MEETINGS & COURSES

NOTE THESE CHANGES: Design Automation Workshop, now 26-28 June 1972, Marriott Hotel, Dallas, Texas.

12, 13 April 1972. Remote Computing-systems and economics. Brunel University. ONLINE, Brunel University, Uxbridge, England.

19, 20 April 1972. Remote Computing-systems and economics. Congress Centre, The Hague. Online, Nederland, Regentesselaan, Den Haag, Holland.

22-23 April 1972. Conference of the Radical Philosophy Group, University College, London. Jerry Cohen, 26 Twisden Road, London NW5. Telephone: 01-485 1322.

Second Summer Training Institute for Humanities Computing, University of Kansas. For details write to Professor Floyd R Horowitz, Chairman, Department of Computer Science, University of Kansas, Lawrence, KS 66044.

6-8 June 1972. Society for Information Display Symposium and Exhibition, San Francisco, L Winner, 152 W 42nd Street, New York, NY 10036, USA.

The International Leibniz-Kongress takes place in July 1972 in Hannover. Ask for details from the Gottfried Wilhelm Leibniz-Gesellschaft, 3000 Hannover 1, Niedersachsische Landesbibliothek, Am Archive 1, West Germany.

'The Theory and Practice of Computational Methods in Literary Studies', Dartmouth College, Hanover, New Hampshire, 3 July-11 August 1972. Directed by Stephen VF Waite. Cost of seminar is $ 300.00 includes as much computing time as necessary, but excludes living costs. For details: Kievit Computation Center, Dartmouth, Hanover, NH 03755, USA.

COMPCON *(COMPCON?)* 72. 12-14 September 1972, San Francisco. IEEE Computer Society Conference. Will focus on 'Innovative Architecture'. Send 1,000 to 2,000 word digest (in English) to: Professor Avizienis, UCLA, Computer Science Department, Boelter Hall 3732, Los Angeles, CAL 90024, USA. Send by 1 May. Further details in Computer, January-February 1972.

INTERNATIONAL WORKSHOP IN SOUND SYNTHESIS, ELECTRONIC MUSIC STUDIO, STOCKHOLM, in conjunction with the Computer Arts Society, 24-30 September 1972.
AIM This advanced workshop will allow experienced workers to make full use of the facilities of the studio, through the language EMSONE, for creative projects. In addition the studio will benefit from this use by experienced workers, and it is hoped that further international cooperation on specific projects may result from the workshop.
SCOPE The emphasis will be on projects in sound synthesis and supporting systems, but projects will also be considered involving use of the graphics facilities of the studio, in conjunction with sound or independently.
The workshop will be limited to six projects, each of which may be proposed by an individual or by a group.
FEES There will be no charge for the workshop, and the full facilities of the studio will be available during the whole period of the workshop. Those taking part will be responsible for their own travel and accommodation expenses, but help will be given in obtaining a grant to cover expenses in appropriate cases.
APPLICATION Each applicant (individual or group) should submit a description of the proposed project in not more than 500 words, giving details of the aims, method and expected outcome, by 31 May 1972:
to: Knut Wiggen, Electronic Music Studio, Kungsgaten 8, 11143 Stockholm, Sweden.
or: Alan Sutcliffe, C/o ICL, Lovelace Road, Bracknell, Berkshire, UK.
A description of facilities of the studio may be obtained from Knut Wiggen.

DADDY .... WITH THE OLDEST GAME ON EARTH

LONDON

In future the CAS monthly series of talks will be held in the second floor offices of John Lansdown, 50/51 Russell Square, London WC1, (NOT at the Prudential Assurance Co), at 7.30 pm on the third Wednesday of each month, with coffee served from 7pm. Any member of the Society and their guests may attend without charge.
The committee of the Society also meets in John Lansdown's offices, on the first Friday of each month at 7.30pm. Any member of the society may attend.

ART 1 and other systems KATY NASH. 7.30pm Wednesday, 19 April 1972.
Katy Nash helped Dick Williams develop the ART 1 system and she now has several years experience of its use with her students at the University of Minnesota. It is a language that allows the definition of simple shapes and their output on a line printer. See PAGE 7 for details. It has been adapted and developed in this country by Roger Saunders.

MUSIC SYSTEM composition and realisation JOHN LANSDOWN and PAT FRIEDMAN. 7.30pm Wednesday, 17 May 1972.
John Lansdown is developing a system to generate music expressed in the input language of the Elektronmusikstudion in Stockholm, where the sound synthesis equipment is controlled by a PDP-15. The music will be sent from London, where Pat Friedman is writing the program to realise the system, as a paper tape and will return as an audio tape. Clear?

Since the original dates for the next weekend programming course was changed to the 22-23 April, Bob Cobbing now finds it impossible to attend, as he had a previous arrangement in Stockholm. However, printed texts remain an area of particular interest, as well as composition for sound synthesiser — if you have one please bring it with you. It is hoped that Katy Nash will be present.

Poems and texts by CAS members Margaret Dootson, Colin Emmett and John Lansdown will be featured in the BBC programme 'Woman's Hour' on 17 April at 2pm.

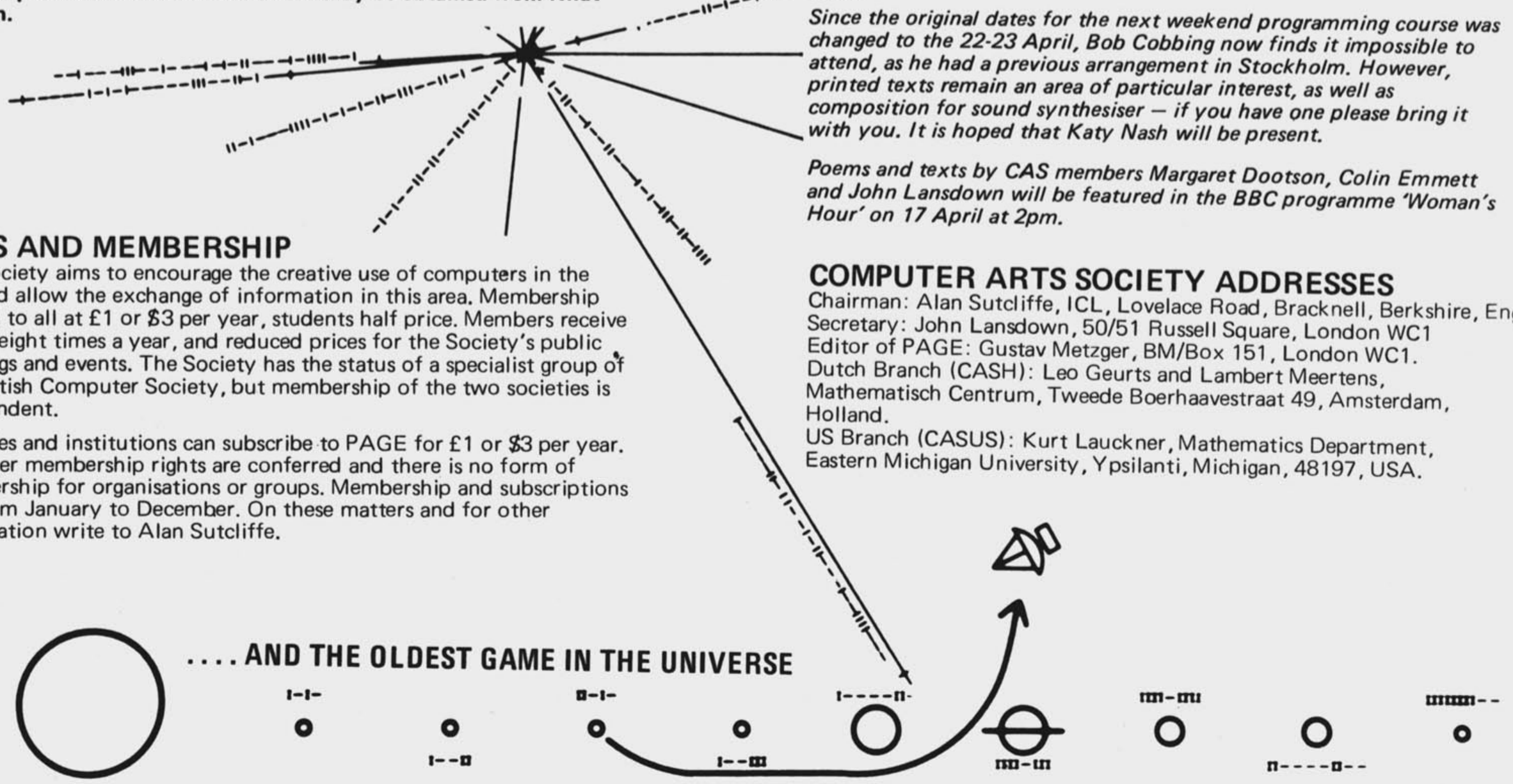
AIMS AND MEMBERSHIP

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

Chairman: Alan Sutcliffe, ICL, Lovelace Road, Bracknell, Berkshire, Eng.
Secretary: John Lansdown, 50/51 Russell Square, London WC1
Editor of PAGE: Gustav Metzger, BM/Box 151, London WC1.
Dutch Branch (CASH): Leo Geurts and Lambert Meertens, Mathematisch Centrum, Tweede Boerhaavestraat 49, Amsterdam, Holland.
US Branch (CASUS): Kurt Lauckner, Mathematics Department, Eastern Michigan University, Ypsilanti, Michigan, 48197, USA.



TECHNOCRATIC DADAISTS

FRIEDER NAKE

In PAGE 18, a rather polemic statement was published about the question: should we have, or should we talk about 'computer art'? [7] In the December 1971 issue, JOHN LANSDOWN wrote a brief reply [3]. If his reply and partial refutation of my short article marks the start of a discussion of the goals, the necessity and the merits of computer art — then I would be very pleased indeed. PAGE, it seems to me, is the natural communication channel for such a discussion.

In the present note I want to answer JOHN LANSDOWN and make an attempt to further clarify my own position.

First of all, I readily admit that I view computer graphics as a central part of computer art and that I do so to a point where computer graphics is almost equated with computer art. JOHN LANDSDOWN is right in pointing out that this may lead to false conclusions. I hope to be more careful about this in the future. Although graphics (visual information) has attracted perhaps the largest attention by computer art appreciators over the last 8 years, it is only one of the many fields of art to which computers have been applied. I maintain, on the other hand, that with the exception of music, no other field has shown so much progress. The achievements in music are superior to those in graphics; to which extent they constitute an enrichment of the repertoire of results — I do not know because of my lack of knowledge in music. But I would believe that a programming system like MUSIC V [5] is an advancement of the methods as well as the results.

So I concede that the repertoire of results of aesthetic behaviour has changed. (J. LANSDOWN lists 3 specific examples; H.W. FRANKE draws my attention to certain new Moiré patterns produced in Stuttgart [1]; I am sure many a worker in the field would want to have his work attached to the list).

I thus correct my statement to: the repertoire of results of aesthetic behaviour has not changed *significantly* by the use of computers. (Already in [7] I said that methods are a different story). This argument could be (and is usually) countered by pointing to the short history of computer art. How can we possibly expect a significant change to take place within a decade or so? Isn't that imaginary list of new and original works of computer art an indication that, given just a little more time, money, output equipment, assistance from experienced programmers, and co-operation of artists and programmers, we will be able to drastically change the places at which aesthetic objects are found and aesthetic events happen (museums, theaters, music halls etc)?

Yes, maybe, given all that. But why should it be given? Why should we ask for it, in the first place? Who is 'we'? Who would benefit from all that?

This is getting closer to my intentions. The title of that first note, 'There should be no computer art', was not meant to be interpreted as: 'you should not use the *computer* for the production of art'. It should rather be read as: 'you should not use the computer for the production of *art*'.

'So what?' some might answer: 'I am using the computer, but not in order to output art or to control art — art doesn't exist anymore. And if it does, somewhere, I'm not interested in it. I don't care how you call my products — but they are not art'. Obviously, this is evading the point.

My point is: 'There is no need for the production of more works of art, particularly no need for 'computer art' [7]. This is meant literally. By 'work of art' I mean aesthetic object (picture etc.) as well as aesthetic event (film, dance etc.) But notice, that I first mention art in general, only then computer art in particular. Since my influence is limited, if I want to change something, I have to focus on that area which I know most about. Therefore my attack is on computer art as that part of art that I am familiar with.

But, obviously, I do not want to say that art should be banned, that the word 'art' should be wiped out, that artists should lose their jobs, or anything of this kind. The investigation of the realm of aesthetics is important — I listed some concrete problems at the end of [7].

Why don't we need art (in its traditional sense) anymore? Because, in its 'traditional' sense, it is tied up with the bourgeois class. Art, the way most of us understand it nowadays, seems to be a fairly recent invention. The artist did not exist detached from society, doing his own thing, inventing new styles, pampering his ego. I would like to see him give up his role as a servant to the bourgeoisie and begin working on meaningful projects again. It is *meaningful* for an artist to help a computer scientist producing a book or lecture or a film such that these media do not transmit semantic information alone but aesthetic information as well. It is *meaningful* for an artist to work in a team of architects, engineers, sociologists, urban planners on the design of a hospital or city district. It is *not meaningful* for an artist to produce a picture as such. It is *not meaningful* for an artist to produce a ballet or whatever intricate combination of however many art forms he is able to come up with. Such objects and events are of no significance whatsoever for the vast majority of people.

To make use of computers for the production of pictures and 'Gesamtkunstwerke' is even less meaningful for an artist than the production of such things alone. To make use of computers for problem-solving and presentation in education and urban planning is even more meaningful for an artist than such problem-solving alone.

To summarize, my remark about the result of computer art should be re-interpreted. I do not wish that aesthetic use of computers contributes to art history by enlarging its repertoire. Such use should contribute to art history by bringing art back into the working world. If artists request that machinery should be built to suit their needs, they are on a right track. For they realise that their means of production are long outdated. This is one reason why artists don't amount to an important part of society anymore; they can be neglected.

But, unfortunately, it seems that our artists who demand access to computers get caught in the old trap of the bourgeoisie: negating one aspect of social life is regarded as a revolutionary act that will cure the evil. Whereas the important step to do is to negate the negation.

Applied to our case: demanding access to computers is progressive in so far as it is an attempt to bring the means of artistic production up to date. As a consequence, even the relations of production might change. At any rate the old notion of art would have to undergo considerable changes. But on the other hand, this negation of the old way of production seems to mark the end of thought, i.e. as soon as the artist has access to the computer he continues to work as he did before. Whether he is more interested in the object or in the procedure (process) of his production, does not make much of a difference.

For, what is required is the negation of that first negation: to negate the present methods of artistic production and critique in order to preserve their positive elements and put them on a higher level. This level would no longer know the individual artist working for his personal fame and for an aesthetic justification of the present social system (the computer artist is doing just this).

Many computer artists we can call technocratic dadaists. They deny and replace the traditional ways of artistic production and see this as a revolutionary step; but, in effect, they only create a new artistic style — nothing more. The dadaists were bourgeois; they honestly believed in their revolution; they ended up with just another style whose products can be sold and assigned a place in bourgeois art history.

We often hear and use the argument that the computer will, at last, set free all that hidden creative power in the artists. Almost everybody writing about computer art is quick in pointing out that only with the advent of the computer will the artist be able to concentrate on the really important problems of creativity, for all the tedious elaboration of patterns and compositions will be done by the machine. (See, e.g., [2], [6]).

'One of the major effects of artist-computer co-operation will be to personalize art work'; 'The artistic computer will' even play 'the roles assumed in medieval society by the court jester and minstrel' [4 p.50). Apart from the personification of the computer, what I find appalling in such statements is the naive way in which computer artists surrender to the principle of productivity [8 p.9.]. Sure, we are able to try

out so many more possibilities and alternatives for the solution of an aesthetic problem. And sure, we can produce all these thousands of original works. And yes, we can have all those screens in everybody's home that puts him or her right into a network of aesthetic events (although this latter road, for some time to come, would be open to a few privileged ones only). But — what for? To me, such aesthetic progress does not introduce any new quality, only quantity. Productivity and consumerism in even a new field.

There is no alternative: the negation has to be negated, or else we all end up as sad technocratic dadaists.

Let me finish with a remark on the creativity issue. If, for the proceduralists, it is a fundamental issue 'to discuss whether or not procedures within closed systems can be creative' [3] then, I am afraid, they will gain nothing but their small paragraph in a bourgeois art history. And who is interested in this? We can solve this fundamental issue right away. Since we assume a closed system, we have to start out with an operational definition of 'creativity'. We are free to choose this definition; but once chosen, it is fixed. Now, even if we try hard to come close to our intuitive understanding of creativity, I cannot see any problem in giving two such operational definitions. One will be such that the closed system is creative. The other such that it is not. All that I can see springing up from that fundamental issue is an investigation of *our* creativity, an attempt to better understand it. How a set of procedures can be creative — I must confess, I cannot see.

In closing I want to point out that some of our problems here are analogous to problems of and in artificial intelligence.

REFERENCES

[1] H.W. Franke: Personal communication. February 1972.

[2] M. Krampen, P. Seitz (eds.): Design and Planning 2. Hastings House Publ. New York. 1967.

[3] J. Lansdown: Computer graphics computer art. PAGE 19. December 1971.

[4] G. Mallen: Where next? In: Computers in the creative arts. National Computing Centre, Manchester. 1970. 47-50.

[5] M.W. Matthews: The technology of computer music. The M.I.T. Press, Cambridge, Mass. 1969.

[6] F. Nake: Erzeugung ästhetischer Objekte mit Rechenanlagen. In: R. Gunzenhäuser (ed.), Nicht-numerische Informationsverarbeitung. Springer-Verlag, Wien. 1968. 456-572.

[7] F. Nake: There should be no computer art. PAGE 18. November 1971.

[8] A. Sutcliffe: Computers for music — an introduction. In: Computers in the creative arts. National Computing Centre, Manchester. 1970. 2-11.

RUNABOUT

AIR. Art Information Registry is a catalyst organisation impartially providing two-way information between artists and their public, including organisers of exhibitions/events/performances, dealers and collectors, cultural organisations and art services. AIR has an artists' index, with biographical and other information plus 7,000 transparencies of their work. This offers a very economical service for artists. If interested write for further details or visit the office. Art Information Registry Ltd, Burlington House, Piccadilly, London W1. Telephone: 01-734 3604. Please note that AIR also deals with theatre and music.

£6,000 worth of computing time. Open to UK residents, the closing date for entries is 15 April. You need to convince the organisers that you have an original idea for time-sharing which you can put into practice. Full details from New Scientist/Honeywell Dial-a-Computer Competition, 128 Long Acre, London WC2E 9QH.

The Ultimate Solution. 'Hot' garbage from nuclear reactors to be shot into sun via rockets. New Scientist. 10.2.1972, p307.

The users of Automatic Information Display Equipment-UDAIDE is a users' group for the Stromberg Datagraphix 4020 and 4060 Microfilm Recorders. There are standing committees of Computer Animation, Scientific Applications, and Business applications. The UAIDE Computer Animation Committee is open to all those engaged in the development and use of computer animation, including those outside the US. Available publications include: Proceedings of UAIDE Annual Meetings; Computer Animation Committee Year-End Reports. Information and documents from: UAIDE Secretary, PO Box 2449, San Diego, CAL 92112, USA.

Chips with computer. 2 chips make up a computer. Datamation, January 1972, p 75.

Graduate School of Design, Harvard University, Mass, USA, is selling student-developed graphics programs.

RE Wernikoff: Electronic Image Systems Corp, Patent USA 3586861, 24 March 1969; published 22 June 1971, USA 809807. Light pen comprising sensors each sensitive to a different wavelength and corresponding filters arranged to selectively provide both large and small effective apertures.

The address of Terry Riley is 725 Greenwich, San Fransisco, California 94133, USA.

Bigger-but-better? Europe's largest and most modern hospital is being constructed in the Stockholm suburb Hudinge. It will be controlled by 150 (one-hundred and fifty) cromputers.

Liquid crystal watch will be available later this year, marketed by SEIKO. Electronics, 3 January 1972, p 7E.

GTE Sylvania has developed a sunlight-powered laser designed for long-lived communications in space. Has 24 inch mirror; could operate up to seven years. Electronics, 17 January 1972, p 26.

THE ARTISTS UNION. A Union has now been formed. Since the summer of last year a group of seven artists known as the Policy Group have met in order to form a Union. We are glad to note that two members of the CAS-Stroud Cornock and Colin Sheffield are members of this group. The Policy Group opened negotiations with A.S.T.M.S. on 6 December 1971, and an Artists Branch is now being set up. For further details contact Stroud Cornock, School of Fine Art, City of Leicester Polytechnic, PO Box 143, Leicester LE1 9BH.

YAK-YOUTH ACTION KOMMITTEE was formed in the autumn of 1971 with the aim of co-ordinating the kids within the skools in the London area, so as to let them know their rights, to form SKOOL COUNCILS, and to get together to work out changes that need to be made, with the aid of any co-operative teachers. Kids at skool are the only ones with the energy and ideas to make the much-needed, drastic changes within the educational system. Write to YAK, 176 Campden Hill Road, London W8.

Gray Paree. Hotel PLM Saint Jacques, Paris, due to open February 1972, has as its heart an IBM 1800, linked with more than 1,600 terminals. 'The world's most automated hotel'. Datamation, January 1972, pp 64-65.

REALTIME has been active lately in the form of discussions and formation of groups. REALTIME BULLETINS have been published concerning these developments. To get involved with this hotbed of subversion write to 66 Hargrave Park, London N19, or ring 01-624 4108 (put a hanky over the mouthpiece) and ask for Alan Campbell, or get hold of Mike at 01-272 0093.

MIND ROVER an interactive art work on tour is being assembled this moment and will startle the citizens of Nottingham when completed. Watch it — Cognition Control. Stroud Cornock (see address above).

NEW JOURNALS

Analytical Art. First issue appeared in July 1971. Subsequent issues are to be published twice yearly. It is edited by Kevin Lole, Philip Pilkington and David Rushton. We have not viewed a copy, but the content list has a marked flavour of Concept Art.

Price in UK and Europe £1.00, in USA and Canada $3.00. All enquiries and subscriptions to ANALYTICAL ART PRESS, 151 Warwick Road, Coventry, England.

UNDERCURRENTS. This is one of the most exciting new magazines. It has been 'started by some people who believe the radical views on scientific and technological subjects need a medium in which they can be aired. Science, we feel, has largely abandoned its original 'quest for truth'. UNDERCURRENTS will appear quarterly. The first issue is dated January 1972. The magazine comes in a plastic bag, with a number of separate articles. The editors encourage outside contributors to print their article or illustration, and send it along for inclusion in the bag. Do get in touch if there is anything you feel could be relevant. Subscriptions, including postage, are £1.20. UNDERCURRENTS, 34 Cholmley Gardens, Aldred Road, London NW6 1AG.

Radical Philosophy. The first number came out January 1972. It has 32 pages, with a vast amount of reading matter. Packed out with tough thinking. The journal will 'aim to avoid the academicism of the existing philosophical journals: an academicism which trivializes philosophy and manifests itself in an uncritical attitude to social ideologies'. It is the organ of the Radical Philosophy Group. Individual subscriptions (3 issues) £1. Overseas: £1.25. Institutional subscriptions: £1.50. Overseas: £2. Single copies 35p. Post 40p. Overseas 50p. Student subscriptions (3 issues) 60p. Subscriptions, contributions and correspondence to: R J Norman, Darwin College, The University, Canterbury, Kent. This magazine is an excellent antidote to Concept Art.

There are rumours of five underground magazines within the British Broadcasting Corporation. The only one we have seen is SHIT-talking heads. This is a twelve-page publication, illustrated. It's a nice combination of the serious and the send-up. All scrupulously unsigned. Quotes: I will join the Electronic Panthers. I will MAKE the news. I will show action replays of police brutality in the middle of Dixon of Dock Green. I will read Debord's Society of the Spectacle and Enzenberger's The Consciousness Industry — for a start. I will become so aware of the 1001 everyday compromises I make that they will soon become intolerable. Now how does one get hold of the magazine? Well, we are not in Russia are we? At the end of the last page there is a request for contributions and especially MONEY, to be sent to: R C Wright, 44 Earls Court Road, London W8. And in underlined capitals — This address is genuine!

International Journal of Computer and Information Sciences. Editor Julius T Tou, University of Florida. Subscriptions: Vol 1, 1972, 4 issues $30.00. Personal subscriptions $18.00. Add $1.80 for post outside US and Canada. Sample copies free on request from plenum press/consultants bureau, 227 West 17th Street, New York, NY 10011, USA.

REFLECTIONS ON ART

JOHN H WHITNEY

John Lansdown, in PAGE 19, quotes Frieder Nake, in PAGE 18, to which I would like to reply in PAGE 21, if I may. It started with Nake, to the effect: . . . nothing has been changed . . . by use of computers. Let me reply as follows:

Despite sixty years of the animation arts, the computer graphic invention in a few short years has revolutionized our power to create form in action. This revolution is one of diversification of many orders of magnitude, because of the extreme incremental precision of the computer as well as many other factors.

Only the computer, — not any other means known to mankinc can ***make art move***. Only the computer can generate fluid absolutely controlled motion before our eyes.

The computer, metaphorically perhaps, and in a way that must be further explained, can do for our eye almost exactly what the range of musical instruments can do for our ear. The metaphor must be explained thus:

We know that the modern musical instruments of the symphony orchestra each produce audio wave forms which show on an oscilloscope as being far from simple but which satisfy our particular human sensitivities. As a group, the instruments provide a pallette of timbres which are at the composer's disposal to use as his taste and training dictates. These wave forms viewed on the oscilloscope are very complex. So complex in fact that were there no existent musical instruments, — no way save by some laborious hand process of drawing these wave form patterns on some sound-track or phono disk medium, drawing these patters by hand — I say, then our music today would simply not exist.

There, you have the metaphor: The computer graphic display, with appropriate software, can do for the eye what the full range of musical instruments can do. Because a computer can generate 'video' wave forms just as musical instruments generate audio wave forms.

That the computer has the power to generate all audio wave forms producible by any known musical instrument is the more readily acceptable complement to the above statement. However, is we agree that video picture wave forms, despite greater complexity and higher frequency, are still, in principle, as synthesizable as the audio wave form domain, then my 'metaphor' becomes loss hypothesis and nearer to simple statement of fact.

Observing strictly the dictionary definitions of both 'instrument' and 'machine' it is not false or incorrect to call the piano and all the instruments of the symphony orchestra: 'machines'. How well, or just how, the professional musician plays upon those 'machines', we might call man-machine communication, for the sake of a fresh look at an old subject. To do so might establish a new, if unorthodox, set of criteria for the general subject of man-machine communication as it applies to the computer sciences.

Just how well are we doing with man-machine communication compared with man and violin? The answer has to be: poorly! In fact it is doubtful if there could be a more intimate, more sensitive, more perfectly interactive relation between man and machine than that which obtains between master and piano or violin. In its most refined form, this delicate virtuosic phenomena is quite rare. Yet man-machine control must approximate this sensivity in some advanced machines, for all I know, even in the operation of certain specialized aircraft.

I am drawn to propose new sensitivity criteria such as this in order to suggest that if computer systems are to be used at all for art purposes they may have to match criteria already quite old and established in the art machines, or music instrumentation field. Therefore, all aspects imaginable need fresh consideration; control, response, feedback, sensitivity, rapidity, etc. The matter is pertinent with regard to computer music programs and graphic programs as well; extended time programs and the forthcoming real-time developments.

600 Erskine Drive
Pacific Palisades,
California,
90272

REFERENCES

ART INTERNATIONAL Vol. XV/7 September 20, 1971 Lugano, Switzerland. Pages 35-7.
Proceedings, INTERNATIONAL FEDERATION FOR INFORMATION PROCESSING Congress, August, 1971, Yugoslavia.

LITERATURE

A review copy of Cybernetics and Music by the Russian author Zaripov has reached us. If you are willing to review this Russian text please communicate with Alan Sutcliffe.

Deutsche Geodatische Kommission bei der Bayerischen Akademie der Wissenschaften, Reihe C: Dissertationen. These are in German; recent issues include some very useful and stimulating material relating to computers. Other series include occasional dissertations in English. Available in the Science Library, London.

COMPUTRA, Upland, Indiana, USA. Free booklet contains samples, price list, specifications and order form for — yap, computrart.

Proceedings of the IEEE. Special issue on Computer Design, January 1972.

Special Report 'The medium of the message will soon be optoelectronic'. Illustrated, good material. Electronics, 14 February 1972, pp 60-71.

WB Hart: 'The Application of computer-aided design techniques to glassware and mould design'. Computer Aided Design, Vol 4 No 2, January 1972.

Communications of the ACM, February 1972. Lively issue with article on hidden line problems, and music and computer.

SOURCE: Music of the Avant Garde. Members of the Computer Arts Society in Europe may subscribe to SOURCE at the reduced rate of £5 for 1 year (2 issues) or £10 for 2 years (4 issues). Issue 9, available about now, with circuits, sound-poems and scores, as well as articles and reviews, will be discussed in PAGE when we get a copy. Issue 10 is to be an all British issue. Back members are available at £4.50 or more each. For details write to SOURCE Europe, Gate House Cottage, Station Lane, Ingatestone, Essex, England. Outside Europe write to SOURCE, 2101 22nd Street, Sacramento, California 95818, USA.

Computer, the journal of the IEEE Computer Society, features REPOSITORY; highly useful bibliographical information.

'The Movement towards a New America' assembled by Mitchell Goodman. A Knopf, New York, 1971. A vast and stirring, illustrated account of radical and underground developments among the people of Amerika in recent years.

Max L Stackhouse 'The Ethics of Necropolis: An Essay on the Military-Industrial Complex and the Quest for a Just Peace'. New York 1971. pp 145, $6.

3-D CONCRETE POETRY

Harold Layer has made a great and simple discovery. The typewriter is an excellent tool for making stereo-pairs of concrete poems that can be seen in three dimensions.

```
   C O  B B I N G
     C  O B B I N G
 C O B  B I N G
   C O B B I N G
```

```
   C O B  B I N G
     C O  B B I N G
 C O B B  I N G
   C O B B I N G
```

Note that BOB is displaced to the right by half a type-space in the left-hand frame, and to the left in the right-hand frame. If, like me, you have 'free vision', that is you can cross you eyes so that one image overlaps the other, then you can see it now: BOB stands above the plane of all the COBBINGS. If not, get a stereo viewer, or take my word for it.

All this is described in Media & Methods, January 1972. Harold Layer, Audio Visual Center, San Francisco State College, 1600 Holloway Avenue, San Francisco, California 94132 will be glad to send a copy of his article SPACE LANGUAGE to anyone on receipt of a stamped-addressed envelope (or international reply coupons from outside USA). Media & Methods are offering $175 in prizes for 3-D concrete poems, closing date 1st June 1972, and details are given with the article.
Alan Sutcliffe

ABOUT THE LAST ISSUE

The cover illustration in PAGE 20 came from the ars intermedia November 1971 catalogue. Here are the captions, reading from top. Imaginary Architecture; made with the computer a.i./70. Images from the computer film 'Oszillografisches Ballett Z/71. 'Klangfiguren': investigations of rotating bodies, made with the computer a.i.70/71. Computer graphics. Laser graphics.

THE COVER ILLUSTRATIONS. At the Cybernetic Congress in Paris 1951, G Torres y Quevedo, the son of the inventor of the automatic electro-magnetic chess player (left) challenged Norbert Wiener: the machine won every game. The picture is from Pierre de Latil's 'Thinking by Machine' A Study in Cybernetics. English translation published London 1956.

Pioneer-10 is the first man-made object designed to escape from our solar system. It carries a pictorial message to interstellar beings who might intercept it. Our picture is a detail, showing the bottom edge of the design. This shows the planets, ranging outward from the sun, with the spacecraft trajectory arching away from the Earth, passing Mars and swinging by Jupiter, IPS photo.