

This issue is a report on the creative use of computers here in Paris.

To avoid any truncation or misinterpretation, I invited everybody who is working in this field to contribute a small report on their own work.

Theory and philosophy:

Dr Abraham A Moles, whose books and essays on music and visual arts have become standards in the field of computer art.

Computer Music:

Pierre Barbaud, one of the first musicians in Europe who rigorously used the computer (and still does), and Iannis Xenakis who already worked in 1962 with a computer and to whom PAGE 23 was dedicated.

Visual Arts:

There are the group "Art et Informatique" at the faculty of Vincennes, and the artists Vera Molnar and myself, Manfred Mohr.

## SOME REMARKS ABOUT ART AND COMPUTER

### ABRAHAM MOLES

1 – Art is, first of all, artefact. Is the computer the tool of the artefact, the key to the only authentic art: the one which emancipates the mind from the human warmth? These images lead us to wonder about it.

2 – Would the artist be an imperfect approach to the creative machine – an elementary model we used nevertheless, since we had nothing better to replace it? Which role should the artist play in a Universe of total artificiality?

3 – Why put up with this humanistic frenzy which claims to assimilate man to what is most animal in him, the warmth of the heart? If we can recreate the features of the world by the power of the mind – plus the computer – why do we restrict ourselves to the wanderings of instinct?

4 – Computer art is coming of age: why should a repressive ethics of Art bind it to the only hands of the "artist"?

5 – If art with computers, as being a novelty, is the subject of merchandising and of business alienation, as Nake remarks, this is only a mishap on the path of novelty, in the channels of our, given, society: silkscreen is only the first step of multiple, multiple is the first step for dissoluting works of art in the cultural consciousness which, in turn, is the first step towards a new creation . . .

6 – Art is not a thing such as the Venus of Milo, or the Empire State Building, it is a relationship which man acquires toward things, an active relationship for the creative person who changes them and orders them at his own will, a passive relationship of the consumer enjoying the shapes and the patternings. A surplus of life, a programming of sensuality or an experience in the sensualisation of patterns, it is, anyway the game of mastering one's own environment or of being mastered by it.

7 – How bright, exciting and vivid are the feelings imposed by the coloured phosphors of the light screen, the new animated surface which puts together this "assembly of coloured spots complying with some definite order" which Maurice Denis evoked. Games and kaleidoscopes of permutation art appear as the first steps for building sophisticated artefacts of the vision on the basis of unlimited memorisation.

8 – We know that from now on machines are able to absorb without any losses the entirety of aesthetic stimuli, to grind them into grains of coded sensoriality, and to distribute them without waste into the cells of their memories. We are faced with the basic question: is it possible, out of his heap of grains, to assemble a new pattern?

9 – Art is a programmed sensualisation of the environment: visual environment, immediate and semi-passive, scanned by the eye, in a movement so inexpensive that we can spend it freely, time environment of the sonic or acting process,

spacial environment which man explores or discovers as belonging to a whole. Visual arts, hearing arts, arts to be practiced, the artist is the programmer: the artist, alone, semi-determines micromovements of the eye, or paths of urban wandering, games of mazes and gardens. He alone, conditions these latter, by respecting the rule of the game: the acquisition of pleasure by those who practice it. The computer with its memories, its subroutines and its algorithms, provides the artist with means to elaborate this programming of the sensorial game, on a scale which artists of the past were unable to imagine – let us here make a provisional exception for the mannerists, the obstinate rigour of whom has grasped the vertigo of infinity of their permutational field.

10 – The art of the social system should be founded necessarily upon machines for the handling of complexity. We see the emergence of a Neomannerism of the computer i.e. an operational style in which the "manner", the procedure, is more important than the form, since a form is only a particular solution among a large number of other possibilities made in the same way, it is, so to speak, a "proof of existence" of the field considered. The procedure, the manner for actualizing the work appears thus the true source of wealth, of invention, of strength.

11 – In past times the artist was an intuitive programmer, nowadays he comes out a graduate from programming schools, he replaces a vague-but-sure intuition by the injection of a ration of randomness, duly measured and conveniently experimented. The artist – or what replaces him – the creator of new shapes, may get caught in his own game, when he finds in his activity a sufficient justification of his existence not to care about a public. The product of the computer solves this dialectic game which is arranged between the artist as a pure creative being and the artist as a provider of patterns, which are sensually consumed by a spectator, unfamiliar with the act of innovation. How can this dialectical game be introduced into a "well programmed society"? This is the question.

12 – Fascination is the quality of the relationship between beings and form which imprints durably this latter on the path of his look. Its means are numerous: the single "strength of the pattern" is only one of them, intricacy, double meaning, symmetry, perspectivist vertigo, perceptive integration, colour shock, imposed refinement of a given detail, mastering of apparent complexity by the way of distinctive clues, all belong to the tools of fascination. They are the ones the artist exploits at his own will, the ones of which the innovations of optical art have made a systematic census. Art with computers has a disposal of new resources for fascination: eg the tracking of a lengthy design, resulting from accurate and numerous variations that the watching eye integrates into the mind in an eyewink, finding the regularity under the deviation, the rule under the exception, distant order under close disorder. This is only one of these

new possibilities which come directly from this "accuracy of details in the enormity of the purpose" which the "sequence controlled processing machines" offer. Our artists in computing have now to list the algorithms arisen from this new possible, and to assess the strength of fascination they can extract from them.

13 — The images of Knowlton, Nees and Nake, Barbadillo, Kawano and Mohr, disregarding their formal beauty, remain, up to now, milestones in the "field of the possible", instances of application of a more general algorithm, theorems of existence for this field. They show that it is possible to go further in the art of fascination: if they seduce me, I know that each of them is the bearer of endless variations: it suffices that I demand them. They are not closed to the

## HIGHLIGHTS OF SOME MAGNIFICENT PRINCIPLES

### PIERRE BARBAUD

1 Considering first a set  $D$ , the elements of which are called *datas* and then another set  $N$ , the elements of which are called *notes*, the cartesian product  $D \times N$  will be called *universe of discourse*.

2 Any sub set of  $D \times N$  will be called *music*.

3 When the set  $N$  results in

$$N = \{2^n\} \quad (n \in \mathbb{R})$$

the universe of discourse is *octavian* and each element of  $N$  is named *frequency* of the note  $n$ .

4 When

$$n = k/12 \quad (k \in \mathbb{Z}^+)$$

the universe of discourse becomes *chromatic tempered*.

5 The Universe of discourse is said *audible* when  $n$  is comprised between 5 and 13 approximately.

6 If any element of a music

$$M = \{(d_1, n_1), (d_2, n_2), \dots, (d_m, n_m)\}$$

responds to all the conditions of a *corpus ratiuncul* which is called *program*,  $M$  is considered as *result* of a calculation relative to this program.

7 If one or several of the conditions listed in the *corpus ratiuncul* enable the operator to make a choice between several elements which altogether represent a Borel's field,  $M$  is called *stochastic*.

8 If the calculations are made through a computer,  $M$  is usually called in France, by misuse of term: *algorithmic music*.

BARBAUD (Pierre): French composer, was born in Les Andelys, on a Tuesday night by 9.30 p.m. He studied Literature in Sorbonne (Latin, Greek, Grammar and Philology) then was appointed Librarian at the Music Department of the National Library.

He was then composing music that did not satisfy him and in the early 1950s he decided to study Mathematics. He started monitoring Chance (dices, heads and tails, telephone number Directory) placing it into a set of arbitrary rules in order to automatically compose musical pieces. At the same time Michel Philippot was also using a rather similar approach with his "imaginary machine".

In 1958 Pierre Barbaud came into contact with "Compagnie des Machines Bull" which has since become "Compagnie Honeywell Bull", in order to improve his method by using computers.

On June 30, 1960 an orchestral score, entirely composed by computer with a program written by Pierre Barbaud was presented in Paris. Music critics labelled it "a mathematician's delirium". Following events demonstrated that such a critic was wrong. Pierre Barbaud continued to work on composing music with a computer. His name is well-known in the field of *computer music*, thanks to his imitators' zeal.

### MACHINE v THE PEOPLE OF FIRMINY

*Machinementum Firminiense* is a recent work by Pierre Barbaud, first performed in Firminy at the 'Maison de la Culture' on 10 December 1972 by the Ensemble Instrumental de Musique Contemporaine de Paris conducted by Konstantin Simonovitch. The score was derived from calculations, half of which were performed by computer and half by the people of Firminy and school boys and girls all around France.

surroundings, they exemplify an art composed wholly of artefacts which follows ways much different from the traditional artistic imagery. Is the road of the arbitrary guided through perfect order? There is not a dot, a spot, a hue, which has not been taken into account, loaded into his consciousness by the orderer of forms. It is no longer a spontaneous continuity of the displacement of his hand, but a desire for shape, it implies an aptitude for going beyond. The artist must go over, trespass, and his activity must be defined by the concept of example, better than by the concept of work.

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## GROUP OF VINCENNES

The 'Group Art et Informatique' has been founded in 1969 as a section of the 'Departement d'Informatique' of the 'Faculte de Vincennes' (Universite Paris 8), and in connection with the Music and Visual Arts departments.

One of the main characteristics of the group is that the university computers are available full time for its members. This makes its work tend naturally towards a peculiar effort in programming. The activity of the group is systematically half teaching and half research.

As soon as 1969, i.e. long before F. Nake's famous letter, it was clear to us that the main direction taken by the Computer Art did not give a satisfactory answer to this section: can the use of computers bring lasting revivals in the fields and feelings of Music and Visual Arts?

The greatest effort was therefore to be made in:

1. The development of relevant (i.e. very local) *models* of composing processes.
2. intensive programming, at the highest possible level, of these models, which affords their constant revival.

Some satisfactory results begin to appear in the fields of *colour* and musical composition processes.

On the other hand, it appeared by degrees that models found and the questions asked were rather similar to those of heuristic programming and research in robotics. Several Artificial Intelligence techniques are therefore commonly used by the members of the group.

### PEDAGOGY:

At this time, the lectures are given in three of the university departments: Computer Science, Music, Visual Arts. We intend to settle this year a specific 'Art et Informatique' course which should gather them.

A free summer course, with plenty of computer time, is organised every year. It is open to any concerned artist.

A paper including programs and articles (ARTINFO-MUSINFO) is printed monthly and can be sent.

### MEMBERS OF THE GROUP & INTERESTS

Jacques ARVEILLER (Music, Psychiatry) develops models of improvisation and interaction between instrumentists.

Jerome CHAILLOUX (Visual Arts, Electronics) is concerned by interconnections between computers and display systems.

Jacques & Fanie DUPRE (Visual Arts) work out a theory of colour in relation with robot models.

Patrick GREUSSAY (Music, Visual Arts) builds programming languages oriented on musical composition and develops a formal linguistic theory of musical analysis.

Jean-Claude HALGAND (Visual Arts) works on relationship between automata theory and pictorial composition.

Herve HUITRIC (Visual Arts) builds, with the help of linear equation systems, coloured surfaces, still and moving.

Jean-Claude MARQUETTE (Visual Arts) is interested in the visual aspects implicitly contained by some literary texts, and the visual display of linguistic regularities existing in aperiodic texts.

Pierre-Louis NEUMANN

uses, for visual aims, Conway self-reproducing automata.

## ART PROGRAMME ET SCIENCE DE L'ART VERA MOLNAR

"Programmed art" is neither a revolutionary art, nor a new one. It may be, that all art is "programmed". The instructions given by the church of the Middle Age to artists are programs. L.B. Alberti's advices in order to obtain perspective-effects are programs. The technique of Cézanne is a program. When Monet retired to make pictures representing the same haystack at different moments of dawn: he executed a program.

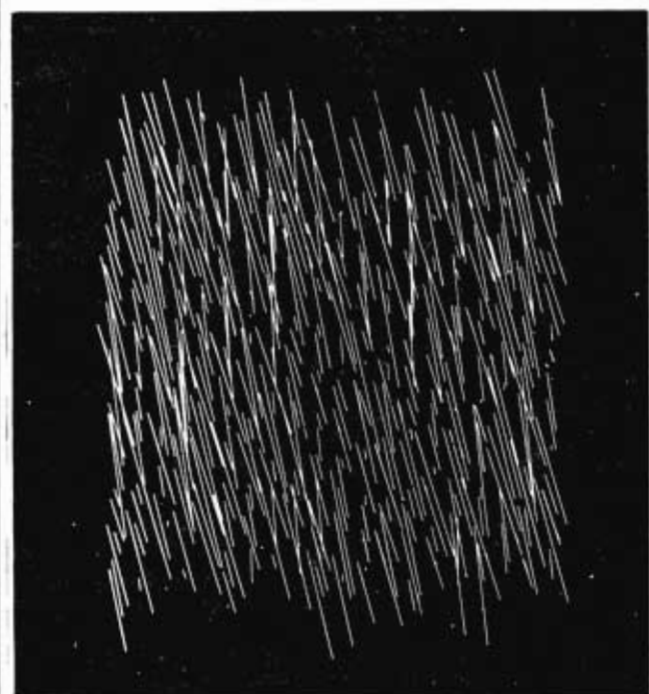
The thing which is new is the following: we are now able to realise a program with the utmost precision. Indeed, the painter of the Middle Age was unable to execute the instructions of the church, Cézanne was unable to compare the color on the bottom of his brush with all the successive points (elements) of his picture. Today, we can — thanks to the computer — execute similar tasks and in very short delay. Thus, artists today can build up programs running in full speed on computers which become more and more powerful. Also, they can compare the results, the outcomes of their different programs in order to select them, to modify, to complete, to begin again and again. With this really experimental method, called in psychology method of 'trial and error', the artist can approach his prime idea more and more. I think this method of artwork is a real progress.

But we should not forget that each idea expressed in a program we imagine is a logical construction, that is to say, it is arbitrary of the point of view of aesthetics. Indeed, our affective behaviour is not necessarily logic: more precisely, our aesthetic feeling does not follow the same logic as does mathematics for instance.

The real revolution in art, the artistic renaissance will take place only at the moment when he will be able to build up and realise programs in function of the psychology and physiology of human beings.

Truly speaking, I believe, this revolution has already begun. The new man/machine and art/machine relation within the two past decades in fact deeply transformed the "Science of Art".

Nevertheless a new effort is required of both, artists and scientists. Artists have to tend in the direction of science and scientists toward art, to work out a coherent science, a new "Science of Art".



VERA MOLNAR

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## COMPUTERS AND THE HUMANITIES INTERNATIONAL CONFERENCE

University of Minnesota 20-22 July 1973 Minneapolis

Abstracts in the areas of Linguistics, Literary Studies, Creative Arts,  
Related Fields by 15 March 1973 to

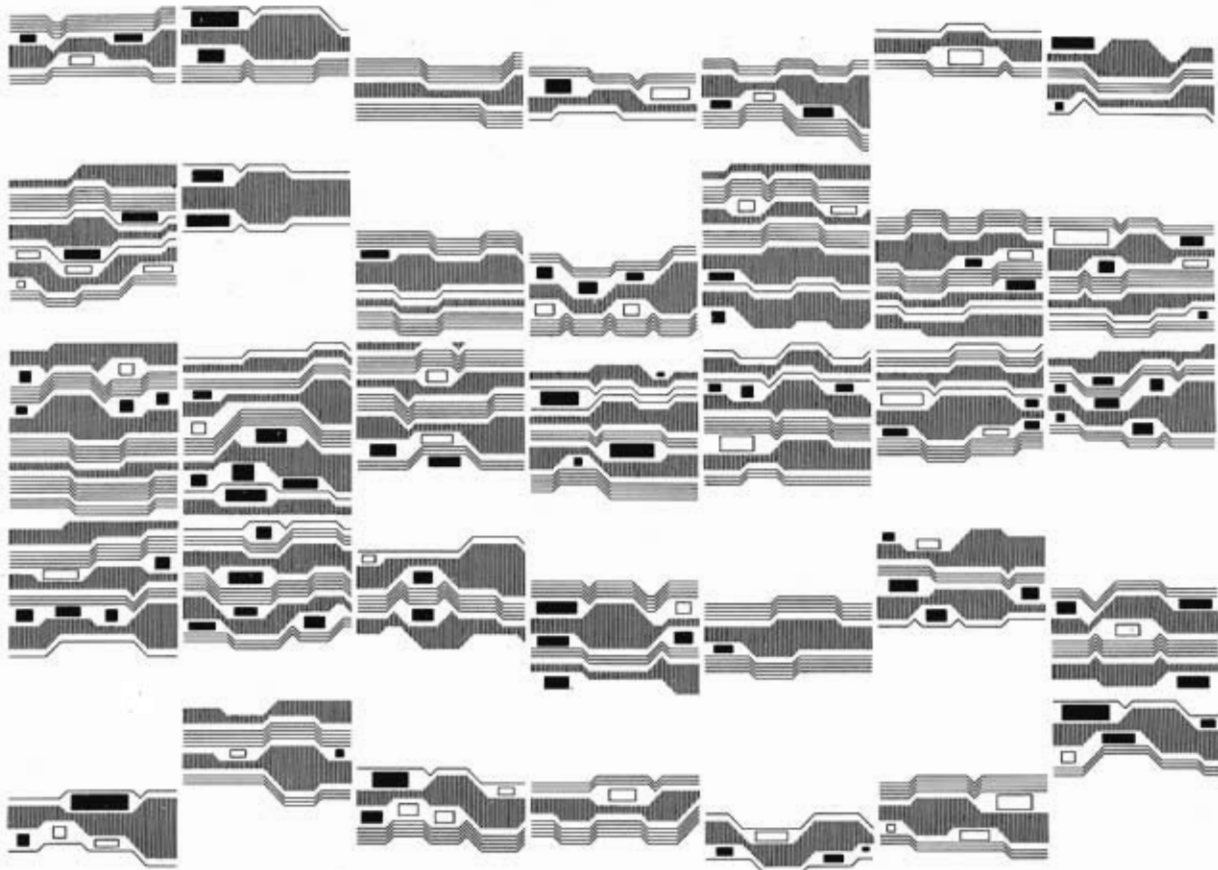
Prof Jay Leavitt  
CICS, 114 Main Engineering  
University of Minnesota  
Minneapolis, MN55455

Submissions may be in the form of exhibits and productions

For further details and a copy of the preliminary program contact  
Prof Donald Ross  
English Department  
207 Main Engineering  
University of Minnesota  
Minneapolis MN55455

## SUMMER WORKSHOP & COURSES

Prior to the Conference, a workshop and courses are planned for those interested in computer applications in the arts, in the study of language and literature; in the use of FORTRAN and SNOBOL. For information contact Prof Allen Hanson, at the same address as Prof Leavitt above.



PROGRAM NR 133

MANFRED MOHR

## MANFRED MOHR

Using a computer in visual arts means amplifying the possibilities of intellectual and visual experience.

The logical part of this domain creates a refreshing and open space for aesthetical communication.

Technical and social development requires a more and more logical and abstract thinking. It is therefore quite natural that in the field of aesthetics research is being done in order to find new and logical bases.

Computer-art in general shows results of well defined problems. Through the detailed programming-analysis, one is able to visualise logical and abstract models which lead deep into the understanding of creative processing.

The relatively short history of computer-art shows until now two distinct directions:

- 1 The visualisation of mathematical formulas as an artifice. Without doubt very interesting and never-before-seen results appeared. But for a long-term artistic interest, the resulting aesthetical information of a mathematical formula is in itself limited and therefore, in my opinion, a closed system.
- 2 The profound research to find (or to invent) an individual algorithm as an artistic expression.  
The individual impact of man's behaviour, filtered and reformed through the (philosophical and actual) peculiarities of a computer, leads directly to an interesting and over all coherent open system. Of course mathematics is used but here as a technical help and not as its only purpose.

My first step in this direction was an extended analysis of my own paintings and drawings from the last ten years. It resulted in a surprisingly large amount of regularities, determined of course by my particular aesthetical sense, through which I was able to establish a number of basic elements, that amounted to a rudimentary syntax.

Since the most important point in applying a computer to solve aesthetical problems is the MATERIALGERECHTE<sup>1</sup> use of this instrument, the research therefore should assume that old techniques of drawing and imagination are not to be imposed on the machine

(although this would be possible), but should develop *a priori* a vocabulary which integrates the computer into the aesthetic system. That means: to use this powerful instrument not only as an interpreter!

My computer-graphics are conditioned by four basic premises:

- 1 A precise idea of an aesthetical problem.
- 2 The need to break this idea into parts which could be reassembled as a program.
- 3 A steady control of the computing process to take full advantage of the machine — man dialogue.
- 4 The need for the logic of the events to become perceptible.

As it is possible to conceive a logic of a construction but not all its consequences, it is nearly an imperative to rely on a computer to show this large variety of possibilities. Since the creation of a form is limited a priori by its author's characteristics (of which he may be conscious or unconscious), the exploration of a new idea leads sooner or later to a repetition, which can be avoided by introducing at certain parts in the computer-program variable decisions in order to create unexpected situations. That means: Working with randomness.

From the creative point of view however, it is absolutely necessary to keep control over the information flow during calculation time. I develop, therefore, subroutines which I call 'aesthetical — filters', in which all calculation steps are tested and compared with imposed 'laws', so that only that information can leave the filter which satisfies those prepositions. Randomness is therefore in my programs only a cause but not a result!

The 'aesthetical-filters' are based on my above mentioned syntactic research and according to the programs they can involve divergent mathematical structures.

The logical construction of a programming language forces us, on one hand, to concentrate with a almost maniacal precision of formulation (the instructions), but opens, on the other hand, new dimensions for large and statistical thinking which otherwise could never be achieved, due to our ignorance of possible operation models.

The dialogue with the computer implies, that results (graphics etc.) and their visual expression have to be judged under completely new aspects. Evidently, one should not create single forms and judge them in a traditional and subjective aesthetic, but build sets of forms where the basic parameters are relationships between forms with no aesthetical value associated to any particular form.

Within this context it is possible to ignore the former 'good' and 'bad' and aesthetic decisions can be based on statistical and WERTFREIE<sup>2</sup> procedures, where the totality represents a 'quality of a quantity'. This procedure may lead to different and perhaps more interesting answers, lying of course outside of one's normal behaviour but not outside of the imposed logic.

The fundamental consequence of this attitude is, that after a period of tests, modifications of the logic, and parameter exchanges, all possible results of a program have to be rigorously accepted as final answers. Thus, the above postulated conception becomes now part of a conditioned aesthetic information.

Computer-graphics is a young and new way of aesthetic communication which integrates logic, mechanical handling, new possibilities of drawing, and incorruptible precision of drawing — a new DUKTUS.<sup>3</sup>

Finally I would like to evoke the danger of putting 'computer-art' in a separate category opposed to 'traditional-art', i.e. 'machine-art' vs. 'art', which would put the computer into a neo-romantic light as an 'artist-replacement'. This could easily lead to an irrelevant over-estimation of the computer!

A computer is only (at least until today) a partially autonom tool, and a program (this becomes quite clear, once working with such a machine), is only the smaller part of an enormous selection process which is until now not part of the machine's domain.

- <sup>1</sup> MATERIALGERECHT, German for: working or using a material only in the way which is basic to the material.
- <sup>2</sup> WERTFREI, German for: decisions, where the knowledge is neither based nor conditioned by any values.
- <sup>3</sup> DUKTUS, Lat., German for: 'handwriting'. Individual peculiarity of the drawing material.

## MACHINE INTELLIGENCE

AISB Summer School 16-20 July 1973 Oxford

Instruction and research reports focused on the topic of knowledge systems. For details write to

James Doran  
AISB Summer School  
SRC Atlas Computer Lab  
Chilton  
Didcot  
Berks OX11 0QY

1-day meeting on chess-playing by computers at SRC Atlas Lab on 21 May 1973. For details write to

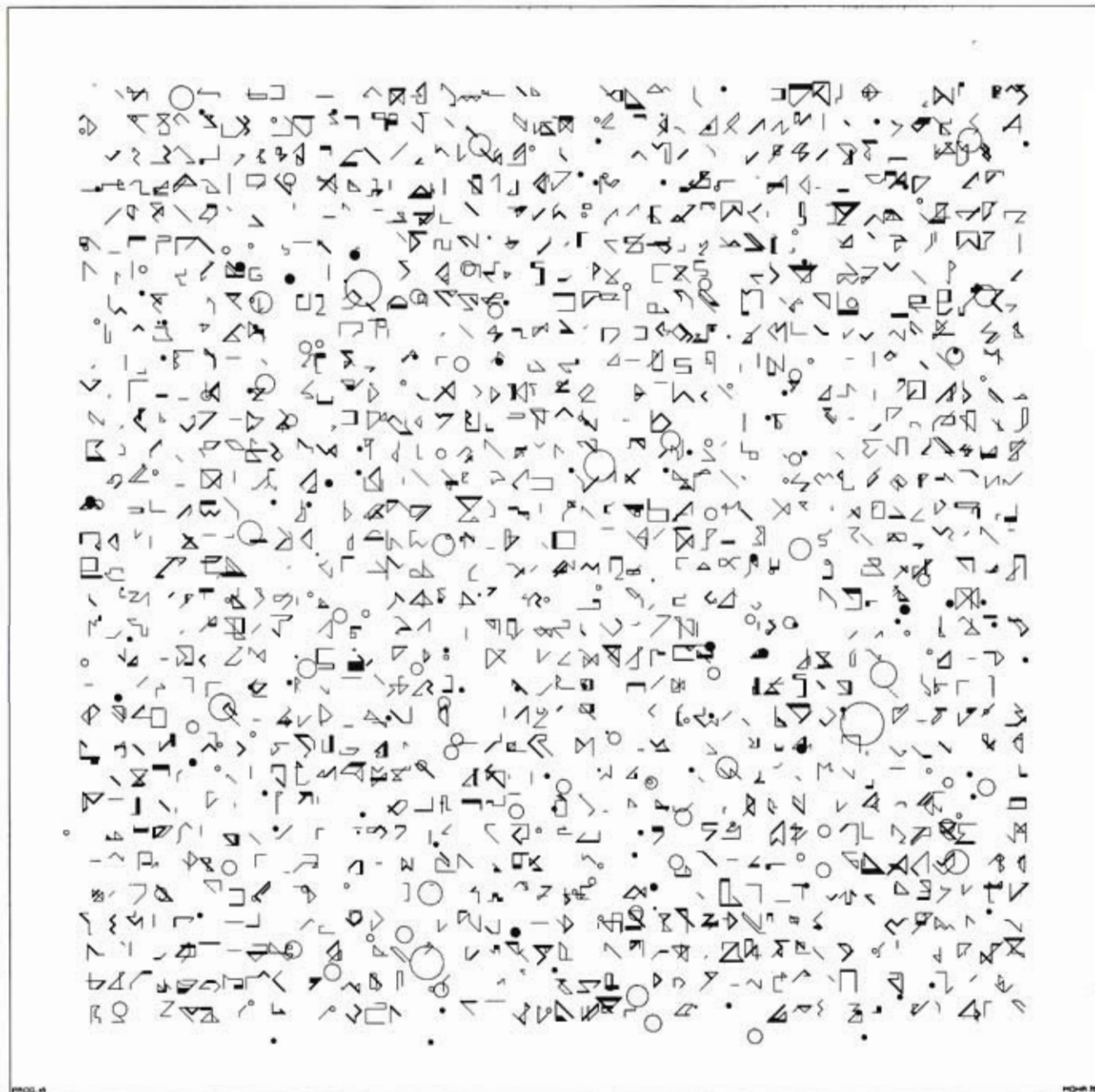
C L Roberts  
Computer Chess Meeting  
SRC Atlas Lab — address as above

Gilles Gheerbrant, editor of ART EX MACHINA and the 1+1 Series, will open soon a gallery in Montréal: 2130 Crescent, Montréal-107.

"Signum" is another graphic edition which was founded lately in Canada. Serigraphies from different artists are available.

Contact: Edition Signum, P P Box 1476, Station B, Montréal-110.

This edition of PAGE was edited by  
Manfred Mohr.



## WOODEN DUCKS GARY WILLIAM SMITH

Upon reviewing John Whitney's comments in PAGE 24, it becomes apparent to me that my article in PAGE 22 has created some misunderstandings. I fear, though, that this discussion which has been continuing in the last several issues of PAGE is beginning to anesthetize many readers, not unlike the effect of the weekly Vietnam death counts. Therefore, I shall address myself to the following points as briefly as possible.

Let me begin with three points of lesser significance.

Point one. Whitney asserts that Nike (PAGE 18) was not attempting to tell anyone what "should be." I offer the following quotes from PAGE 18 to justify my attack on Nike:

"Thus, the interest in computers and art *should* be the investigation of aesthetic information as part of the investigation of communication. This investigation *should* be directed by the needs of the people."

"We *should* be interested in producing a film on, say, the distribution of wealth." (Italics added)

Point two. Whitney, referring to PAGE 22, mentions "Smith's Phenomena System Series which — as editor of PAGE 22 — he has displayed rather exclusively in the first US issue." I was not editor of PAGE 22. I was, along with Kurt Lauckner, co-editor. I must state, with all due false modesty, that Kurt Lauckner originally suggested including reproductions of my drawings in that issue. Having a written article in PAGE 22, I agreed to include the reproductions on the theory that one ought to put his art where his mouth is, so to speak. (A lack of illustrations is one criticism that I have of most issues of PAGE).

Point three. Whitney infers that my drawings might be done just as well by hand as by computer. I honestly do not know how. I challenge anyone, Bridget Riley included, to show me an alternate, non-computer method of producing the same results. In fact I would be most grateful to receive such information.

### Art and Artists

Now on to a matter of greater significance. My article in PAGE 22 apparently caused Whitney to believe that I was attempting to define who or what constitutes a "real" artist or "real" art. I hope that this was not the interpretation of other readers, since it was certainly not my intent. In fact even the title of my article, "Computer Art and Real Art," was somewhat tongue-in-cheek. I believe that it is quite impossible to define either "art" or "artist". Many have tried and failed. The best attempts have yielded insights into certain aspects of what it is to be an "artist" or certain aspects of what constitutes a "work of art". An all-encompassing definition of "art" seems beyond our ability and, to me at least, completely unnecessary.

Whitney does well in pointing out that Nike's phrase "the repertoire of results of aesthetic behaviour" seems to be used as a substitute for the word "art". (Perhaps it is not fashionable to use that word today — witness the many individuals who loudly proclaim that their "work" is not art, and yet they busily scurry about getting their "non-art" displayed at the art museums and heralded in the art magazines, and their "aesthetic behaviour" financed by art patrons.)

At any rate, Whitney has recognized Nike's phrase as a substitute for "art." Does Whitney then recognize his own phrase "someone (anyone) with extraordinary imagination and very human sensitivity" as a substitute for the word "artist"? (The difference here between "substitute" and "definition" is important.) If Whitney objects to someone saying "I am an artist," would he feel better about someone saying "I am an individual of imagination and sensitivity whose life is more or less dedicated to aesthetic behaviour"? Why bother with these substitutions (semantic games) when they are not and can not be complete and definitive? Why not use the terms "art" and "artist" and admit that they are not ideal labels, but rather a convenient means of talking about something rather nebulous?

My remarks about artistic "background training" in PAGE 22 seem to have given Whitney the impression that I place a good deal of importance on formal art education and degrees. Nothing could be farther from the truth. A degree or lack thereof has more relation to employment possibilities than to aesthetic/artistic strength.

What I was trying to get at is this. When an artist succeeds in investing the germ of aesthetic/artistic strength in his work, it is distinctly recognizable. Much computer assisted art produced to date seems to lack this strength. I believe that this deficiency is, as Robert Mueller states, "due to a basic lack of understanding of the nature of art" (Idols of Computer Art, May/June '82 issue, Art in America).

Let me offer an analogy. I know several people whose job it is to make refined wood models for the automotive industry. Having access to highly sophisticated and expensive wood-working machinery, they will occasionally fashion things the like of wooden ducks and wall plaques to hang on their living-room walls. They have no delusions of these decorations being "works of art."

I see no difference between their wooden ducks and Darby Scanlon's prize-winning seahorses (see 1971 Computer Art Contest, Computers and Automation). Similarly, I am afraid, much computer assisted art falls in the Wooden Duck category.

It seems, then, that exposure to a good deal of art (of all ages) and to many artists would help to enrich one's "understanding of the nature of art." University education is but one way, and perhaps not the best, to attempt to obtain such exposure and understanding. But, in one way or another, it must be obtained. Otherwise, I am certain that there are cheaper tools than the computer with which to produce wooden ducks.

### A Clarification

I would like to register my appreciation of John G. Seal's comments in PAGE 25. I tend to agree with Seal that "the programming of aesthetic decisions" should prove to be a valuable area of investigation.

However, I feel that his erroneous assumption regarding the method by which my drawings (PAGE 22) were produced should be corrected. My drawings are not "serendipity results selected from a large volume of output with randomly generated variations".

There is no random generation in my computer assisted drawings. I begin by drawing by hand on graph paper, constructing several sets of lines. The X, Y coordinates of these lines are recorded and used to direct a plotter in recreating my original lines. These lines are then subjected to measured and predetermined transformations. Sets of these transformations are then superimposed, creating controlled and (more or less) predetermined interference patterns. The resulting drawing is, for the most part, exactly as I intended it to be. There is none of the "remoteness" mentioned by Seal. It amounts to executing an idea with the most simple, most direct tool available.

Gary William Smith  
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## NEW ROLES

The main outcome of the January discussion meeting on the future directions of the Society, was that several people adopted new roles.

A group at Ealing College of Art have become responsible for the CAS Travelling Exhibition. They will be remounting the exhibits and producing a catalogue. If you have material to contribute, contact James Goodchild.

Jacqueline Shane is meetings organiser: if you can offer a talk or a suggestion contact her at the Institute of Computer Science, University of London, 44 Gordon Square, London WC1.

Roger Saunders has become information officer and Colin Emmett is collecting material on techniques in graphics and animation: their statements follow.

## CAS DATA BASE

I have taken on the task of organising and maintaining a Data Base for the Society. The first job is to catalogue the collection of slides and films, and produce a list of members who are prepared to give lectures on any aspects of Computer Art. Later a catalogue of members' interests and of the accumulation of printed matter will be constructed.

The purpose is to allow for the more effective presentation of the work within the field of Computer Arts both to members and, more generally, to outside bodies. This should promote growth of interest and greater sharing of research experience.

A new brochure will be printed that introduces the aims and activities of the Society and explains the facilities available.

A form is being circulated with this issue of PAGE. Filled in, however sparsely, and sent to me, it will aid the progress of this work. If at any time you have any literature, slides, films or information that you think could have a place in the Data Base do not hesitate to send them to me.

Roger Saunders 29 Hazeldene Drive, Pinner, HA5 3NJ

## GRAPHIC TECHNIQUES

I am undertaking the job of coordinating algorithms and special techniques for graphics and animation work. I will be collecting information from groups, universities and individuals who have worked in this area, but would be grateful if members could write to me with details of their experience and the write-ups of their programs, with listings if possible. Anybody with a problem in graphics or film making should write to me and I may be able to help them.

Colin Emmett 61 Balcombe Street, London NW1

## AIMS AND MEMBERSHIP

The Society aims to encourage the creative use of computers in the arts and allow the exchange of information in this area. Membership is open to all at £1 or \$3 per year, students half price. Members receive PAGE eight times a year, and reduced prices for the Society's public meetings and events. The Society has the status of a specialist group of the British Computer Society, but membership of the two societies is independent.

Libraries and institutions can subscribe to PAGE for £1 or \$3 per year. No other membership rights are conferred and there is no form of membership for organisations or groups. Membership and subscriptions run from January to December. On these matters and for other information write to Alan Sutcliffe.

## COMPUTER ARTS SOCIETY ADDRESSES

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