researchers discover the origins of computer-mediated art. CACHe has not only secured an important and neglected segment of the UK's art history; it has also given rise to numerous sub-projects and brought together a range of practitioners and theorists who either worked together in the 1960s and 70s or represent the new wave of interest in this area. I fully intend to see these outcomes develop into new projects that will cement these achievements and put in place a structure for the study of the computer-based arts.

Nick Lambert

Nick Lambert was the Research Fellow on the CACHe Project. He is now Research Officer in the History of Art, Film and Visual Media at Birkbeck College, University of London



Nick Lambert and Catherine Mason with computer graphics pioneer Bob Hopgood at the Rutherford Altas Centre in 2005

END OF PROJECT REPORT- THE CULTURAL INSTITUTIONS

As the Project PhD researcher, I have been researching the cultural institutions that educated, supported, managed and funded early British computer arts. The major route into computer arts in Britain during this period was through academic institutions both artistic and scientific. It was the unusual subject matter and the fact that it had been largely overlooked by mainstream Art History, which drew me to the CACHe project originally. One of my main intellectual tasks has been trying to unpick computer arts' problematic relationship to the institutional structure of the art world.

One of the most exciting things for me was tracing the influence of individuals – “tutor” to “pupil”, through the art schools – thus proving a link from (pre-computer) early cybernetic thought beginning in the 1950s, via the 1960s with artists using analogue means, to later developments in the 1970s when artists were finally able to access digital computing. This was of course facilitated throughout this period by governmental changes to the educational system, including largely, the creation of the Polytechnics. This allowed many artists to access expensive and specialist equipment and expertise - a unique feature of British art education at this time. At the Polytechnic, it was theoretically possible to study fine art and craft/design (technology) together again, as in the first public art schools opened in the Nineteenth century.

Art with a techno-scientific basis flourished particularly within educational institutions supported by charismatic individuals, who inspired subsequent generations. These pioneers had a real vision of the arts and sciences coming together for greater understanding and creativity on both sides. Forging alliances with academic institutions in order to gain access to the specialist equipment they required to further their artistic aims, led to highly productive working relationships. However, working with equipment generally designed for completely different purposes was a difficult task requiring long hours, dedication and a particular type of mind-set, which might as easily belong to an art-school trained artist as an engineer.

I have uncovered numerous examples of collaborations between artists and technologists in this period. Therefore the field of early

computer arts is a unique example of inter-disciplinary collaboration within Art History. This diversity creates a richly interesting aspect to the field, but also has a major bearing on how the art was and continues to be perceived by the art world. That it existed largely outside what may be considered the mainstream art world of museums and dealer-gallery networks is not surprising.

But, far from being an isolated historical phenomenon, this activity did have a lasting impact – both on the education of artists, their relationship to institutions and on avant-garde art practice. The cross-disciplinary work done in this period has proved of lasting impact on arts education, particularly with regard to notions of freedom of materials as well as a manner of working which takes into account the relationship between artist and audience, and material and environment. That there is little direct connection between this pioneering period and the New Media-based practice beginning in the 1990s, is in itself interesting. Contemporary digital art is often more involved with the computer as a platform for communications and issue based ideas, sometimes deconstructing the technology itself. Whereas

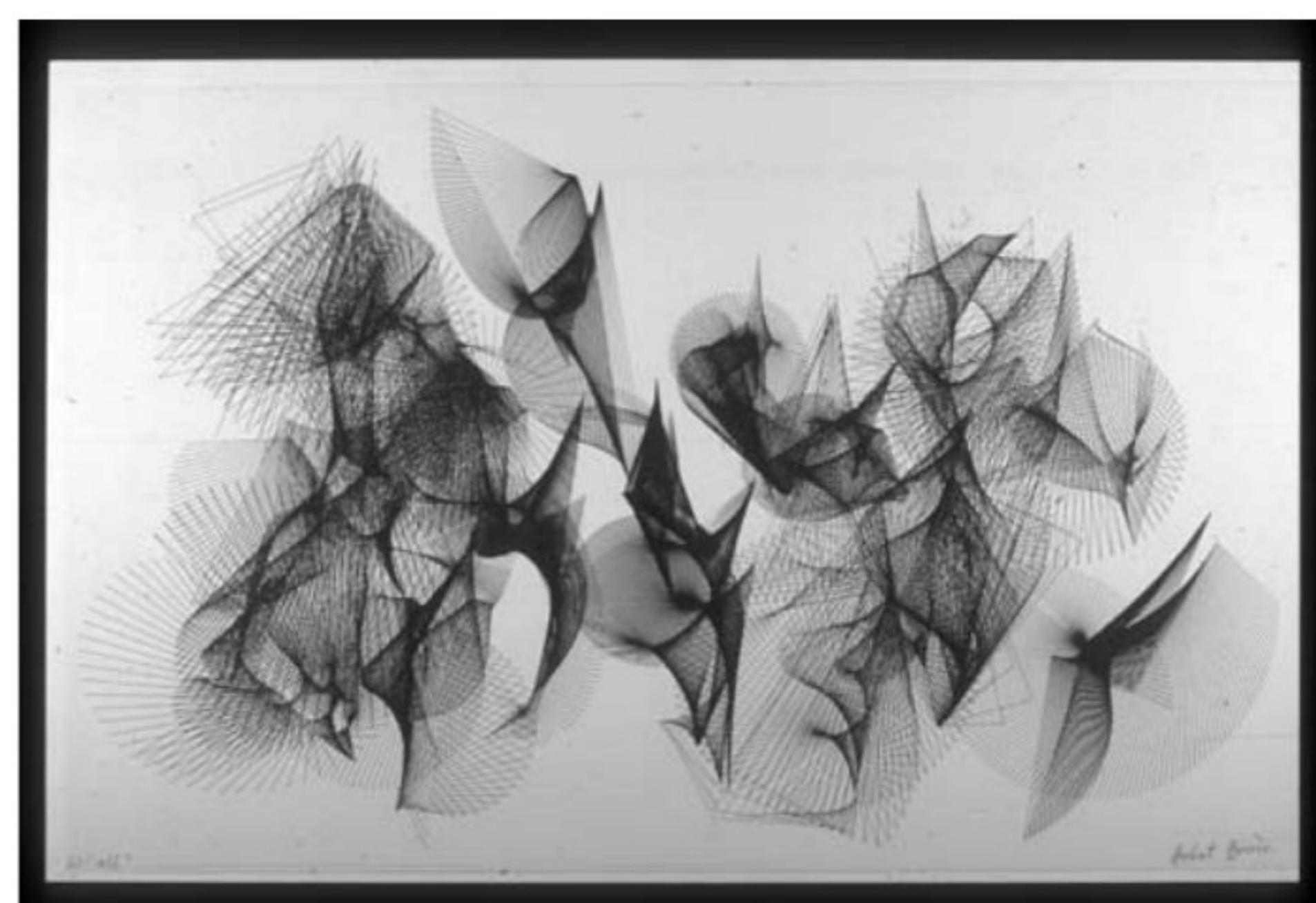
early computer arts was about specificity of material and technique - as such it can be seen as one of the last aspects of Modernism.

Presenting some of this research to conferences and events and meeting fellow historians in Los Angeles, Helsinki and London was rewarding, as was working with the knowledgeable and friendly members of the CACHe team. However, none of this would ever have happened without the superb source material – something many PhD students can only dream about. This has been a real bonus for me and has made the project endlessly fascinating for the past three years. I wish to send my heartfelt thanks to the very many pioneers - artists and practitioners, who have so kindly offered much more than accounts of their experiences and offerings of original material. I am truly grateful for your, often extensive, time, expertise and enthusiasm too. You have been the best source material any historian could hope for and have brought the period alive for me. I have met and communicated with nearly sixty of you over the past three years – your support and friendship have meant a great deal to me. To those of you I have yet to meet, I look forward to someday hearing your stories.

I am grateful for support from the AHRC in funding this research over the past three years.

Catherine Mason

Catherine Mason is currently finishing her PhD thesis and co-authoring **A Machine That Makes Art**.



Herbert Brun *Untitled* B/W photographic print

A PERSONAL LETTER FROM THE PHILIPPINES

Dear CACHe,

It is good to hear that Nick is currently putting together a bid for funding for a continuation of the CACHe Project, which would take in more international links and continue the story up through the 1980s.

I hope this works out. In my view there are very serious cultural-political issues involved: It was the conversion of the computer into a consumer plaything in the 80's that became an important basis for the development of the current postmodern consumer-military-industrial complex which apparently continues to destroy national economies and cultures in the pursuit of (neo-conservative) American interests.

If, for example, one compares the current UNESCO digi-portal with UNESCO activities in the late 80's (i.e. the "Synthesis: Visual Arts in the Electronic Culture" seminar at Offenbach in 1987) then it seems to me that there has only been a regression due to the prevalence of commercial interests (apparently supported by the various supposedly neutral international organisations such as Leonardo, ISEA and Ars Electronica). Personally, I find no relationship between generally accepted views of computer art history and my own personal experience. Perhaps it would be worth tracing the personal histories of the individual pioneers. How many became marginalised because they did not fit into the commercial system -and how many adapted to the "dematerialised" (anti-programming) yuppie attitudes of the 90's? How much did financial support play a role - and from where came the necessary support for those who were successful?

In this context, I'm afraid that one might also have to question the possible effect of academic conferences: In my experience, through

a system of fees for participants, many conferences and cultural manifestations limit participation to grant supported artists and academics - even though the academic positions formulated at such conferences often have direct influence on the lives and practises of non-academics. I suspect that -as a result of the increasing influence of academic theory on the art funding, presentation and education systems -practical feed-back systems can easily develop, which (backed up by international academic collaboration) then become consolidated self-fulfilling prophecies through their innate power to exclude all alternative visions.

I guess such questions go to the heart of the (apparent) dialectic between "pragmatic" defenders of the status quo and "creative" developmental visionaries. Perhaps the visionaries are always dangerous - and so need to be eliminated unless commercially or politically useful to those in power. But what is the cost to society?

If you are ever in Manila, then let me know. Although I must warn

you that the pollution and general destruction of the public space here as a result of the Americanisation of the economy (based on private wealth and public squalor) is horrific. If anybody ever tells you that the future lies in Asia - then ask them if they have ever been here (for more than a superficial visit in a luxury hotel) and if such an insecure and culturally arid future is really so desirable.

In my view, instead of following Asia (in a US/UK lead race to the bottom) - Europe should be helping Asia to preserve local cultures and develop economies on a more stable basis than the current global slash and burn policies promoted by Bush and Blair.

However, worst of all -I miss the BBC world service radio which is not available here (except via Internet - which is no use when operating a dial-up system). I suppose the British government doesn't want to interfere in the American's sphere of interest. With Asia and the Middle-East under American control there isn't much left to argue over. Interestingly, the early 20th century American colonisation of the Philippines (after the American-Spanish war) shows remarkable similarities with the current situation in Iraq. Then, as now, thousands of American troops were tied down by "isolated resistance" from trouble-makers -long after victory had been officially declared.

On the other hand, local politics are never less than fascinating here. The president is continually under pressure and there are constant stories of (government) corruption - now being spiced up by current rumours of assassination attempts, terrorist links and the possible introduction of a state of emergency. Recent presidential "executive orders" (one preventing government officials from testifying in public without presidential permission and another making public demonstrations more difficult) are being legally challenged for being unconstitutional. The political situation has been made even more complex by the spy who stole embarrassing documents which apparently reveal the true attitudes of



Trevor Batten - an early member of the Computer Arts Society who recently moved to Manila

the Americans towards the Philippines. President Arroyo is upset by the potential damage to the American-Filipino relationship -but are national interests best served by a cover-up or by (a democratic) revelation of the contents? It seems that "A hundred years of Filipino-American friendship" (Bush's words) might have created a political-economic nightmare for the locals. The struggle for true Independence has often been denied and rendered invisible - but it has deep historical roots which are apparently still alive. Unfortunately, all forms of resistance are now increasingly likely to be labelled as support for terrorism and therefore liable to be used as a justification for more repressive intervention.

Absurd as it may sound -I'm afraid that I can't avoid the feeling that somehow "computer art" and "multi-media art" (in all its various forms) lies at the heart of all this. Perhaps it would be interesting if the Birbeck art-history department linked up with the Birbeck social-political departments on these issues.

For example: Is (postmodern) computer based consumerism primarily a philosophical, social, cultural, political, technical, scientific or an economic phenomenon? Is the current all-pervasive model of

ANNA VALENTINA MURCH'S TENT AT INTERACT

In its first incarnation, the Computer Arts Society sponsored the production of artworks for some of their exhibitions through fundraising. For Interact, a Fringe event at the Edinburgh Festival in 1973, the Scottish Arts Council agreed to "guarantee losses" of £3,000. This allowed the budget to be over-run by that amount with the Scottish Arts Council picking up the tab. Papers in the CAS archive show that CAS was then able to fund the production and installation of several artworks.

These were Edward Ihnatowicz's The Bandit at £600, Stephen Willats' Edinburgh Social Model Construction Project at £400 and John Lifton's Green Music, which received £105 (with Lifton himself raising a further £600 from the Arts Council of Great Britain, as it was then). In addition, the CAS committee raised corporate sponsorship of £250 from John Player and Sons (part of Imperial Tobacco Ltd). This funded Anna Valentina Murch's Tent. It was thanks to CAS's patronage that these works were able to be exhibited to a wider audience attending the Edinburgh Festival. The CACHe team met Anna Valentina Murch last year and were delighted when she shared photographs of her work.

globalism a natural and inevitable development? Or, is the cultural integration of the computer a carefully nurtured and coordinated tool being used, just like post-war American abstract expressionism was, to support cultural-economic imperialism?

Happy daze!
Best wishes,

trevor

Trevor Batten is an early member of the Computer Arts Society.

Murch studied Environmental Media at the Royal College of Art in the early 1970s. Tent was originally created for her degree show in 1973, where it won two awards. The same work was exhibited at Interact. (These pictures show the installation at the RCA). Due to the unusually large, interactive nature of the work, it was installed on the fifth floor at the RCA, in a specially cleared space. Murch recalled that most of the other graduates were showing smaller pieces, including painting, thus indicating how unusual such installations were at the time. The work consisted of a spiralling tent, held up by columns of different heights and was eighteen feet across in total. The Fiberglas fabric contributed to the overall luminous effect. Ten projectors projected images to synchronised sound effects for viewers outside or reclining on cushions inside the tent. Murch worked with the departmental technician for the programming of sounds and images and remembers the use of punched cards. The idea was that viewers would see things not normally seen and from a different viewpoint in the city, from dawn to dusk – from peripheral vision of vast landscapes down to minute details. The images photographed by the artist ranged from the dawn, with abstracted natural terrain and textures just beginning to be seen through the dark, to lighter daylight and urban landscapes. Played to a soundtrack



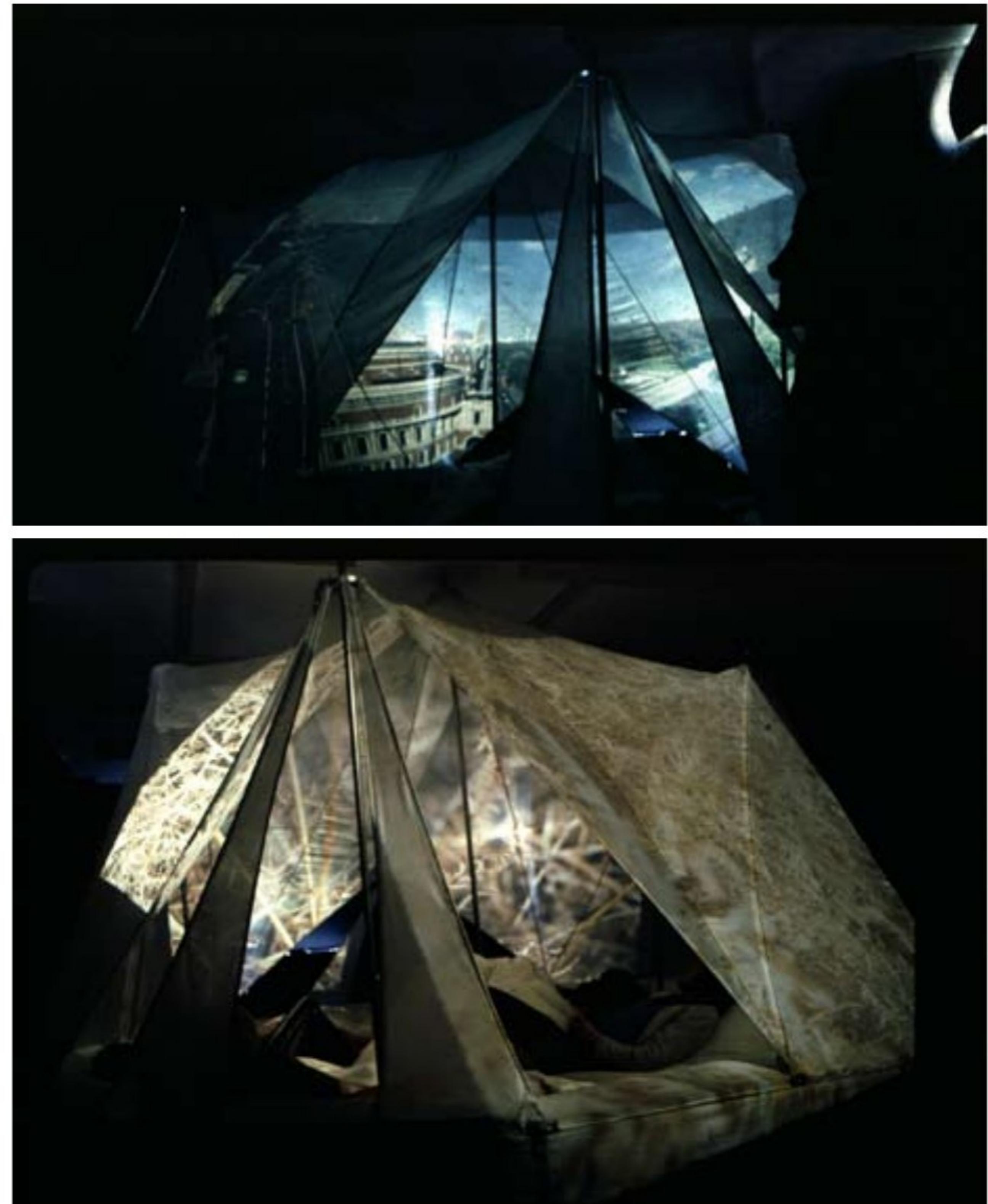
Anna Valentina Murch, Tent - Installation shot from the RCA, 1973

of natural sounds the artist acquired from the BBC, the images projected increasingly faster, before dissolving into darkness, representing annihilation and finally finishing with pictures of fields of daisies. The work clearly had an environmental and humanistic emphasis - that even after a point of horror, there is beauty and life goes on...as Murch said, "after the bomb the daisies come". This tapped into the politicised culture the artist felt at the RCA and in wider society during this period.

After Interact, Murch pursued further graduate work at the Architectural Association, before moving to the United States in 1976 to seek a greater range of production facilities and exhibition venues for her environmental installations. She is currently Associate Prof. of Studio Art and Chair of Fine Arts Division at Mills College, Oakland, CA. See <http://www.annavalentinamurch.com> for examples of her latest public art projects.

Catherine Mason

Anna Valentina Murch, Tent - Installation shot from the RCA, 1973



THE CBI NORTH WEST EXPORT AWARD

This essay was written in 1977 and was never published.

In the spring of 1976, the North West Region of the Confederation of British Industry (CBI), together with the Fine Art Department of the Faculty of Art and Design, Liverpool Polytechnic, organised a competition, open to students in that dept., for the design and production of a trophy - the **CBI North West Export Award** - which could be presented annually. The commission was won by a design that I had submitted for a kinetic device containing an illuminated display and driven by a dedicated programmable logic circuit.

After training as a painter, I had been working since 1968 first with lightshows and then in multi-media theatre. From this work I developed an interest in computing and electronics and this was encouraged by the show Cybernetic Serendipity that I saw in 1968 at the ICA in London. Consequently in 1974 I became a mature student in the Sculpture School of Liverpool Polytechnic studying art and technology. Most of my work since joining the course had been involved with the generation of

two-dimensional images that were programmed in Fortran on an ICL 1903A computer and drawn using an offline Calcomp 70mm drum plotter using a paper tape controller. One of the programs I had developed modelled a random line, using a simple modular unit (fig. 1). The model included a memory that allowed the line to base its future decisions - whether to move to the left or to the right - on its previous behaviour. A simple rule structure prevented the line from moving

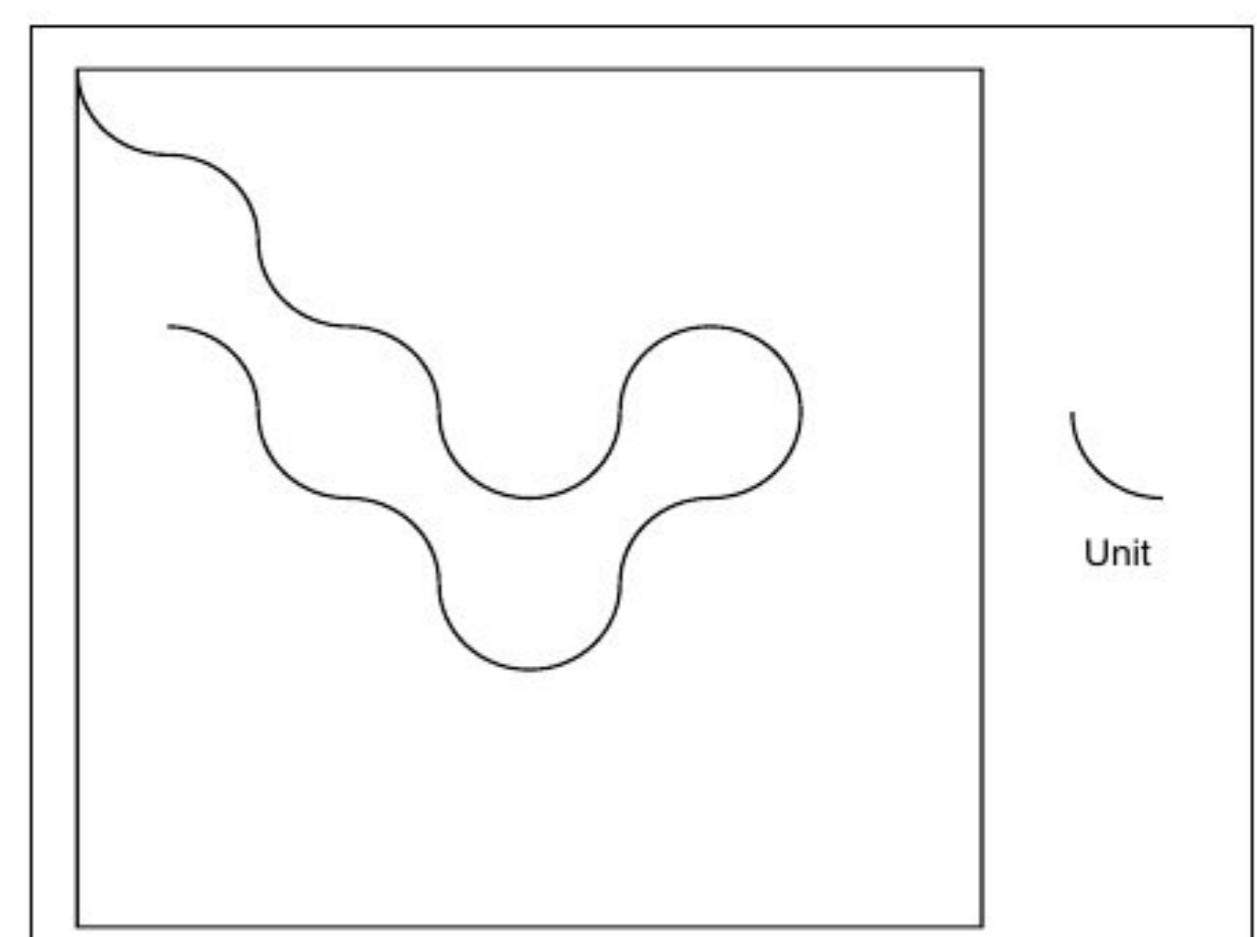


Figure 1 - **Random Walk**, Plotter Drawing

back along itself and from crossing the picture boundary. Since the computer was available to me only in Batch Mode (the program was submitted on punched cards and run in my absence) the output was in the form of a continuous line drawing which started at some random point within the picture boundary and terminated when the line met the boundary in such a way that either a left or right turn decision would cause it to cross that boundary.

The program was better suited to a real-time environment. Here a fixed length element (which I nicknamed the worm) would manoeuvre within the screen area of a Graphic Display Unit (GDU). This facility was not available so I began to investigate (with the help of the Polytechnic's Departments of Mathematics and of Electrical and Control Engineering) the possibility of building a display and circuit dedicated to this program structure. I decided to base the display on a square divided into 32 triangular elements (fig. 2). This would allow

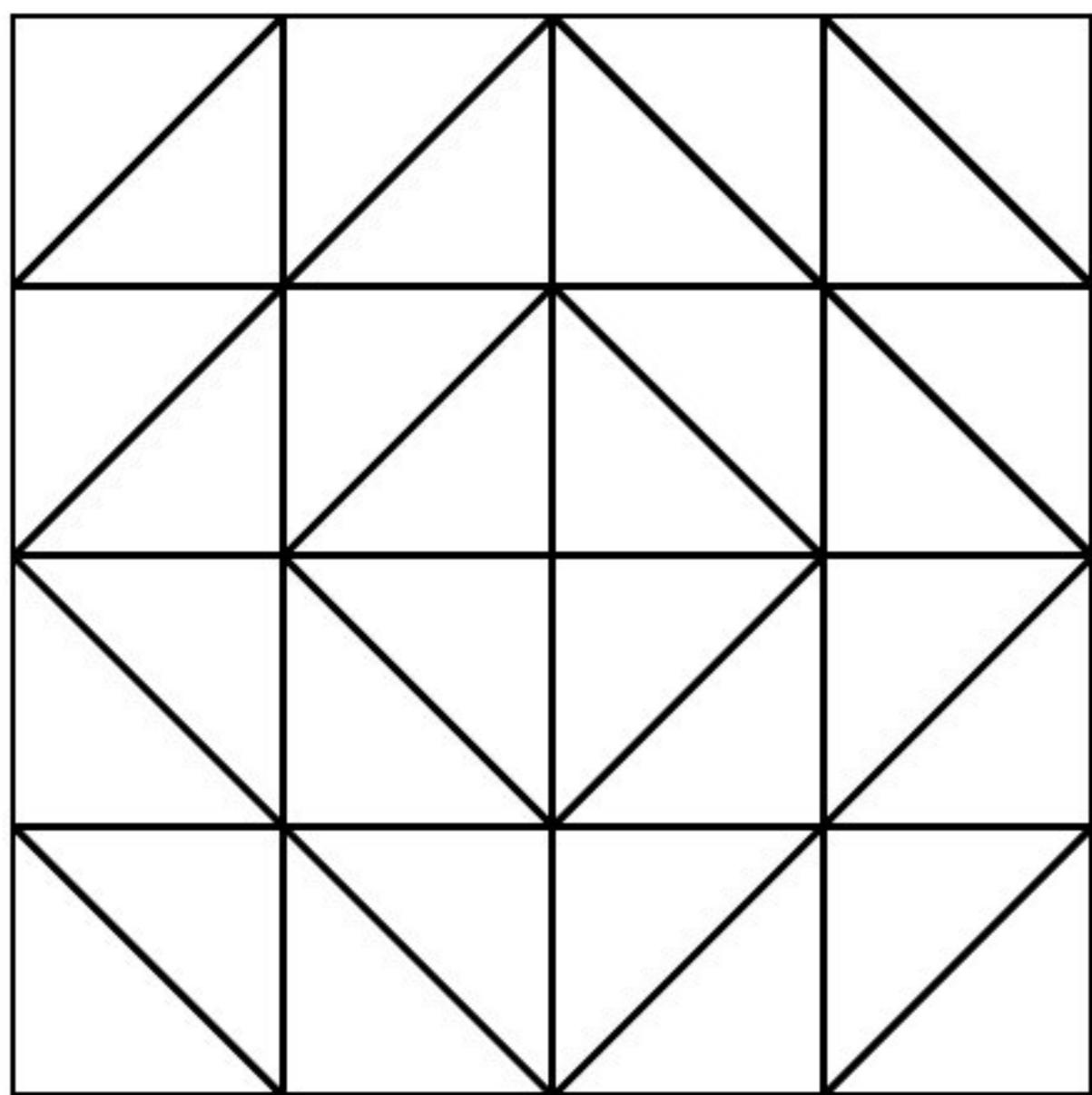


Figure 2. Schematic of Display

each element to be addressed by a five bit binary word ($2^5=32$) and this became the basis of the logic circuit design. The worm itself would consist of three adjacent elements each illuminated to distinguish them from the rest. The worm would move by making random left or right decision around the display until it became trapped in one of the corners (fig. 3). Here the circuit would be cleared (set to zero logic) - so the worm would appear to die and then be regenerated from the zero address (00000) at the centre of the display.

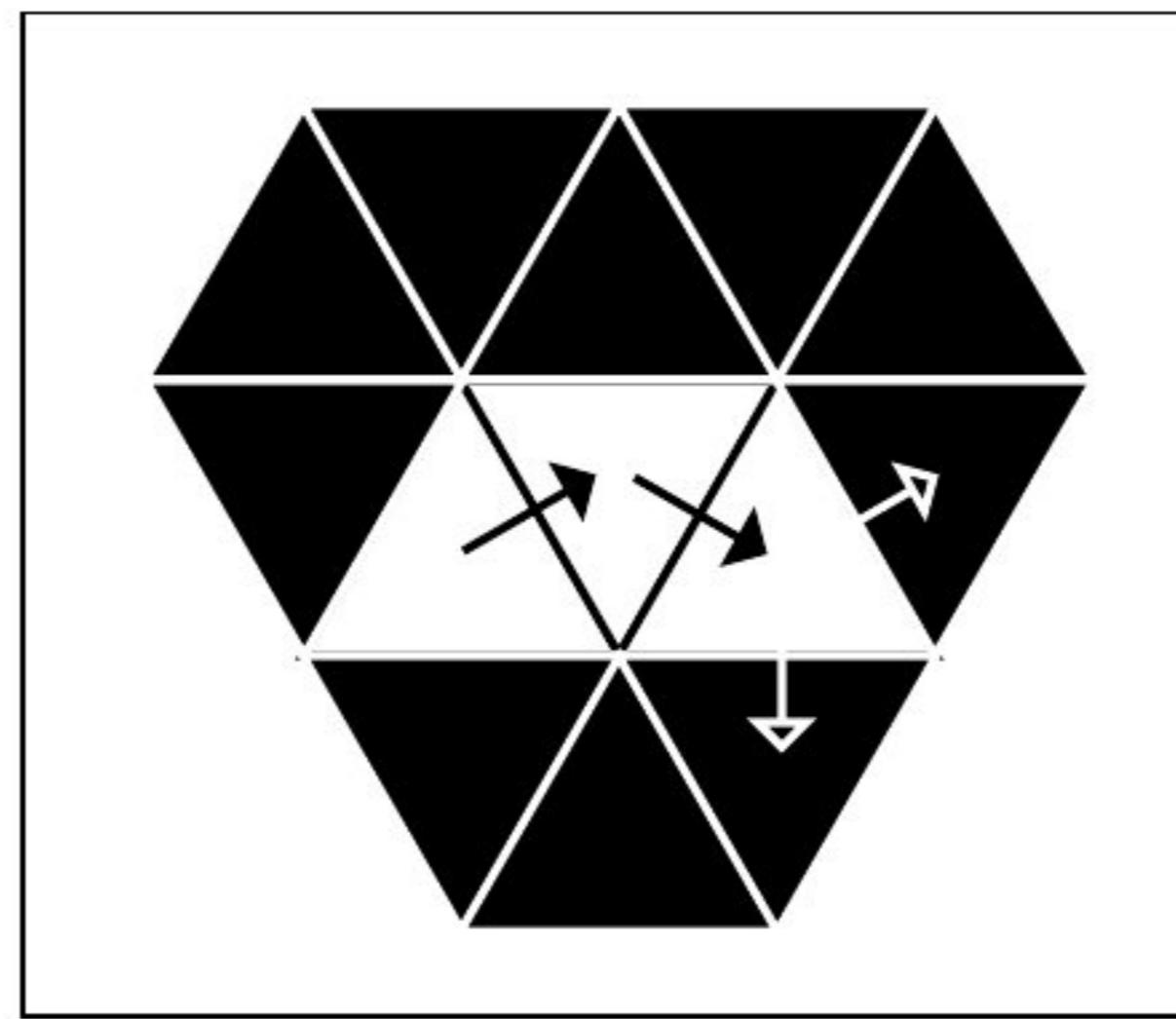


Figure 3. Worm on Display. Black arrows represent past moves. White arrows show possible future moves

I got his far with the design when the competition took place and I finalised the design of the housing for the circuit and display (fig.4). The CBI offered to find member industries willing to provide skills and services necessary to complete the trophy and introduced me to specialists at Plessy's Radar Division who confirmed the feasibility of the project. My initial hope to make the display from glass with liquid crystal elements proved unfeasible and a reflector/diffuser system using low-voltage bulbs was used instead. Rolls Royce Motor Car Division agreed to contribute the metalwork, which included the stainless steel base housing, and Alan Isaacs, an engineer

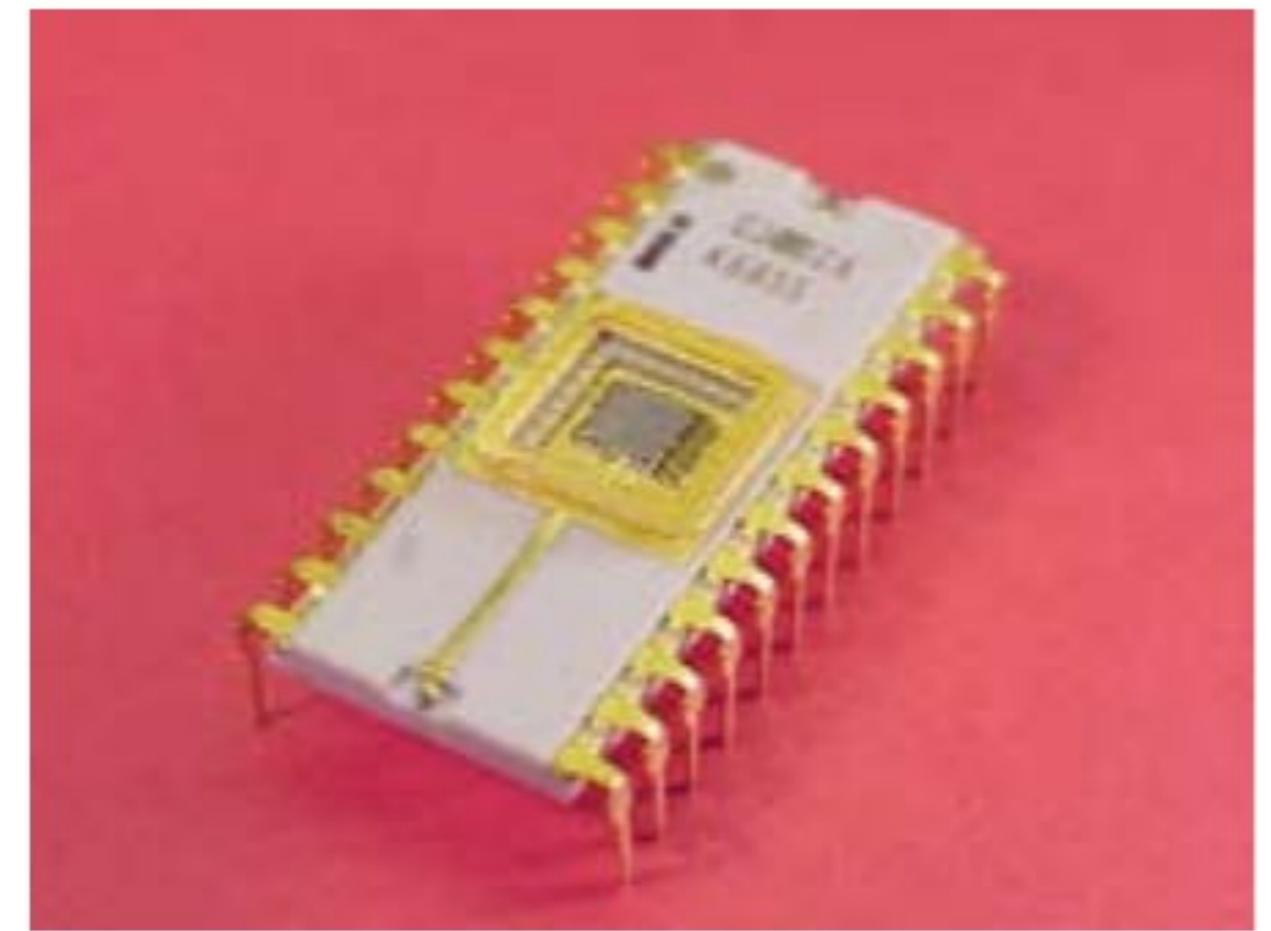


Figure 5 - Intel 1702 A EPROM

from Plessy's Radar Division, was enlisted to help with the circuit design. Alan's knowledge of recent developments in semiconductor technology and applications proved invaluable. My knowledge of integrated logic circuits (ICs) - which had previously been nil - grew as I carried messages back and forth between Alan and Ian Ross, a technician in the Polytechnic's Digital Electronics Laboratory who was helping me with the design and construction of the circuit.

In the final design a single monolithic IC, the Intel 1702A EPROM (Erasable Programmable Read Only Memory) (fig. 5) replaced many of the less complicated IC's of previous designs and provided an efficient and sophisticated solution (fig 6).

This 256x8 bit EPROM is

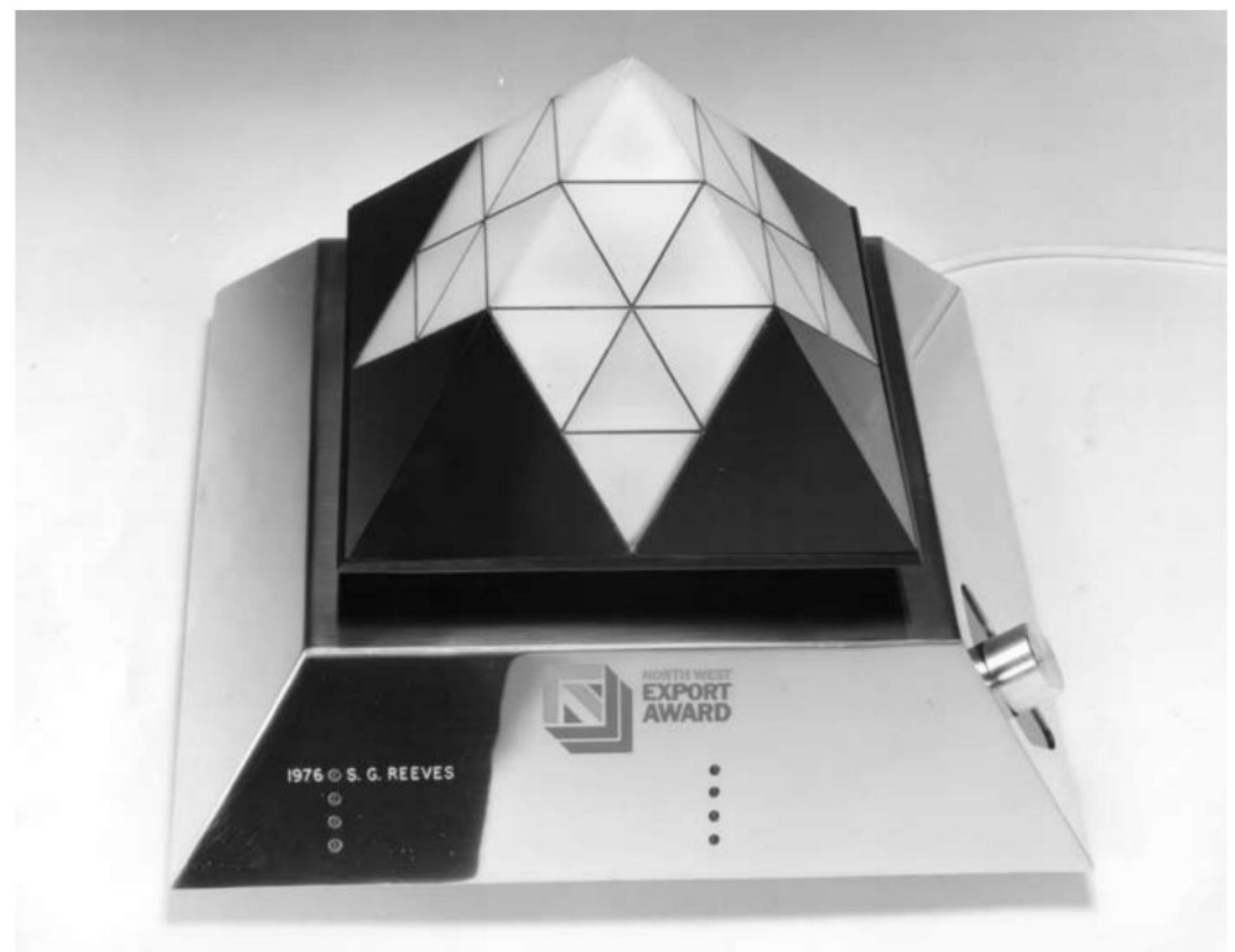


Figure 4 - North West Export Award, 1976, Stainless Steel, Perspex, Electronics, etc...

configured as a 32x8 byte array by splitting the 8-bit address/content byte into a 5-bit word with a 3-bit suffix. The word addresses a lamp and is fed back to also address the row of the array containing the possible future destinations of the resident location which are in different columns. One of these columns is forbidden since it contains the address of the present – or embarkation - location (Fig. 7). Bits 6 and 7 of the suffix resolve this - a 2-bit random 01 or 10 is included and this causes a column other than the one in which it is already resident (and which contains the embarkation address) to be chosen for the future state. Bit-8 is used to define edge conditions where, because only one choice is available for either one of the two embarkation locations (fig. 8), one element of the array must appear to contain two destination addresses. Columns addressed by bit-8 contain this alternative item of data whilst the standard 7-bit address remains unchanged. Once used, bit-8 is cancelled and the program continues normally.

The corner addresses decode to the four lamps and also set the circuit to its clear state at the next clock count. Visually the worm dies and is regenerated at the centre of the display and the random procedure repeats. In order to prevent the worm from appearing rigid and monotonous in its movement a hesitation function was included. This consists of a monostable triggered by a logic-1 state at both bits 1 and 3 of the resident address. The monostable disables the master clock for a fractional period. This gives the worm a hesitant life-like quality and also helps to keep the clock governing the random-generator out of phase with the master clock, thus ensuring that no long-term repetition of behaviour occurs.

The trophy was assembled during the summer of 1976 and was first presented by Britain's Minister for Trade, the Right Hon. Edmund Dell, to Mr. S.G. Reeves - a representative of the Plessey Organisation in October of that year. The project gave me grounding in logic design that has since proved

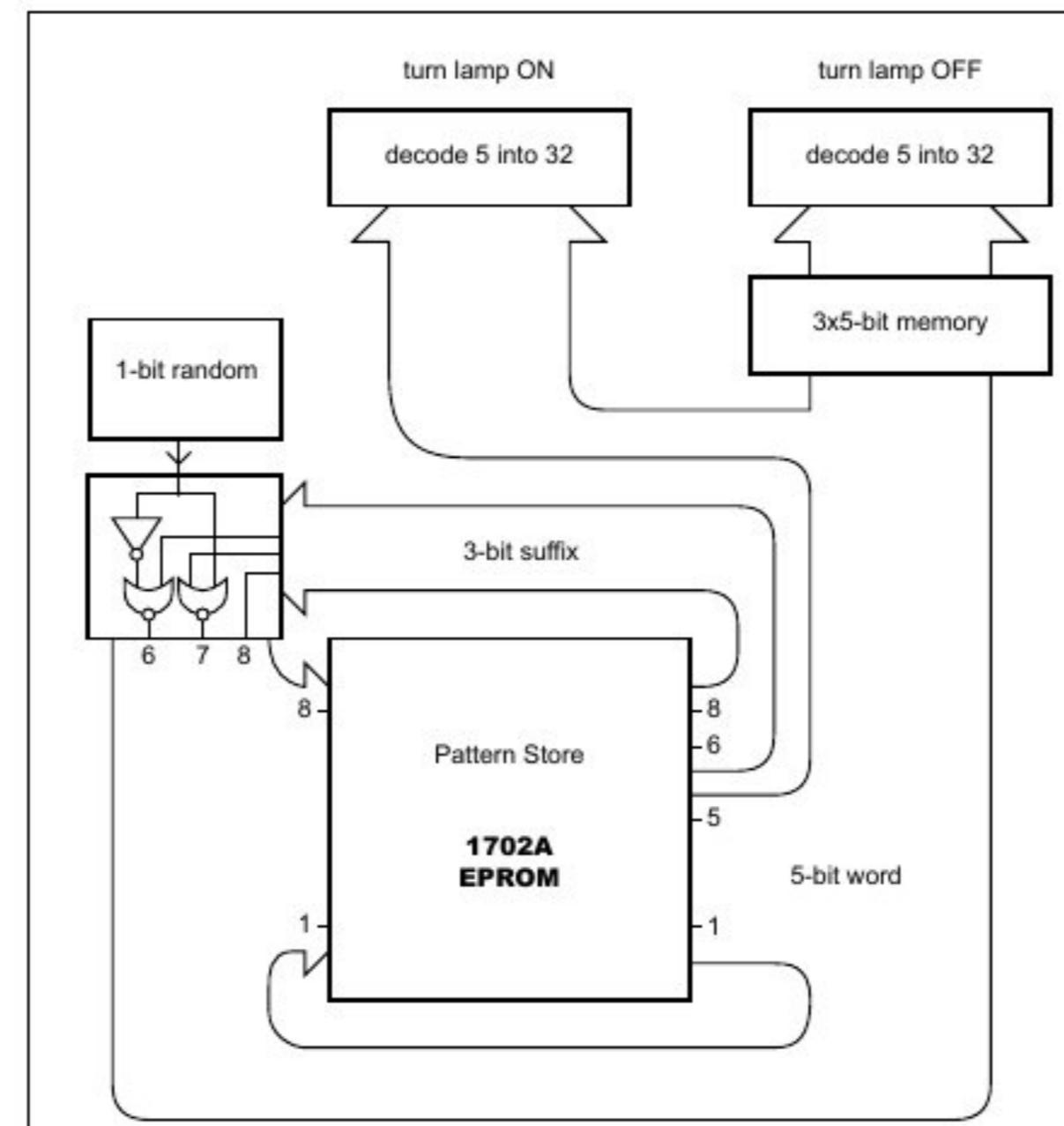


Figure 6 - Schematic of circuit. Buffers, clocks, etc... not shown

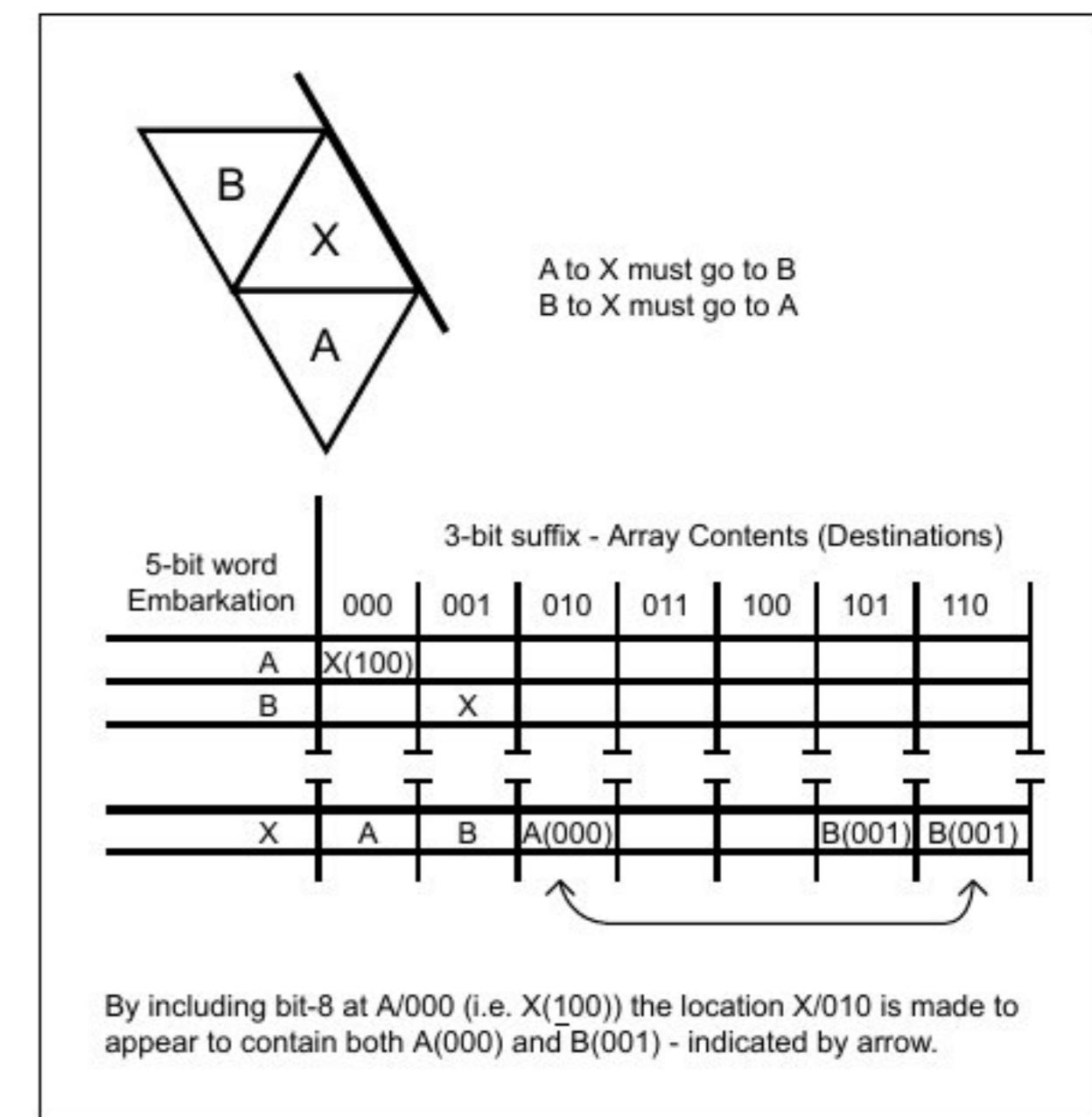


Figure 8 - Edge conditions - showing the use of bit-8

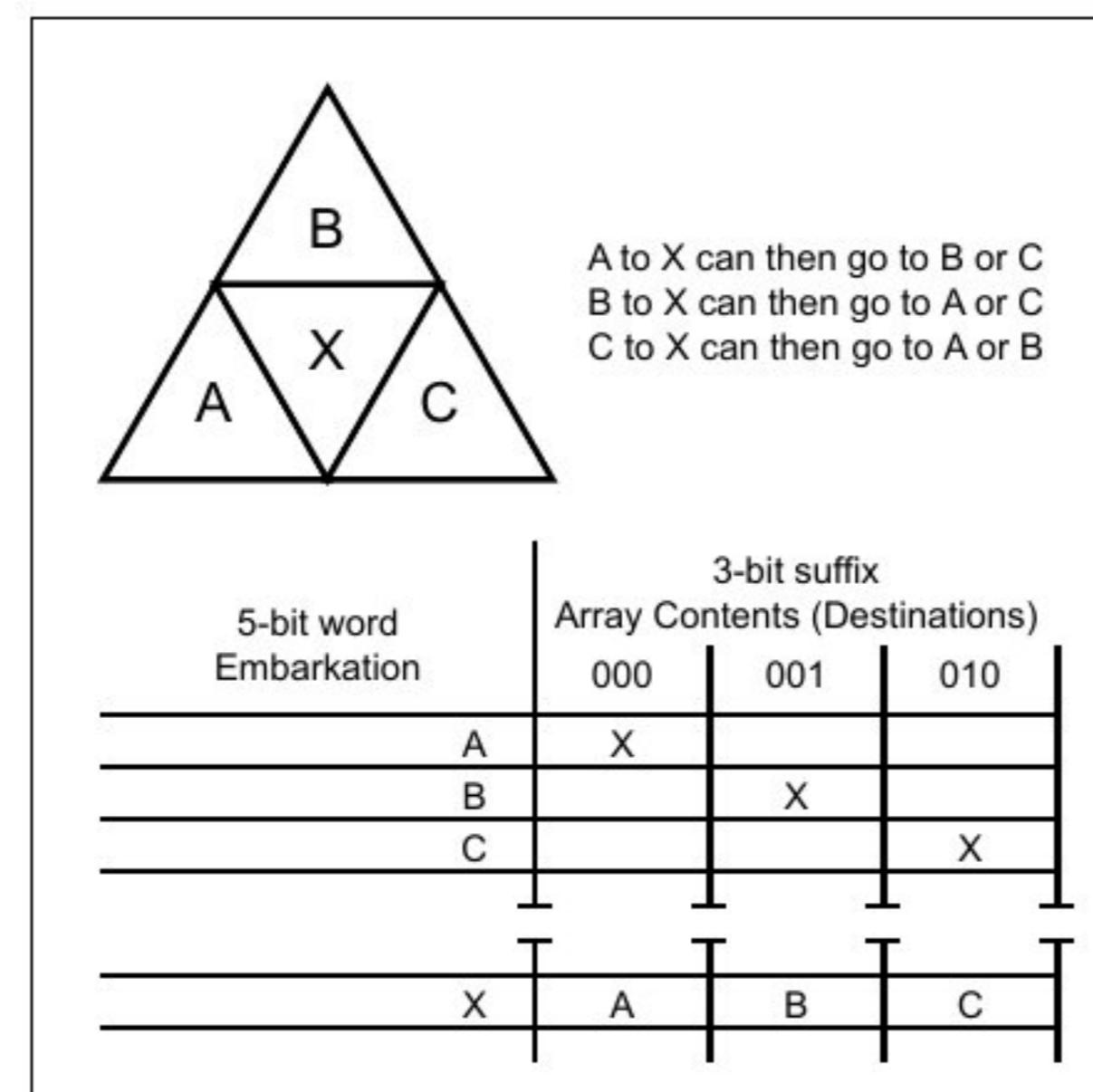


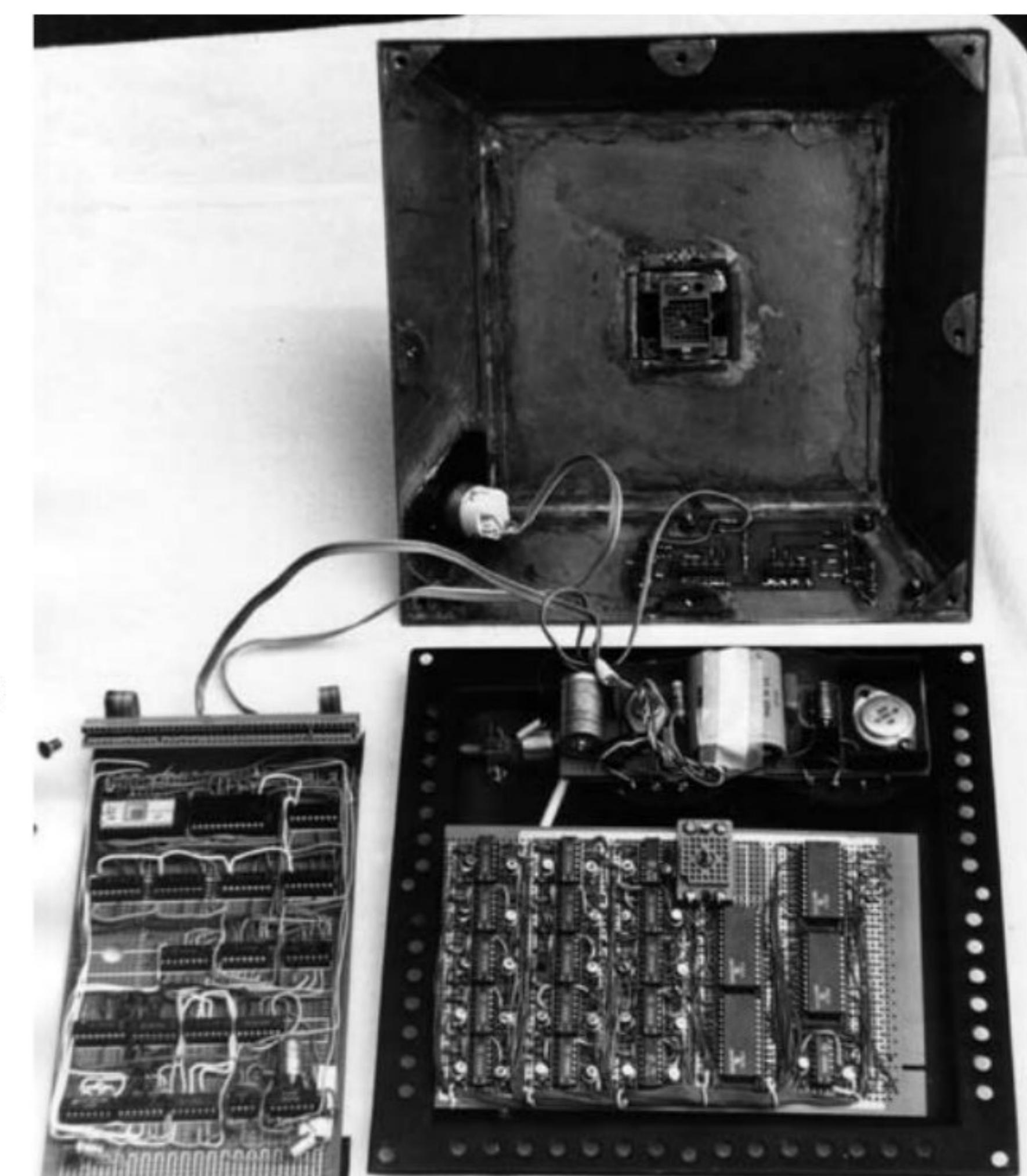
Figure 7 - Embarkation and destination rules showing corresponding layout of array

invaluable and it also provided a unique opportunity to work within industry alongside specialists in a wide variety of disciplines. I would like to thank Alan Isaacs, Ian Ross and those members of the staff of the CBI North West, Liverpool Polytechnic, and the fifteen businesses and industries who gave advice, services and components free or at cost and without whose help and support the trophy would still be an ambitious pipe dream.

It is to be hoped that cooperation of this kind between art and industry will become a regular feature of our future.

*Paul Brown,
Liverpool, 1977*

Figure 9 - internal detail



CAS MARCH SPECIAL MEETING

Bytes in Motion : Early British Computer-Generated Art Film

7 March 2006 - 6.10pm

National Film Theatre
Southbank, London

Tickets from 020 7928 3232

<http://www.bfi.org.uk/nft>

A special CAS film screening event at the National Film Theatre in partnership with the School of History of Art, Film & Visual Media, Birkbeck, University of London, supported by the London Centre for Arts and Cultural Enterprise (LCACE).

The event showcases early developments in computer animation by British artists and includes previously lost or obscure material arising from research conducted by the three-year CACHe (Computer Arts, Contexts, Histories, etc...) Project recently completed at Birkbeck which was supported by the Arts and Humanities Research Council (AHRC).

The pioneers of the medium often made their art on mainframes designed for scientific use, developing innovative software to experiment with aesthetic effects. The programme will include the first computer animation made in Britain through to the appearance of computer graphics in commercial TV and film. The event will also include introductions and discussion with artists and practitioners from the time, including Stan Hayward, Malcolm Le Grice and George Mallen.

A unique Creative Writing MA

95% online plus a week on campus in Leicester, UK

Applications are now being considered for Autumn 2006 entry to the Master's Degree in Creative Writing & Technology at De Montfort University, Leicester

The course is devised and taught by Sue Thomas, formerly Artistic Director of the trAce Online Writing Centre, and Kate Pullinger, well-known novelist and new media writer

It is designed for writers wishing to experiment with the creative opportunities of technology and the internet and is ideal for those preferring to study online. (Please note, however, that there is a compulsory Campus Week in Leicester during the Autumn semester)

For more details and information on how to apply

<http://writing.typepad.com/cwt/>

New Book

Painting the Digital River:
How an Artist Learned to Love the Computer

James Faure Walker

Prentice Hall 2006

ISBN: 0131739026

It is a literate and witty attempt to make sense of the introduction of computer tools into the creation of art, to understand the issues and the fuss, to appreciate the people involved and the work they produce, to know the promise of the new media, as well as the risks.

The USA publishers offer a discount at the website:

<http://www.pearson-books.com>

Enter this voucher code BEFORE selecting any books: BA003A

(As soon as stock arrives in the UK the book can be ordered online, with 20% discount and free shipping in Europe.)

cfp: Computational Models of Creativity in the Arts

a two-day workshop

Wednesday 16 to Thursday 17 May 2006

A partnership between Goldsmiths and Birkbeck Colleges and the University of Sussex

Hosted by Goldsmiths Digital Studios, Ben Pimlott Building,
Goldsmiths College, University of London

Including a public evening performance/exhibition event on the 16 May curated by BLIP and the Computer Arts Society.

The proceedings will be a special issue of Digital Creativity Journal (2007:1), Routledge.

Call for Participation

This workshop will bring together practitioners and researchers who are involved in the use of computational systems in the fine and performing arts, literature, design and animation as well as the associated fields of aesthetics, cognitive science, art history and cultural theory. It especially invites those involved in the computational analysis and modelling of creative behaviour to meet and share their experiences and explore the potential of co-operative future ventures.

It is intended that this call should interest the widest possible constituency. However a very broad list of (non-exclusive) descriptors might include:

- the application of computational and generative methodologies in the arts and related creative disciplines
- computational approaches to creativity, cognition and aesthetics
- the application of artificial intelligence and artificial life
- the application of evolutionary and adaptive systems
- cultural applications of computing and digital electronics in general

Categories of Submission

- Position papers, posters, abstracts, etc...
Places are limited! Please send in a one-page (maximum) outline of why you (and your colleagues) would like to attend and what you could contribute and/or how you might benefit. Include URLs to relevant projects/experience where possible.
- Artworks, performances, etc...
Please submit a one-page proposal including technical requirements. Include URLs where possible.

Deadline

The deadline for outlines and proposals is 19 March 2006. They should be sent to the conference chairs as PDF attachments to an email with the subject "CMCA Workshop Submission".

Co-Chairs

- Paul Brown, University of Sussex
– paul@paul-brown.com
- Janis Jeffries, Goldsmiths
– j.jeffries@gold.ac.uk
- Nick Lambert, Birkbeck
– nick.lambert@gmail.com

Funded by the London Centre for Arts and Cultural Enterprise - LCACE - and the University of Sussex



COMPUTER ARTS SOCIETY

British Computer Society Specialist Group

Bringing together artists and technologists
Exchanging techniques and ideas
Formulating needs for support
Helping to get works known
Exploring new forms

ABOUT THE COMPUTER ARTS SOCIETY

Aims

The Computer Arts Society (CAS) promotes the creative uses of computers in the arts and culture generally

It is a community of interest for all involved in doing, managing, interpreting and understanding information technology's cultural potential

Membership & fees

Membership is open to all who are interested in the aims and activities of the group

There is an optional annual contribution of £10 (€15 or US\$20 overseas) for which members receive a printed copy of each issue of PAGE

The British Computer Society (BCS)

The CAS is a Specialist Group (SG) of the BCS

The CAS receives funding from the BCS

Each CAS member who is not already a member of the BCS automatically becomes an SG Affiliate member of the BCS

Website

<http://www.computer-arts-society.org>

Publication

PAGE the Bulletin of the Computer Arts Society appears quarterly and can be downloaded from the CAS website

Archiving Computer Arts

The CAS was originally active from 1968 until the mid 1980s. It was re-formed in 2004.

There are significant archives of material from this era, mainly stored in homes and offices of people then active in the group

The CAS is working closely with CACHe, a project in the Art History Department of Birkbeck, University of London, which is documenting UK computer arts in the years to 1980

The collection, identification, collation and handing over of material to the CACHe team will continue in 2005 & beyond

This leads to a wider interest in the archiving, study and presentation of computer arts from earlier years

Present & Future Computer Arts

With so many novel and exciting developments in the creative uses of computers in the arts the society will continue its original aims of bringing together those active in this area

Collaboration

The society plans to hold joint events with other BCS Specialist Groups and hopes that this might develop into wider collaboration

Education

The CAS plans to have an educational role in making students more aware of early work in computer arts and in helping artists to use computers creatively

CAS Committee

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