MEETINGS IN BRITAIN

29 March-2 April 1971 Datafair. Nottingham University. Over 100 papers will be presented. There will be an exhibition with 70 participating companies. The latest films on computing will be shown in the morning and afternoon throughout the duration of the conference. Further details from the organisers; The British Computer Society, 29 Portland Place, London, W.1.

15-19 March 1971 International Conference on Reprography, Earls Court, London. The registration fee is £25. The exhibition will be at Earls Court at the same time. Admission charge is 4s.

SOUTH AMERICA

ARTEONICA-International Electronic Arts Exhibition and Symposium takes place in Sao Paulo Brazil 8-12 March 1971. It is arranged by the Penteado Foundation: Waldemar Cordeiro is among the organisers. Alan Sutcliffe received an all expenses paid invitation and will attend.

UNITED STATES

A course in computer created films is being given by Bruce Cornwell and Frank J.Sarno. Some prior exposure to FORTRAN is desirable, but not necessary. New School for Social Research, 66 West 12th Street New York, N.Y. 10011. U.S.A.

YUGOSLAVIA

Miroljub Todorovic, Dobringjska 3 Beograd, Yugoslavia, is presently preparing the first issue of Signal, a review devoted to experimental poetry, and particularly that which uses the methods of cybernetics or other exact sciences. Those wishing to exchange their publications, or who wish to collaborate in the review Signal are asked to write to Todorovic. (From Pages, No 2.)

HOLLAND

The large computer-controlled sculpture-Senster-by the London-based artist Edward Ihnatowicz, has now been installed at the EVOLUON, Philips, Eindhoven. At present, the work cannot be seen by the public; a number of final adjustments have to be made. The artist will speak about this work at the British Computer Society on 7 April. Ihnatowicz continues to work in the department of Engineering, University College, London, on several projects.

AUSTRIA

T he catalogue of the recent exhibition Der Mensch in Weltall (Man in Space) is edited by Otto Graf, and consists of 348 pages, 200 illustrations, 63 in colour, and several essays(in German). Price Austrian shillings 90. The show consisted of 400 photographs, and had as centrepiece the original Apollo 10 command capsule. It took place in the Vienna Museum des 20. Jahrhunderts.

ITALY

The Centro DI is an ambitious organization devoted to the collecting and dissemination of information on contemporary art. The centre seeks to collect a vast quantity of catalogues, periodicals, manifestos etc. Send your material to Centro DI, Ir piazza de'Mozzi, 50125, Florence, Italy.

LONDON

Wednesday 3 March: Programmed Creativity-What is it? A discussion led by John Lansdown.

Wednesday 7 April: Making the Senster. A talk by Edward Ihnatowicz. *(See also under HOLLAND.)*

Wednesday 5 May: Adrian Nutbeem speaks on his work in relation to his teaching activity.

These Computer Arts Society meetings take place at the British Computer Society, 29 Portland Place, London, W.1. All meetings start at 7.30pm. Free admission-please tell your friends.

WORKING WEEKEND

CAS workshop in non-numerical programming, 6-7 March 1971. At Cybernet Time Sharing Ltd, 93 Newman Street, London W1. Instruction will be given in BASIC programming language. As well as BASIC, it will be possible to run programs in FORTRAN, SNOBOL, and LISP 1.5. In addition to teletypes, there will be character VDU's and a plotter. Please register with Alan Sutcliffe.

COMPUTER LIBRARY

The library of the British Computer Society is situated within the library of the City University. It is now in the new building in St John Street, London, EC1. Phone: 01-253 4399. The library is open Monday-Friday 9am—9pm; in holiday periods, Monday—Friday 9am—5pm. Members of CAS are free to use the BCS library. XEROX machines are available, price 6 pence a copy.

On reaching the main entrance, go by lift to the 7th floor, then walk up through the library to the floor above. The BCS library is near the top of the circular stairs. The periodicals are scattered, so ask for advice. The nearest tube station is the Angel on the Northern Line, less than 5 minutes walk. The bus service 277 and 279 passes the University. The terminus for these buses is The White Bear, 57 St. John Street, near Smithfield Market.

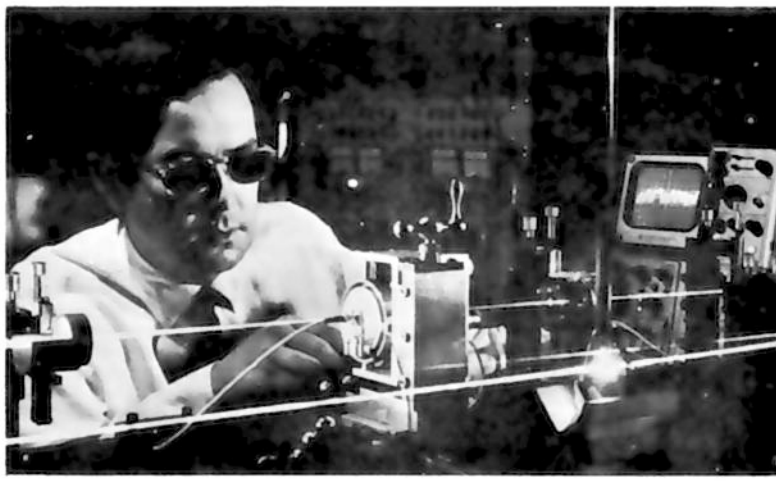
INSTITUTE OF CONTEMPORARY ART

Starting on 26 February and continuing daily into the beginning of March there will take place an Artists' Conference.

During March the exhibition Electric Theatre will be staged. This includes the work of 15 to 20 young British artists working with light and electronics. Friday 5 March 8pm: Andrew Higgens on the early Soviet Avant-garde artists. This lecture ties in with the Arts Council exhibition at the Hayward Gallery. Art in Revolution: Soviet Art and Design after 1917. Until 18 April. Sunday 28 March 3-6.30pm: A Colloquy with Professor

David Bohm 'The Rheomode, an Enquiry into the Language we use'. Chair: Jonathan Benthall. Monday 29 March 8pm: Nathan Silver 'Consumer Power and the Design Supermarkets'.

Wednesday 31 March 8 pm: The closing lecture in the Ecology lecture series. Professor Barry Commoner. Chair: Professor Maurice Wilkins.



A gigabit-per-second pulse stream is being impressed onto a laser beam by the optical modulator being adjusted here by its developer, Gerald White of Bell Laboratories. The high speed stream was created by electrical multiplexing of four different streams capable of transmitting 250 million bits of information per second. The gigabit-per-second speed is equivalent to transmission of 200 books per second or a library of 50,000 volumes in about eight minutes.
DATAMATION, December 15,1970,p 62.

THE EDITOR'S LOGIN

The cover picture for last month's PAGE was controversial, and certainly boosted sales of the issue in the London bookshops-but was it useful? We are glad to report that it was. Art critic Robert Melville browsing in the basement of Dillon's during their sale, saw PAGE 13 and promptly acquired a copy. Melville is completing a mayor study of eroticism; may use nudie image in his book.

You've heard of HOT PANTS; here's a HOT TIP. The most talked about work by an artist in 1971, in der Welt, will be by one Christo (that's not his real name, but never mind). Christo, a Bulgarian Jew now domiciled in a fashionable two-floor home in New York City, plans to span a 500 feet high, and 5,000 feet long curtain across a valley near trendy Aspen in Colorado. The synthetic material will permit percolation of gentle breeze: the vision of the other side seen through Valley Curtain should be the mayor aesthetic payoff of the piece. The conception has been realized with the aid of an expert at M.I.T., plus the assistance of a computer. (Aber natürlich; only the best for Master Christo.)

Of course culture-vulture Jorge Glusberg has already exhibited the project at centro de arte y communicacion buenos aires (note-lower case only), last November to be sure. Estimated cost of this work: 200,000 dollars. But that's peanuts compared with another Christo plan: the erection of the Houston Mastaba-1,249,000 oil drums, stacked in the severest Egyptian style, at Houston, Texas. Price per drum: $4.00.

Apropos of Christo, it struck us that the most sensational art works to come out of America this century were not in fact the work of indigenous artists. Consider Duchamp's Nude Descending; the Urinal; the Bride and the Bachelors. Take Tinguely's Homage to New York; the most widely publicised image in the history of kinetic art. And now the visitor from Bulgaria. Utterly perplexed, we put the issue to a psycho-analyst at University College. Having put the required data through his computer he offered this conclusion in his best German accent. The American experience is intrinsically so sensational that native(sic) artists are inhibited from responding with the appropriate degree of involuntary frenzy. The visitor, on the other hand, does not suffer these traumatic inhibitions. Result-BLAST OFF. (See also Wernher von Braun.) A bit crudely put, but sounds all right to us.

BRIGHTON

A Computer and Art week has been organised by the Brighton Polytechnic Computer Society, from 22-27 February, 1971. The Computer Arts Society travelling exhibition will be on display. Tuesday 7.30pm: graphics, art and computers; films. Wednesday 12-2pm: pictures of computer art accompanied by computer generated music. Wednesday 7.30pm: Non-numerical programming. Thursday 12-2pm: pictures of computer art accompanied by computer-generated music. Thursday 7.30pm: The Social Effects of Computing; a discussion. Saturday 7.30pm: An Evening of Automated Rubbish. An entertainment of music, drama, poetry and film, by members of CAS and students from the Art faculty. (This is the only event for which there will be a charge.) All functions are open to students and public. Further details from Roger Saunders, Brighton 556192.

FREE LITERATURE

The Proceedings of a 'Dialogue in the Disciplines' held at the State University College at Brockport contains papers by Joseph Raben, Stephen M.Parrish, Sally Y. Sedelow, Warren Austin, and Louis T.Milic. Copies are available from Prof. F.M. Burelback Jr., Department of English, SUC, Brockport, N.Y. 14420. U.S.A.

IBM Symposium on Introducing the Computer in the Humanities. Poughkeepsie, N.Y., 30 June—2 July 1969. Manual G 320-2044-0 is available in the U.S. from IBM Corp., Data Processing Division, 112 East Post Road, White Plains N.Y. 10601. Internationally from IBM World Trade Corp., 821 United Nations Plaza, New York, N.Y.10017. U.S.A.

FIELD WORK 3: A STRUCTURED ARENA

TIMOTHY DREVER

Last year I showed two environmental works in London involving a large degree of participation. Watching people reacting to these, I became less interested in the transient results of their activities, and more aware of the way in which those activities themselves were patterned by the structure of what I had provided. That is, I stopped thinking of these works as 'participational' (as delegating a certain range of aesthetic decision); instead I began to see the actions of those involved as the object of my activity as an artist. This led me to think of creating areas which would impose certain rhythms on anything taking place within them, and on the consciousness of anyone entering them. One project I considered was a concrete floor of regularly-spaced shallow waves, perhaps 4 inches high and just over a stride from top to top; the area covered would be large enough for a specific rhythm to be generated by the act of walking across it. This floor would not be presented as a finished art-work, but as an arena for experiment by myself or anyone else. It would be interesting to try different lighting effects, for example; a strong overhead lighting, with the floor painted white, would make the surface difficult to 'read' as one walked over it; illumination by a flickering candle down in one corner would turn it into a sea of pulsating shadows. Again, people could explore it and discover its structure by touch, in complete darkness.

On this continuously curved surface one could experiment with discontinuous 'additions'; a scattering of rigid, fragile 'measuring rods' would change its character; footballs would bounce on it quite unpredictably; various amounts of water would convert it into a series of ponds, and then into a series of islands. Musical, dance or theatrical groups could let the rhythms of their own activities interact with its periodic structure. In general the interest would lie in the 'interference' of the floor's stable and coherent wave-structure, with the unstable and fluctuating forms of action superimposed on it.

A rectangular array of waves would probably be my final choice, but when considering a triangular array (Fig. 1), I became interested in the mathematics of the situation; this is another approach to comprehending it as a structure. One can think of such an array as momentarily produced by the interference of three trains of straight, parallel waves, each train advancing at 120^0 to the direction of the others (Fig. 2). At the moment shown, points like O would be maxima, P would be a minimum, and Q a saddle-point. At a later moment, P becomes a maximum, and later again R becomes a maximum. Thus every point on the surface moves up and down sinusoidally, with a certain amplitude and phase-lag relative to O, say. (The configuration of the concrete floor considered would be like a snapshot of this wave-system taken at the moment when O is a maximum.) The points of zero amplitude, the 'nodes', which remain stationary, form a hexagonal array, within which the points of maximum amplitude form three triangular networks, differing in phase by $2\pi/3$ (Fig. 3: the set of points 1 all reach maximum together, then the set of points 2, then the set 3, and then the set 1 again, and so on).

To preserve the symmetry of the situation I took a sort of areal coordinate system based on one of the triangles of Fig. 2. The sides are all equal, so any point in the plane can be expressed as (A, B, C) where A, B and C are its distances from the sides of the reference triangle (Fig. 4a), and we have $A + B + C = 2\pi$, taking the height of the triangle (i.e. the wavelength) to be 2π. The three wavetrains can then be written as $z' = \cos(A - ct)$ etc., where z' is height above the base plane, c is the wave velocity and t is the time. Then the equation of the surface formed by superimposition of these three wavetrains is:

$$z = \cos(A - ct) + \cos(B - ct) + \cos(C - ct)$$

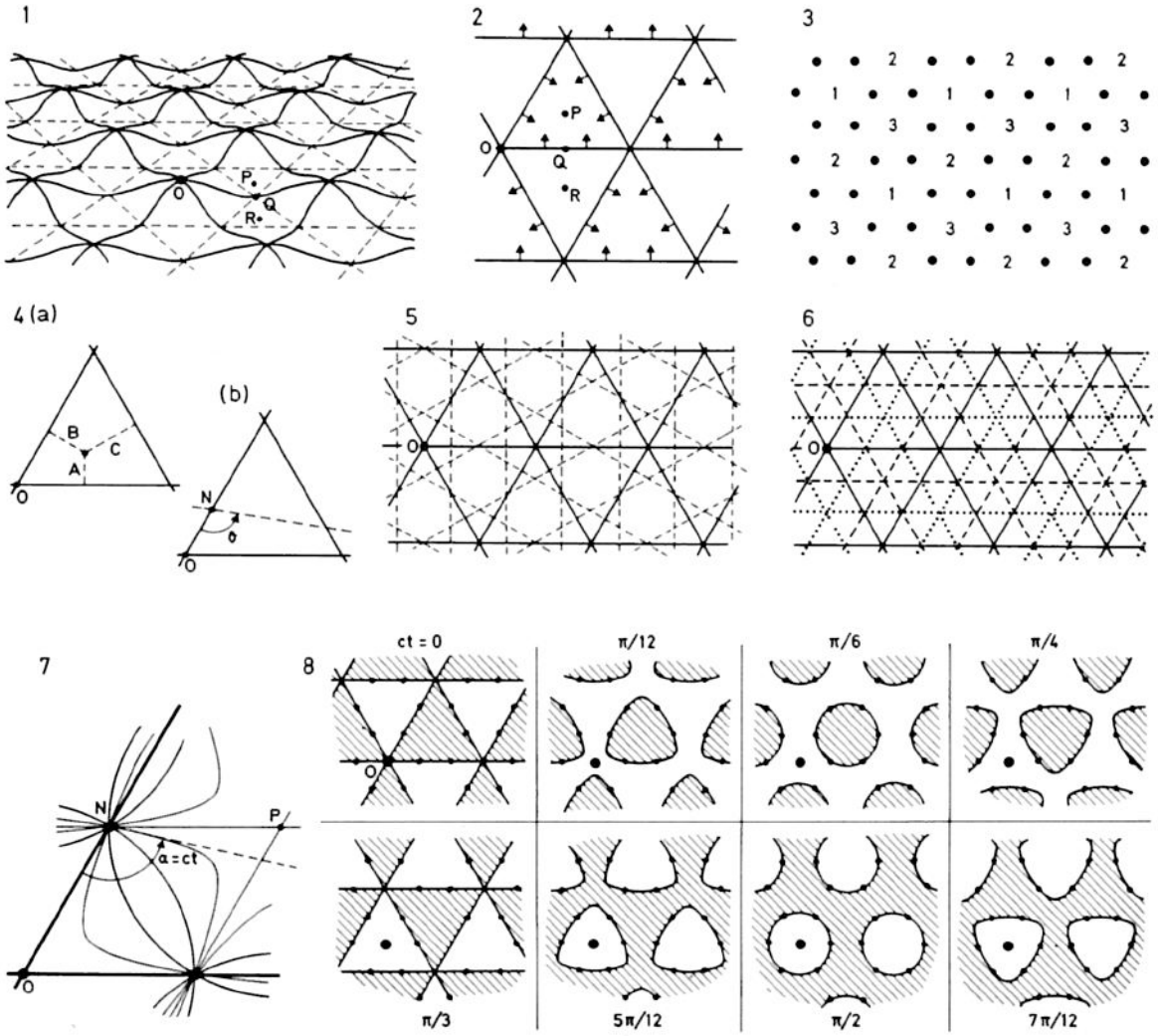
which can be written as $z = M \cos(ct - \alpha)$ where M, the amplitude, is given by

$$M^2 = (\cos A + \cos B + \cos C)^2 + (\sin A + \sin B + \sin C)^2$$
$$= 1 + 8 \cos X \cos Y \cos Z$$

putting $x = (A - B)/2$ etc. The phase angle α is given by

$$\tan \alpha = \frac{\sin A + \sin B + \sin C}{\cos A + \cos B + \cos C}$$

We can find the stationary values of M by Lagrange's method, using the second expression for M^2 and the condition $A + B + C = 2\pi$. Assuming none of the cosines are zero, we get solutions $A = 2\pi a/3$, $B = 2\pi b/3$, $C = 2\pi c/3$ where the integers $a + b + c = 3$. The various possibilities for a, b and c give the vertices and centroids of Fig. 2



as maxima of value 3, and the hexagonal array of nodes at points like N ($2\pi/3$, O, $4\pi/3$). Now taking solutions for which say cos x = O, we see that M is constant along such lines as A - B = π, etc., and that there are stationary values of M (of value 1) at the crossings of these lines, which form a star-pattern (Fig. 5). These points are identical with the three sets of saddle-points of the surface z at the times t = O, $2\pi/3c$ and $4\pi/3c$. At these times there are in fact straight lines lying in the surface, although it is curved everywhere; these lines pass through the saddle-points, and form a star-pattern like that of Fig. 5, but larger and of different orientation; they are shown as broken lines in Fig. 1. In fact every feature of the surface in Fig. 1 is reproduced on a smaller scale in the surface given by the function M^2; the minima of Fig. 1 correspond to the zeros of M^2.

The curves tan $\propto$ = constant are very interesting. They can be visualized as follows: at any given moment parts of the surface are rising, and other parts are falling. The boundaries of these regions consist of the points that at that moment are at the top or bottom of their vertical cyclic motion. For instance at t = O these boundaries are the basic triangles of Fig. 2, in which P is rising, R is falling, and O and Q are momentarily stationary. In Fig. 6, these triangles are shown in full lines. At the time t = $2\pi/3c$ the boundaries form the dotted triangles, and at t = $4\pi/3c$ the broken-line triangles. At intermediate times they form systems of curves, always passing through the nodes. These curves are given by tan $\propto$ = (sin A + sin B + sin C)/(cos A + cos B + cos C), which is indeterminate at the nodes. To see how this function behaves near a node, consider a line A + δ B = $2\pi/3$ through the node N ($2\pi/3$, 0, $4\pi/3$) forming an angle Θ with the side of the triangle (Fig. 4b); the relationship between δ and Θ is found to be tan $\Theta = \sqrt{3}/(2\delta - 1)$. Now we look at the value of tan $\propto$ as we approach N along this line: we express tan $\propto$ in terms of B only, and let B $\rightarrow$ o. The result is tan $\propto \rightarrow \sqrt{3}/(2\delta - 1) = \tan \Theta$. So by correct choice of our starting place we can say $\propto = \Theta$. And since for the boundary curves we are considering $\propto$ = ct, it appears that the tangents to these curves at N rotate uniformly around N; the same thing happens at all the nodes, (Fig. 7). When t = $\pi/2c$, for example, the curves are almost circles, and intersect the triangles at angles of $\pi/2$. (In Fig. 8, the shaded area is the part of the surface which is rising at that time). At a later time, t = $7\pi/12c$, say, the configuration is approaching that of the dotted triangles of Fig. 6; as t approaches $2\pi/3c$, the corners of the white (sinking) areas reach out and join up to form this set of triangles. After that the shaded areas shrink into near-circles, and then expand to form the broken-line triangles of Fig. 6; and so on, cyclically, back to the configuration of Fig. 2. (Fig. 8 shows one third of the cycle.) Thus the function (sin A + sin B + sin C) / (cos A + cos B + cos C) subject to A + B + C = 2π represents a network of triangles turning themselves inside-out to form other networks of triangles, in a three-stage cycle.

That is as far as I have gone; no doubt a proper mathematician could find out what underlies the strange properties of this function. I should be interested to know. It would also be good to see the system set up in a wave-tank, or if possible as a computer graphic display.

Timothy Drever, 16 Woodchurch Road, London, N.W.6. Born 1935.
Some exhibitions:
Signals Gallery 1965. John Moore's, Liverpool 1965. 1st Edinburgh 100, 1965. Lisson Gallery, 1968, 1969. Environmental Art, Kenwood, 1969, 'New Space', Camden Arts Centre, 1969.

COMPUTER ARTS SOCIETY, AIMS AND MEMBERSHIP

The aims of the Society are 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 of $3 per year; students half price. Members receive PAGE and reduced prices for Computer Arts Society 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. There are 8 issues per year. Extra copies will be sent to the same address at half price. No other membership rights are conferred and there is no form of membership for organisations or groups. Re membership, subscription, circulation and information; write to Alan Sutcliffe.

COMPUTER ARTS SOCIETY ADDRESSES

Chairman: Alan Sutcliffe, ICL, Brandon House, Broadway, Bracknell, Berkshire.
Secretary: John Lansdown, 50/51 Russell Square, London W.C.1.
Editor of PAGE: Gustav Metzger, BM/Box 151, London W.C.1.
Dutch Branch (CASH): Leo Geurts and Lambert Meertens. Mathematisch Centrum, Tweede Boerhaavestraat 49, Amsterdam, Holland.

Current work—status report — art/science/technology

Julian Rowan

background

after twenty years of industrial design practice, the last six as President of Dudas Kuypers Rowan Ltd., a large industrial product design office, in Toronto, J. Rowan "retired" in 1968 to pursue lifelong social and philosophical interests.

becoming increasingly involved in both the visual and philosophical aspects of ART and SCIENCE— their mutual influences, co-operative and conflicting interactions and possible points of convergence.

most immediate and abiding interest is in 'formative process FORMS', part-whole form dynamics or 'morphodynamics', their implications for visual artist and layman alike. Visual and philosophical interests are in functionally and structurally 'necessary' forms, determined by laws of least effort (or of least action), expressive of compensating or balanced energies, within a limited hierarchy of spatial configurations, moderated by considerations of scale. Concern is still very much with 'static' aspects of form and structure, or morphology, but more explicitly, concern is for form and structure 'dynamics' as determined by the processes, boundary conditions and materials involved.

visual arts

visual art and technology activity involves continuing research and aesthetic explorations and educational experiments.

a Canada Council grant study in 1969, into "new language forms of structure, process, systems, in art and science" resulted in:

. a preliminary assembly of visual imagery resource material in photos, slides, films, to help in the examination of 'form-generation' and usefully considered under such categories as 'growth' 'scale' 'pattern analogues' 'rate of change' and a few others.

. acquisition of over 500, 35mm color slides (1st stage, quality uneven) which, treated as "information clusters" can be used in different set sequences, to tell different aspects of the art/science story.

. research and experimental beginnings, into ways of 'generating' forms under artistic control, which reflect these formative principles; devising models which can serve as specific demonstration pieces

. establishing contacts with artists and scientists across the world whose work in some fashion parallels these specific interests in morphology.

Perhaps it was inevitable — that computer technology and graphics should turn out to be one of the most practical tools for exploring, testing and graphically simulating formative processes, structures, systems. There was a slight digression to become somewhat better informed about computer graphics.

philo.morphics

philosophically, a 'generalist' approach to art and science is maintained, for many reasons. One, is the belief that a new level of synthesis is waiting to be realized, one having particular cogency, today.

less interested (but not disinterested by any means) in the surface enchantment with hardware and technique, in art and technology; concerned with the more serious issues and dialogue between art/science/technology.

a major concern is—those visual and philosophical aspects of art and science which appear to have converging tendencies, as it is believed they do, in matters of morphodynamics

the natural and information sciences offer much challenging visual and philosophical material; their growing awareness of interconnectedness throughout all systems, of energy flow and spatial order, of "morphic continuity" from one system level or scale to the next, suggests related new frontiers in aesthetics, ecology, philosophy.

perhaps the ultimate, unrealized goal (possibly—synthesis?) is the intuitively-sensed isomorphic parallels in biological structure, creaturely acts and human behavior. This leads in turn towards what might be called "the ultimate ecology" (which title "Towards the Ultimate Ecology" is a present philosophical piece being worked on, hoping to publish eventually) where man's comprehension of his own nature could and should become successfully harmonized with and be seen, indeed, as an expression of — these morphodynamic principles. At this moment, man (esp. scientist and technologist) is, in acceleration, manipulating and or interfering with natural law, out of context, out of ignorance, with transparently disastrous results.

the "pattern in process-process in pattern" form connection and the palpable need for and reward in, exchange between art and science, is a vision which has been explored most responsibly and originally by Gyorgy Kepes. But there are other key people concerned with art, science and morphodynamics; in science, Paul Weiss, Cyril Stanley Smith, L.L. Whyte, Waddington, in visual arts, Nervi, Frei Otto, Karl Gerstner, C.Alexander, R.P.Lose, Jekabs Zvilna. One must also mention others whose work interconnects — such as Bertalanffy, Stanislav Ulam, A. Loeb, B. Fuller, Hans Jenny, Maslow, Peter Pearce on the science side, and R. Filipowski, R. Preusser, G. Rickey, A. Hill, A. Wachman, in visual arts. There are one or two people in computer graphics, scientists, not artists, as things seem to be at this moment, thinking particularly of the computer "disk galaxy simulation" by Dr. Frank Hohl, "growth and decay" by Knowlton, and the hydrodynamic simulations of the Lawrence Radiation Labs.

This review is by no means complete. People referred to are more frequently north american, due to natural growth processes of contiguity. It is to be hoped that sources will be rounded out through new contacts in England, Europe and the world.

November 30th 1970

Julian Rowan would very much like to make contact with people in relation to his study. His address is 117 Ridgewood Road, West Hill, Ontario, Canada. Telephone 282-1954.

COMPUTER GRAPHICS

August is the month. That is when Computers and Automation publishes its annual computer art contest. A feature last year was that so many of the participants were members of the Computer Arts Society. Computer graphics were also used on the covers of the September, October and November 1970 issues of the magazine. In a few months you will be asked to send graphics for the 1971 contest.Subscription details for this magazine will appear in the next issue of PAGE.

LECTURE LIST

The Computer Arts Society is compiling a lecture list. If you would like to give some talks, please let Alan Sutcliffe know.

EXHIBITIONS IN EUROPE

The exhibition of computer art organised by Käthe Schröder continues to travel through Europe in 1971.

10-30 January: Oslo, Henie-Onstad Kunstsenter, in collaboration with the Goethe-Institut. Pictures, films and music. A Honeywell-Bull GE Terminal Mark 1 will be in operation.

15 February-7 March: Brussels: German Library, 58 rue Belliard. Pictures, films and music.

19 April-10 May: Liverpool Museum, in collaboration with the Goethe Institut, Manchester. Pictures, films, music.

31 May-19 June: Louisiana Museum near Copenhagen.

Presumably the exhibition is now in two parts since we have been given the following dates.

February: Rome, German Library, Palazzo Odescalchi, Via del Corso 267. A Honeywell terminal with program by Professor Richard C. Raymond, New York, will be present. This will open in the first days of February and will last 4 weeks.

March: Genua. April: Napoli. May: Palermo. Mid-October-November: Milano. Mid-November-December: Turin. A show in Florence is also being discussed.

For further details, and information regards catalogues, please write to Mrs. Käthe Schröder, Hannover, Plathnerstrasse 27, Germany. Telephone: (0511)814290.

INTERNATIONAL CONFERENCES

16-19 August 1971. Jerusalem Conference on Information Technology. Contact: P.O.Box 7170. Jerusalem. Israel.

22-28 August 1971. Tel Aviv International Conference on Information Science. Israel Society of Science Libraries and Information Centres. P.O. Box 16271 Tel Aviv. Israel.

23-28 August 1971. Llubljana. 5th Triennial Congress of IFIP. Secretary, IFIP Congress Office, Mestni trg 4 Llubljana. Yugoslavia.

The Operator, Engineer and Management Interface with the Process Control Computer. Purdue University, 3-6 August 1971. Details from: The Organizing Committee, Purdue Laboratory for Applied Industrial Control, Purdue University, Lafayette, Indiana 47907. U.S.A.

The Fédération Internationale des Sociétés de Philosophie (FISP) has selected an interantional committee for the Fifteenth World Congress of Philosophy to be held in 1973 at Varna, on the Black Sea. The General Theme will be Man, Science and Technology.

NEW PERIODICALS

Science Studies-research in the social and historical dimensions of science and technology. A new quarterly which intends to become one of the main channels for communication among those concerned with the social aspects of science and technology. Executive Editors: Dr. R.M. MacLeod, Science Policy Research Unit, University of Sussex, Falmer, Brighton. Dr. D.O. Edge, Science Studies Unit, University of Edinburgh, 34 Buccleuch Place, Edinburgh. Science Studies is published quarterly. Annual subscription: UK and elsewhere overseas: £5. USA: $12.30. Canada: $13.50. (Including postage) Subscriptions, orders, enquiries to: Macmillan (Journals) Ltd, Subscription Department, Brunel Road, Basingstoke, Hampshire, England.

Pages is an international magazine of the arts. Its main interest judging from the first 2 issues (Autumn and Winter 1970) is in Concrete Poetry, Multiples, and the area around, including sound. Each issue contains over 30 pages. It is very well produced, with many illustrations, some in colour. The first number is particularly worth having. Detailed information on related publications in different countries is included. The magazine can be seen in London shops e.g. Better Books, ICA, Dillon's Compendium Bookshop, Mandarin. Single copies in Britain are 7s.6d. plus 1s. postage. Annual subscription rates in Britain (4 issues) is 30s, post inclusive. Annual subscription rate USA and Canada: $4.00 post inclusive.

Pages is edited by David Briers, 15 Park Mansions, Prince of Wales Drive, London S.W.11. For subscriptions write to: Subscriptions Department, HRS Graphics Ltd, 117 High Street, Berkhamstead, Hertfordshire, England.

You can place a subscription with Claude Gill for any journal in any language published anywhere in the world. Claude Gill Subscriptions Ltd are located at Aldermaston Court, Aldermaston, Berks. England.

RELEVANT PUBLICATIONS

PAGE plans to establish a list of periodicals, newsletters, etc., which are relevant to our work. It would be most helpful if readers would send us full details, including information re subscription, of publications that should be added, and kept us informed of any changes in publications that should be brought to the attention of readers. We start by reprinting a section of an article by J.Van der Wolk. The article; Newsletters, Microfiches and Computer Research in the Humanities, appeared in IAG Journal, Amsterdam, Vol. 3, No.1 1970. This is an IFIP publication.

1. the ***Newsletter of the Institute for Computer Research in the Humanities*** New York University, University Heights, Bronx, New York, 10453, USA. The Publication of this newsletter ceased with 4 (1969) 11 (July).
2. the ***Digital Plotting Newsletter***, California Computer Products, Inc., 305 N. Muller Street, Anaheim, Calif.92803, USA;
3. ***Page, bulletin of the Computer Arts Society,*** Alan Sutcliffe, ICL, Brandon House, Bracknell, Berkshire, Great Britain;
4. the ***SICLASH Newsletter*** of the Special Interest Committee on Language Analysis and Studies in the Humanities of the Association for Computer Machinery, SICLASH, c/o ACM, 1133 Avenue of the Americas, New York, N.Y. 10036, USA;
5. the ***International Science-Art Newsletter,*** John H. Holloway, University of Aberdeen, Department of Chemistry, Meston Walk, Aberdeen, AB9 2UE, Scotland. ISAN now is a regular rubrique in Leonardo;
6. the ***Historical Methods Newsletter: quantitative analysis of social, economic, and political development,*** Jonathan Levine, Department of History, University of Pittsburgh, Pittsburgh Penn. 15213, USA;
7. the ***Newsletter of Computer Archaeology,*** Robert G. Chenhall, Department of Anthropology, Arizona State University, Tempe, Arizona 85281, USA;
8. the ***Newsletter of the special interest group in arts and humanities,*** published by a group of members of the American Society for Information Science. SIGAH, c/o ASIS, 2011 Eye Street N.W., Washington DC 20006, USA;
9. the ***MASCA Newsletter,*** Museum Applied Science Center for Archaeology, The University Museum, University of Pennsylvania, 33rd & Spruce Streets, Philadelphia, Penn. 19104, USA;
10. the ***ACLS Newsletter,*** American Council of Learned Societies, 345 East 46th Street, New York, N.Y. 10017, USA;
11. ***Calculi,*** Stephen V.F.Waite, Department of Classics, Dartmouth College, Hanover, N.H. 03755, USA;
12. ***The Finite String; newsletter of the Association for Computational Linguistics,*** A.Hood Roberts, Center for Applied Linguistics, 1717 Massachusetts Ave., N.W., Washington DC 20036, USA. The leading journal in this field of a wider scope than a newsletter is:
13. ***Computers and the Humanities*** (CHum), Joseph Raben, Queens College, Flushing, N.Y. 11367, USA, of which three volumes have now been published. Special rubriques in CHum are:

a. an annual survey of recent developments (each September issue);
b. semi-annual directories of scholars active (each November and May issues). This directory is split up into six categories: general, language and literature, music, philosophy, social sciences and visual arts. Under each entry, information is given on: name of the project, chief investigators, scope and method, hardware and software used and references;
c. an annual bibliography (each March issue);
d. a list of literary materials in machine readable form (no regular issue);
e. meetings announced; new courses established; recent publications; reviews; news and notes; abstracts and brief notices (in most issues).

Each issue of CHum is virtually a treasure house for everybody interested in the use of computers for research in the humanities. Journals like:

14. the ***Revue de l'organisation internationale pour l'étude des langues anciennes par ordinateur,*** L.A.S.L.A., 110 Boulevard de la Sauvenière, Liège, Belgium and
15. ***Computer Studies in the Humanities and Verbal Behavior,*** Mouton & Co., P.O.Box 1132, The Hague, The Netherlands, specialise in computer research in the humanities as well, but tend to publish scholarly articles rather than brief notes on current research and how to become informed on that research.

In future issues we intend to give subscription details on the above publications. Here follow details for Nos. 12 and 13.

12. ***The Finite String,*** a publication of the Association for Computational Linguistics is published monthly, ten issues a year excluding July and August at the Center for Applied Linguistics, 1717 Massachusetts Avenue, N.W., Washington D.C. 20036. U.S.A. News items should be sent to A. Hood Roberts, Editor, at the above address.

Individuals who are interested in computational linguistics are invited to join the association. Annual dues for membership are $10. Membership includes the publications of the association. Dues for membership should be sent to Harry H.Josselson, chairman, Department of Slavonic Languages, Wayne State University, Detroit, Michigan, 48202. U.S.A.

Subscriptions to the publication of the association are also available to nonmembers. ***The Finite String*** is available at $ 5 per year. Payment for subscriptions should be sent to Dr. Josselson.

Correspondence concerning recent documents, bibliographical data and details of current research, should be sent to Adam G. Woyna, Center for Applied Linguistics, 1717 Massachusets Avenue, N.W., Washington D.C. 20036. U.S.A.

The bulk of this journal consists of recent publications in Computational Linguistics, i.e. summaries of books and articles. Each issue contains a full subject and author index.

13. Computers and the Humanities: Joseph Raben, Editor. Materials submitted for publication which may be in French or German (with an English abstract up to 250 words) should be typed double space on 8½ x 11" paper and address to Computers and the Humanities, Queens College, Flushing, New York 11367. U.S.A. Subscriptions for the volume-year (September, November, January, March, May) is $ 10. for institutions, $ 7.50 for individuals in ***U.S. funds only post paid.*** Make checks payable to CHum. Back issues of all volumes are available at the same rate.

Review copies should be sent directly to Prof. James D.Merriman, Dept. of English, Wichita State University, Wichita, Kansas 67208. U.S.A.

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