

## 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, \$3 or fl. 10 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, \$3 or fl. 10 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 (for Holland: to Leo Geurts).

THIS ISSUE OF PAGE HAS BEEN PRODUCED BY THE

COMPUTER ARTS SOCIETY  
HOLLAND

## COMPUTER STAMPS

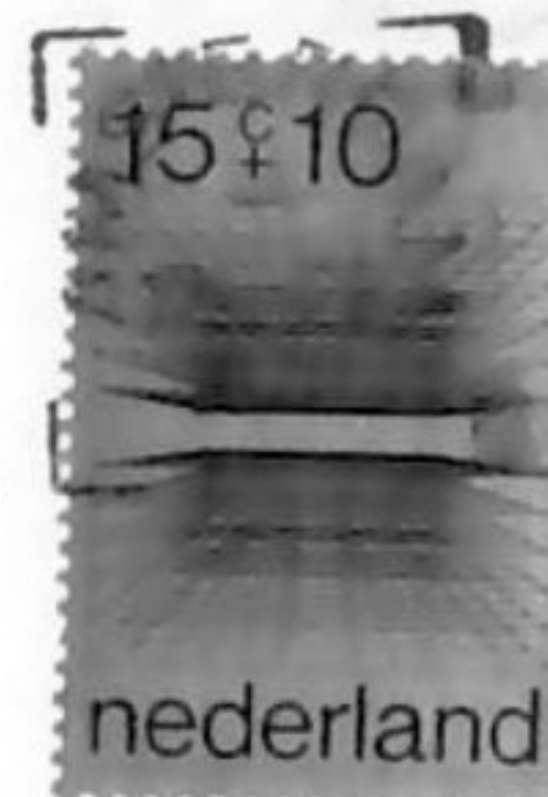
The Dutch Post Office has been the first in the world to launch a series of stamps realized with computer aid. Graphic designer R. D. E. Oxenaar developed the idea some years ago, while investigating the possibilities of using a numerically controlled plotter for the design of new bank notes for the Nederlandse Bank. For the issue of "summer postage stamps 1970" he used such a plotter, controlled by computer, to design five stamps, each of them with a different contour, in order to make them distinctive. A special difficulty proved the small size to which the drawings had to be reduced: 22x22 mm (= .9x.9 inch).

The result is a series of non-representational designs, in itself unprecedented in Dutch stamp history. The 15c+10 stamp below was derived from a design by the Centrum voor Cubische Constructies, as reproduced elsewhere in this PAGE.

Which country will be the first to have a computer controlled printing machine generate a whole impression of slightly different stamps?

DRUKWERK

Een bericht  
per luchtpost?  
gebruik  
een luchtpostblad!



JULY 1970  
PRICE SIXPENCE  
PRIJS KWARTJE

PAGE 9

BULLETIN OF THE COMPUTER ARTS SOCIETY

## COMPUTER ARTS SOCIETY ADDRESSES

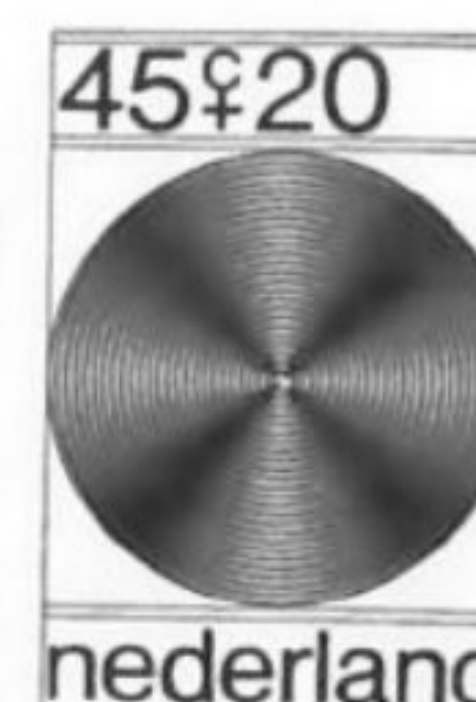
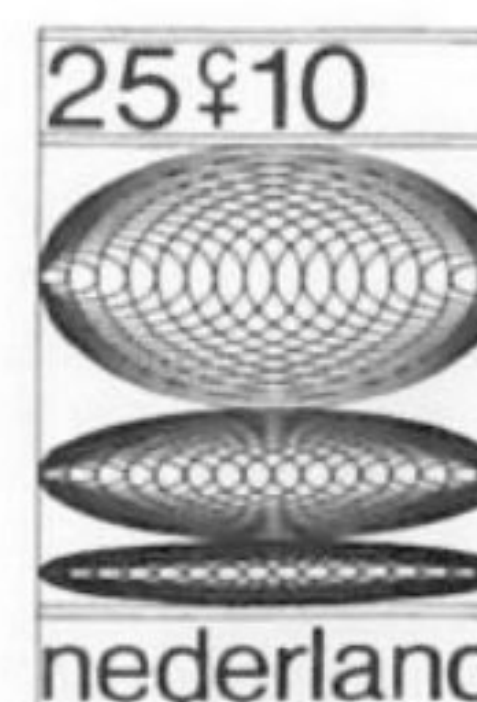
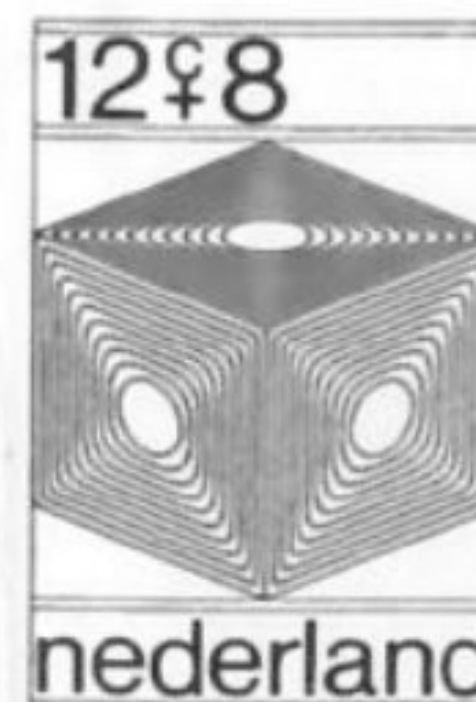
Chairman: Alan Sutcliffe, ICL Brandon House Bracknell Berkshire

Secretary: John Lansdowne, 50/51 Russell Square London WC 1

Editor of PAGE: Gustav Metzger, BM/Box 151 London WC 1

Dutch branch (CASH): Leo Geurts and Lambert Meertens, Mathematisch Centrum  
Tweede Boerhaavestraat 49 Amsterdam

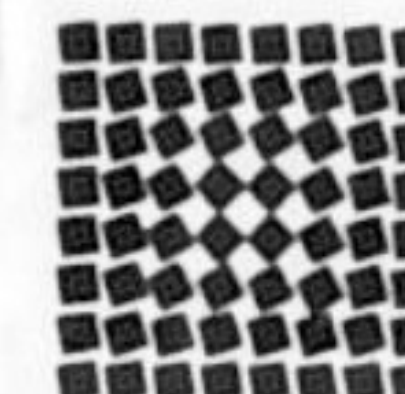
This PAGE edited by Leo Geurts and Lambert Meertens, printed at the Mathematisch Centrum.  
Lay-out assistance: Henrik Barends.



## CUBES IN THE MEADOWS

The artist Maarten Bianendijk invited all 940 Dutch municipalities to join his "blue cube" project: one blue cube with the edges as long as the local height above or below N.A.P. (New Amsterdam Sea Level), to be placed somewhere in the municipality. At places above N.A.P. only the upper surface would show, the rest being buried; at places below the New Amsterdam Sea Level the whole cube would be visible. Some 500 municipalities have already turned down his proposal, with motives like: "This project serves no essential interest" or: "This will deface the landscape very much".

Maybe the municipalities at zero level will cooperate.



## SUMMER SCHOOL

At the Centro Nazionale Universitario di Calcolo Elettronico at Pisa, a summer school on Linguistic and Literary Electronic Data Processing will be held from 16 August till 7 September 1970. Lessons include subjects like: Programming Language PL 1 (during the first week), Introduction to formal grammars, Computational analysis of literary dynamics and a Basic Course of Computational Linguistics.

During the course three computers will be at the disposal of the students: an IBM 1401, an IBM 7090 and an IBM 360/30 with a special printing-chain for linguistic applications. Also available are magnetic tapes with texts from different languages.

The application fee is 100 dollars (for students, professors and researchers of Universities and Institutes of Research: 50 dollars). A number of scholarships, not exceeding 240 dollars, is available.

Applications must have been received by July 10.

Inquiries: Prof. Dr. A. Zampolli  
Computational Linguistics Summer School  
CNUCE, Via S. Maria 36  
56100 Pisa, Italy

## CASH

The CASH was launched on 2 May 1970, at a meeting at the Mathematisch Centrum in Amsterdam. Invitations had been sent to some 100 persons, including the 12 Dutch CAS members at the time. The 34 attendants of the meeting discussed the aims of the CASH and mentioned their area of interest. A programming course for artists in the autumn was announced.

Since 2 May the number of members has risen from 12 to 50.

The membership fee of the CASH has been fixed on fl. 10,- (students fl. 5,-), and this includes CAS membership. Sixty percent of this amount will be paid to the CAS each year, but for 1970 this has been waived. The aims of the CASH are the same as those of the CAS, but more specifically directed towards the Dutch situation and the Dutch CAS members. PAGE continues to be the place where activities will be announced. The address of the CASH: Leo Geurts and Lambert Meertens

c/o Mathematisch Centrum  
Tweede Boerhaavestraat 49 Amsterdam

A special word to the Dutch members: Nog niet betaalde contributie kan worden overgemaakt op postgiro 7052 t.n.v. L. Meertens, Amsterdam.



## REAL TIME

IF COMPUTERS ARE THE ANSWER, WOULD SOMEONE PLEASE REMIND ME OF THE QUESTION.....

REALTIME is an alternative paper for people working with computers and the like. Policy is "merely the fast gentle dissolution of present structure of government, ownership, control, education, academic research, commerce and civilian and military forces" with the help of computers.

Subscriptions cost 12s. for six issues. Or a sample issue for 2s. From 66 Hargrave Park, London N.19.

## THE INSTITUTE OF SONOLOGY

Some of the best facilities for realizing electronic and computer music can be found at the Institute of Sonology of the Utrecht State University. The institute works at sound research, the development of studio equipment and the production of electronic music. Moreover, its facilities are available to artists and students. For those interested there will be courses from October through May on Tuesdays and Wednesdays. These courses include topics as electro-acoustics, computer composition, computer programming, statistics and practical work in the computer-assisted studios. In the months July through September there will be a workshop where one can use a studio for about half a day per week, at a fee of 50 guilders. No more than 10 participants can be admitted to the workshop. For details and information write to:

Institute of Sonology, Piomporengracht 14-16  
Utrecht, The Netherlands  
or phone 030-16731.

## QUESTIONS FROM GERMANY

The editors of the art magazine KUNST are preparing a summer edition under the cover-motif "computer art". They have undertaken to send people in the computer arts field a questionnaire with questions like:

1. Do you use programs for your artistic work?
6. Do you interrupt the program-process for alteration?
8. Do you consider the work produced by a computer as
  - a work of art
  - technical structures
  - aesthetic information?
16. What in your opinion are the criteria for the quality of a work of art?

If you want to help, write for a questionnaire:  
Magazin KUNST  
D 6500 Mainz  
Postfach 3945  
Germany

## ANOTHER QUESTION

The German publisher Verlag W. Girardet is interested in computer art drawings. They want to use them for the advertising of one of their trade information journals: "Elektronik-Anzeiger". Their intention is to reproduce interesting computer drawings at a size of about 8x12 inches.

Starving computer artists should contact:

Herrn W. Sicking  
Verlag W. Girardet  
43 Essen  
Postfach 9  
Germany

## STEIM

STEIM is the abbreviated form of the Studio for Electro-Instrumental Music. The difference between STEIM and other existing music studios is that the music is not fixed on tape, but made to sound directly. The sound-source can be a concrete one: musical instruments, percussion; but use can also be made of electronically controlled sound generators, played as instruments. The sound-source is made audible directly through loudspeakers.

The STEIM work-group was started in July 1967 by the composers Louis Andriessen, Konrad Boehmer, Reinbert de Leeuw, Misha Mengelberg, Dick Raaymakers, Peter Schat and Jan van Vlijmen, not only with the aim to set up a studio for the development of new musical instruments (proceeding from electronic sound-sources and/or electrically amplified or modulated existing sound-sources), but also to stimulate the field of electro-instrumental music by organizing concerts and similar events and by allowing musicians and technicians to become familiar with the use of these new musical instruments.

The most important elements of the equipment, chiefly designed by Mr. Van Kullenberg and Mr. Scherpense of the Institute of Sonology at Utrecht University, are formed by the following components:

- A universal switchboard. This instrument can be used during performance to set up the most complicated circuits in a trice because of its preset switches, crossbar system and special switch piano which can be played as a musical instrument.
- Mixer units
- Microphone amplifiers with measuring circuits
- Amplitude modulators
- Ring modulators, multiplier type
- Amplitude demodulators
- Frequency demodulators
- Compressors (automatic volume-contractors)
- Inverters
- Equalizers
- Hand-operated oscillators
- Voltage-controlled oscillators
- Voltage-controlled filters
- Microphones
- Stereo playback equipment
- Contact microphones
- Revox recorders
- Uher portable recorder
- Digital equipment
- Portable Hammond Organ
- Hohner Clavinet
- Hohner Pianet
- Moog Filters

The daily care of the technical department is in the hands of Jan Herman Verpoorten, a musician and specialist in the design and construction of electro-instrumental equipment. Apart from designing and building new apparatus, Mr. Verpoorten also provides project guidance. This means that he assists the composer from the start of the latter's electro-instrumental composition by advising him about, designing and building the special equipment necessary for the project. He also is present at the performance of a work in a concert.

All composer-members of the STEIM work-group may work and experiment in the studio whenever and as often as they please. In practice, however, this occurs with the close collaboration of the project guide, who is also responsible for the equipment. The studio is also open to composers and musicians who are not members of the STEIM work-group. They usually get in touch with one of the members in order to make themselves acquainted. An appointment is then made with the project guide to visit the studio once or several times.

Apart from commissions, many STEIM works occur on the initiative of members of the work-group themselves. All members have diverse typical STEIM compositions to their credit which are performed on special occasions (art exhibitions, general cultural manifestations, political events, lectures on contemporary music, etc.). Some STEIM compositions are: "Interpolations" by Jan van Vlijmen, "Hypothema" by Peter Schat, "Opus 2 no. 1" by Louis Andriessen (partly derived from a Beethoven piano sonata by means of a computer), "Amaga" by Misha Mengelberg, "Weg" by Konrad Boehmer, "Schaakmuziek" (chess music) and "Nachtmuziek" by Dick Raaymakers and the opera "Reconstruction" by Andriessen, De Leeuw, Mengelberg, Schat and Van Vlijmen, performed in the Holland Festival in 1969. (The harmonic material and some of the melodic material of this opera were derived by computer from two motifs from the overture of Mozart's Don Giovanni).

As well as these activities, STEIM also produces gramophone records of specific STEIM works. The first production (Opus 001) is on three stereo long-playing discs and is an integral performance of the opera "Reconstruction". One thousand complete cassettes with libretto (in English) are on the market at a price of fl. 23,50. More STEIM records are in store.

There are also plans for group-tuition in the form of a course, which has yet to be developed, on the significance, workings and use of STEIM equipment. A request for this has already been received from the foundation "Jeugd en Muziek" (youth and music) in the Netherlands.

Secretary: Comeniusstraat 287 Amsterdam. tel. (020) 173185 (after 7 pm)  
Project guidance: L. Nieuwstraat 29 Utrecht. tel. (030) 12001  
Work-group: Louis Andriessen, Keizersgracht 740 Amsterdam. tel. (020) 220473

## OUTPUT

SELECTED BY  
PETE GRAY

begin PRINTTEXT(0, if this is not good English that is because this text was produced by computer. The reason that automatic generation of prose lies far behind that of music and pictures is evident: one has always been able to produce music and one can since almost a century produce pictures without direct reference to reality. In literature texts without direct reference to the real world are called poetry. So for generating prose the machine must have knowledge about the world around us. Since Jonathan Swift the only way out was to let a machine generate letters at random and to have humans select meaningful passages.

We programmed the generation of random letters with the procedure PRINTTEXT. This library procedure generates 1907 letters at every call. The procedure needs a real number between 0 and 1 as parameter. This real number can be given to any degree of precision in a 100-based number system where the digits are written as letters.

For the past years we have been calling PRINTTEXT during every nanosecond our computer was free with the intention of reproducing the output in this journal as soon as it looked like English. We do not reproduce the program which is without interest: it consists of one call of the procedure PRINTTEXT. You might of course doubt our truthfulness and suspect that this output was made by man; and in a way it was because we selected it. Of course any computational result can be put in doubt by people who did not actually see it appear on the lineprinter. But we assure you that if we had not encountered a meaningful text in time for this issue we would have forgotten about the whole thing and would not even have communicated our failure.

In the real number parameter any character can be used but of course only once the decimal comma and the character that our ALGOL translator recognises as terminating the parameter i.e. the ")" and

## SOCIETY IN CONFLICT

Under the title "Creative Expressions of a Society in Conflict", discussions and confrontations will take place during a dynamic and stimulating event in Brussels from 7 to 12 September. There are 3 main themes: man in his environment, man and society, man and the transcendental.

Any individual concerned by the social, cultural and political evolution of society is asked for ideas and contributions. Scheduled already: permanent projections, long duration actions (music, 12 hours theatre), newspaper with continuous elaboration, realisation of a collective film on the congress, activities of expression groups (theatre, music, dance, song, liturgy). All this and more "will be located in a setting concretely and permanently suggesting the conflicts of society: right in the heart of Brussels, on a public place of the city, in a visual and physical environment of tents, tubular structures, screens ..."

For information: ICC, rue Washington 29, Brussels, Belgium.

## SEVEN COMPUTER ART PRINTS

Motif Editions, 58 Frith Street, London W 1 (f1 each, or f5 the set)

These are well produced although my copy of 'Asymmetry' by M. S. Mason lacked definition - important when moire patterns are being reproduced. They are all 'classical' computer art graphics, but quite varied, so that I shall not comment on them one by one, but make a few points whilst mentioning my preferences.

The computer can produce a distinctive image which people will recognise by its untiring precision, and this image may be attractive if developed in a simple way leading to visually stimulating detail. 'The Snail' produced by Kerry Strand of Calcomp is an image I have loathed because of the 'see what the computer can do' motive in its production; a motive that takes us nowhere. However when reproduced 20x30 inches it is most attractive and a good buy, even though the computer is irrelevant as far as the onlooker is concerned.

It is possible to reveal in a picture the program that generated it, and so pass information to the viewer. This process is quite distinct from that of providing the viewer with interesting optical phenomena, in fact in such a picture these phenomena may not be important. 'Running Cola is Africa' announces that a System exists and does it in a way far more impressive than words or mathematics. 'Random War' and 'Articulated figure development' do this also but with fussy detail, and 'Return to Square' is spoilt by irrelevant optical effects due to lines being so close together as to give solid black.

The picture called 'Three dimensional bug pattern' is hideous in concept, with four bugs crawling towards each other from the corners of each of the faces of fifty cubes, all in perspective. The fact that such a dull picture can be generated by such a terrifying problem contains a moral for all of us.

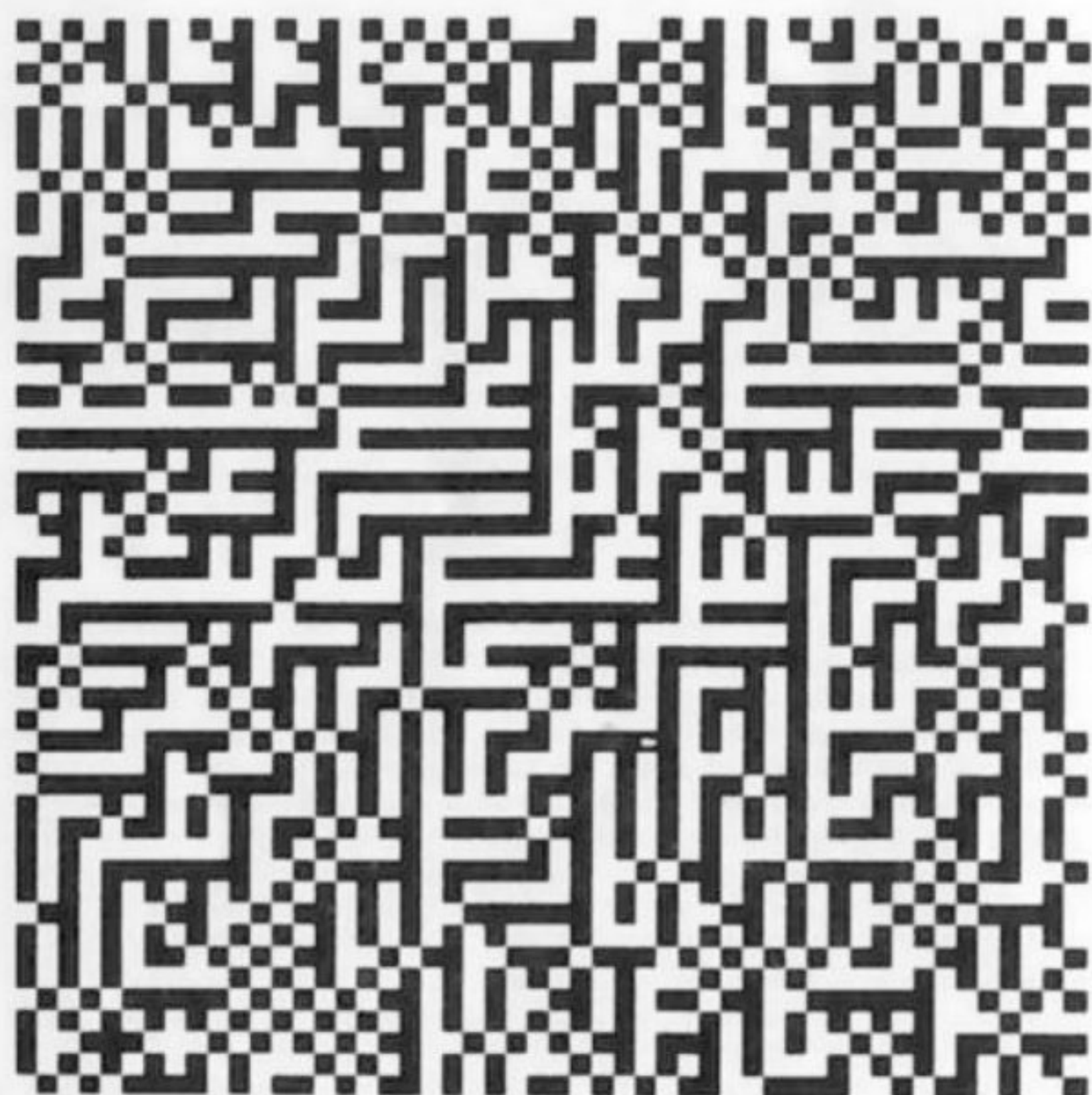
A copy of the Cybernetic Serendipity Catalogue is included with the complete set of prints.

M. Thompson, 102 High Street, Codicote, Herts

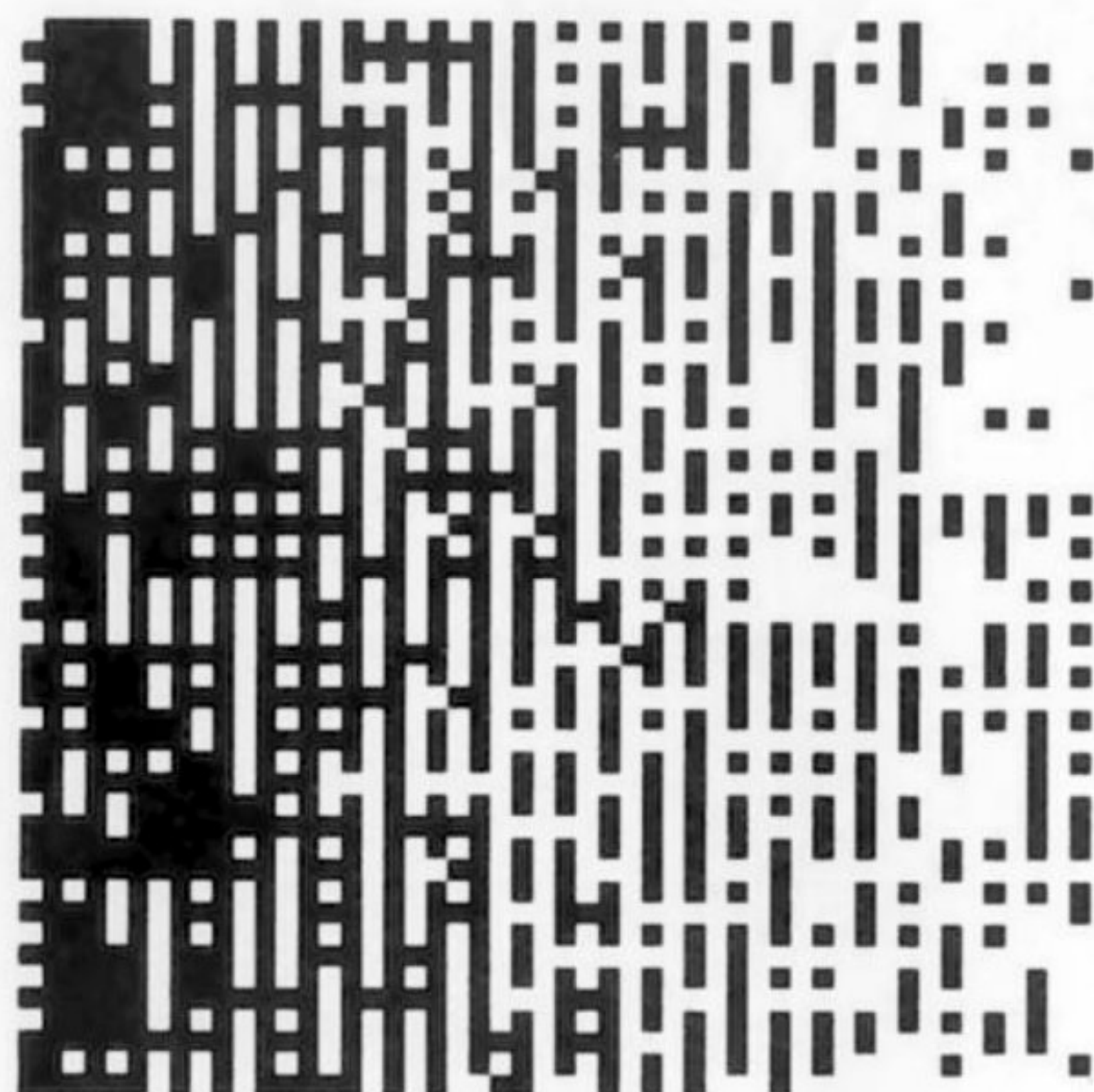
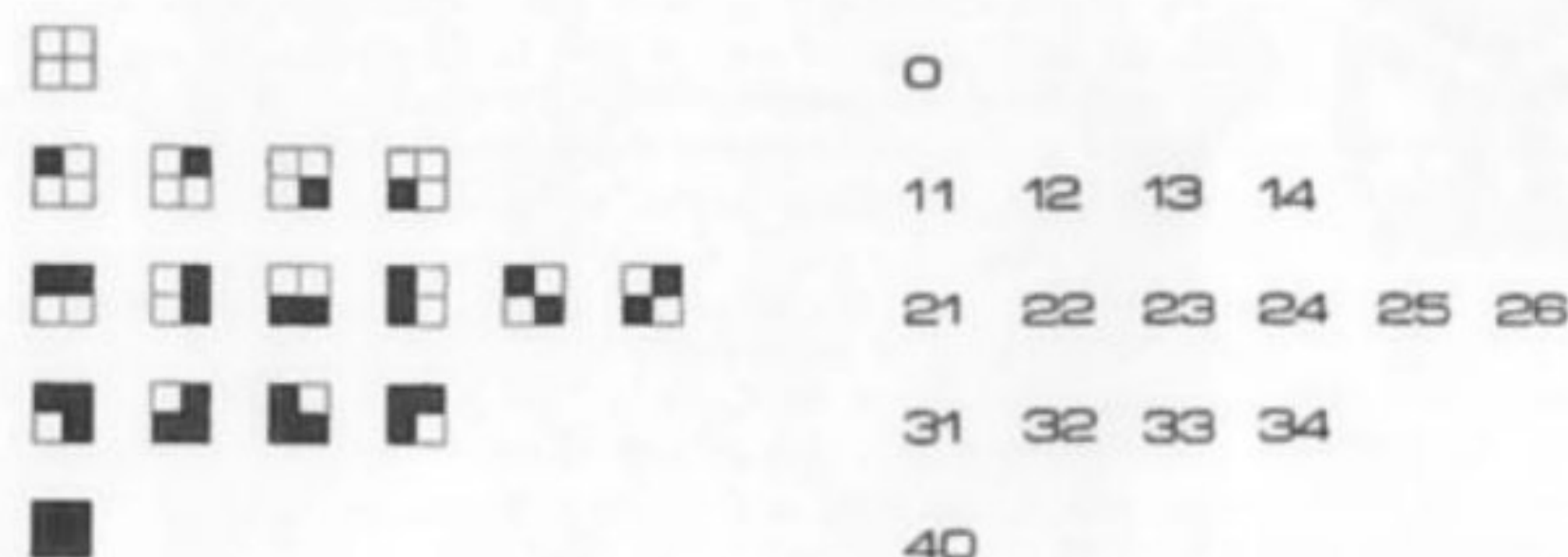


## STRUYCKEN'S COMPUTER STRUCTURES

Peter Struycken is one of the few people in computer arts with a long experience as a painter (without computer). He attended a course on programming for composers at the Institute of Sonology at Utrecht. Early this year his "komputerstrukturen" were exhibited: patterns of 50x50 black or white squares, painted from computer-produced line-printer output. The program composes the pattern from 25x25 squares, each consisting of 2x2 black or white squares. Each pattern is built up by selecting from these modules by prescribed probabilities. The komputer-struktuur 3a (left) for instance consists mainly of the modules 23, 24, and 25. The decision which one would be used on a certain point in the pattern was random, i.e., the 3 modules have equal probabilities to be selected. In komputerstruktuur 1a (right), the selection probabilities change gradually from the left to the right.



## THE SIXTEEN MODULES



## STUDENTS COMPETITION

A computer art competition for students has been organised by "De Vakdijot", the bulletin of the mathematics and physics students at Utrecht State University. There are two categories: graphics and text. In each category one prize of 100 guilders is awarded for the best program and one for the best product. Each entry must comprise both product and program, as well as a detailed explanation of the program and the way it was tested. The jury consists of Frans Haks (art historian), Sietse van der Meulen (computer expert), Harry Mulisch (writer) and Peter Struycken (painter). Entries are due before 1 October 1970. Forward them to:

Ernst Lopes Cardozo, Zonstraat 10, Utrecht.  
Enquiries should be made at the above address.

## THE CAS WEEKEND COURSE

Some 10 people spent the week-end of 20/21 June in the CAS course and workshop on "non-numerical programming with special emphasis on text processing and music", at Time Sharing Limited, 187 Great Portland Street, London W1. Some of them had experience in programming, some had not. After an explanation of the terminal system and the Telcomp2 language on Saturday morning, 6 terminals were used to produce a variety of music and especially text.

Output of a Telcomp2 program by one of those without previous programming experience:

### HAPPY FAMILIES

MOTHER SITS ON MOTHER  
MOTHER LEAP-FROGS OVER THE LODGER  
LITTLE JOHNY LOVES SISTER  
MOTHER LOVES GRANNY  
THE DOG SLEEPS WITH GRANNY  
THE LODGER RUNS TO BROTHER  
THE DOG SITS ON THE BABY  
THE BABY JUMPS ON GRANNY  
UNCLE TED PLAYS WITH SISTER  
THE LODGER JUMPS ON UNCLE BOB  
FATHER SLEEPS WITH THE BABY  
MOTHER JUMPS ON THE BABY  
THE LODGER JUMP-FROGS OVER FATHER  
UNCLE TED LEAP-FROGS OVER MOTHER

Another course and workshop will be announced in PAGE by October.

## NEDERLANDS IN 2 MINUTEN

The most frequent fifty words in newspaper Dutch account for 43 percent of Dutch newspaper text (at least, as counted in ten national daily newspapers of June 19, 1959, according to: Formal Properties of Newspaper Dutch, Mathematisch Centrum, 1965). Here they are, with their translation in English. A possible context is given between brackets.

Once you know these words, you may buy one guilders worth of Dutch newspapers in order to have one shillings worth of understandable text. Now try to read:

Deze tekst zal geen probleem zijn voor de intelligente Amerikaan of Engelsman die een lijst heeft van 43 percent van het Nederlands. Maar of dat nog zo zou zijn als het een tekst is over een probleem als apartheid, babies, computers, ...

### DE LUST

aan to [him]  
als if, when, as [a hatter], like [me]  
bij near, at  
dan then, than  
dat that  
de the  
deze this, these  
die that, those, [he] who  
dit this  
door [hit] by [a car], through  
een a, one

en and  
er there [exist]  
geen no [entrance], none  
had had  
hebben have  
heeft has  
het the, it  
hij he, it  
ik I  
in in, at, into  
is is  
maar but, only [sixpence]  
men one [just doesn't]

met with  
naar towards, to [London]  
niet not  
nog still [going strong]  
nu now  
of whether, or  
om in order to, around  
ook also  
op on [the roof], upon  
over [a bridge] over, [talk] about  
te to [be], too [much], in [London]  
tot until, as far as [here]  
uit out of [your pocket], from [London]

van of, from [him]  
voor for, before  
was was, wash  
werd was [hit], became  
wij we  
worden are [hit], [to] be [hit], become  
wordt is [hit], becomes  
zal will [happen]  
zich itself, himself, herself, themselves  
zij they, she  
zijn [to] be, [they] are, his  
zo [not] so, as [mad as]  
zou would [happen]



## COMPUTER ART OUTRIVALED

An advertisement in the weekly "Vrij Nederland" of 20 June, under the heading "ART":

"My Super Universal Design Maker constructs extraordinarily beautiful 'multilaterals', figures with diameters from 3 up to 9 cm. Parallels or surpasses computer-art. Special attention is asked from graphic, textile and glass industry, designers, artists and other amateurs. Prices apiece: 2-'laterals' fl. 10, 3-'l' fl. 12,50, 4, 6 and 8-1 fl. 15, 5 and 10-1 fl. 17,50, 7 and 14-1 fl. 20,-. Please order via transfer account 142402, J. van Raalten, Kerklaan 60, De Bilt."

## PAVING THE WAY

At the Congress de la Population in Paris, 1937, Friedrich Zahn paid the Dutch population register a compliment on its completeness and on the ease with which it could be handled. He recommended it as an example to other countries for its usefulness in the racial sanitation of Europe to come (see Part VIII of the Proceedings). In spite of this "warning", the Dutch government failed to remove the religion entries from the files. A few years later practically all Dutch Jews had been deported.

More than thirty years have passed, and modern times demand modern techniques. And what could be more advanced than using computers? But here a big problem pops up: misspellings, different people with the same name or the same people with different names. So the Dutch Government are considering to assign a decimal administration number to every citizen. In order to protect privacy, these numbers will be issued in a pseudo-chaotic order. In this way, from a person's number, nothing can be inferred about his name, age, sex or place of birth. The advantage becomes most clear when we realize that a person will appear in different files under the same number, so that merging and cross-referencing of such files is directly possible. One of the more obvious consequences is that private organizations will follow the public ones in their use of these personal numbers.

Some people's mouth will start watering when they just ponder on the information they can get if they succeed to copy the necessary files. This would be illegal, of course, except where these people are our Legal Government, one of our Government Services or one of our Allies, if authorized to do so for the Sake of the Free World. We need not fear that our private data will be shouted from the housetops, when we observe the secretiveness with which information on such matters is released now: the Dutch Minister of Home Affairs refused, for "reasons of national interest", to answer the question from Parliament whether the Internal Security Service (BVD) had already drawn up lists of people to be arrested when "things get hot in Holland".

As Dr. G. Nielsen, a Phillips computer man, put it: "The use of computers may delay the fall of a police state by one century". By how much may it advance its rise?

## HOW CHAOTIC AGAIN?

The first of the 28816215 decimal numbers eagerly awaiting on magnetic tape to be assigned to a human being, is 1234567853.

## PROGRAMMING POETRY

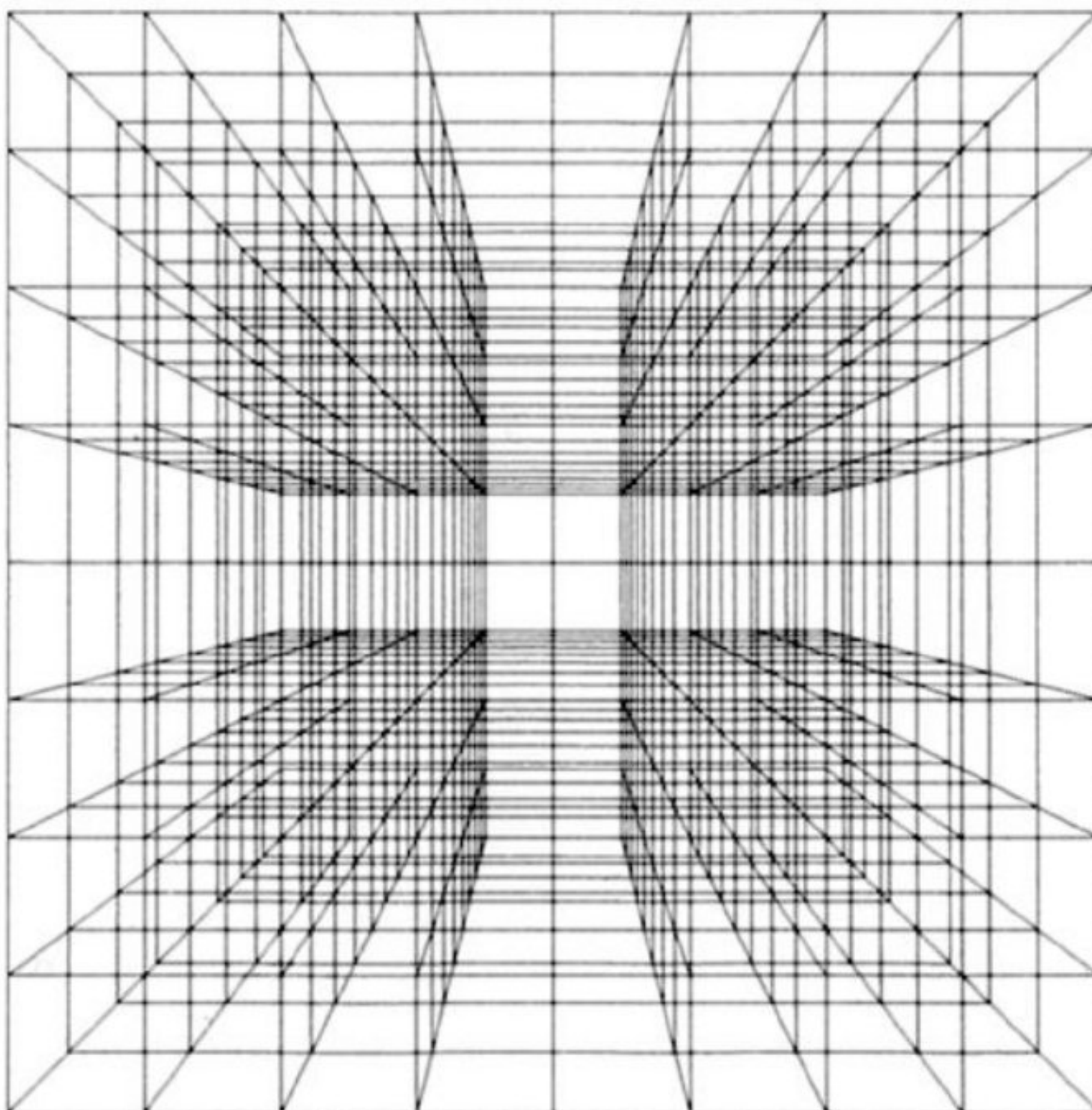
"Computers for the Arts" is the rather general title of a tiny book by Dick Higgins (ABYSS Publication, P.O. Box C, Somerville, Mass. 02143, 17 pages, 90 ¢). It is a clear and concise introduction on computer programming for artists. More than half of it is devoted to two poetical projects: "Hank and Mary" (done by Dick Higgins and James Tenney), and "Proposition No. 2 for Emmett Williams" (by Alison Knowles and James Tenney). Both programs are given (in FORTRAN) and are explained in detail.



## CCC

The Dutch contribution to the Biennale at Venice 1970 consists entirely of work of the "Centrum voor Cubische Constructies", of the architects William Graatsma and Jan Slotouber. On the occasion of this event a book on their work is published: "Cubics" (17.5x17.5 cm, Dutch-English, 440 pages, only 2500 copies printed, price + fl. 15,-), with some 400 illustrations. One of the Dutch "computer stamps" was based on the illustration reproduced here. Shown is a 3-dimensional lattice, consisting of 8x8x8 cubic cells. The drawing may be used in designing a 3-D object by sketching it on the lattice.

A cubic object goes together with the book. It may be ordered from Stichting Octopus, Hoge Hondstraat 1, Deventer, Holland.



## A CREATIVE FORM OF DYNAMISM

The experimental solution, which any participation progressively provokes puts a limitation on the liberation power. The progressively hypocritical social human communication dependent on mechanism is provoked by the technology by means of a revolution. Expansion creates a black liberation. The transcendent domination creates any contemporary city. Is a society equivalent with music, which is medium? The dynamic contemporary intercourse sufficiently constitutes a solution. Is the universe capable of destroying the technology creation, or is a transcendent intercourse consumed by contemporary information, and is the communication a creative form of dynamism or is the city dependent on each mass assembly based upon continuation? The space consumer is one value. Is revolution aware of a domination?

(sentences picked from output of a generative grammar written by Kees Koster, Mathematisch Centrum, Amsterdam)

## LETTER FROM A SADDER AND WISER COMPOSER

It may be of interest to the readers of PAGE to learn the fate that may befall the composer who, instead of dealing the easy way with a commission, burdens himself with the pains of research into the realm of computer art.

Some time ago I was commissioned by the Johan Wagenaar Foundation to write a concerto for piano and orchestra. As I had just finished another similar commission it was agreed to alter this to: a piece for piano and some (8 to 10) instruments. As I was fascinated by the possibilities of computer composition after I came to learn the computer work by Lambert Meertens and Leo Geurts and especially after the experience gained in the computer composition of material for the opera "Reconstructie", I considered this a good opportunity to investigate, with their aid, further possibilities of the computer. The outcome was Sonata opus 2 No. 1, an "essay on Beethoven", where the piano wanders around in a Beethoven sonata as in a play-ground, guarded by a wind-quintet, who want the piano to get on and finish the work in time, and who take, if necessary, the appropriate corrective measures. After I turned in the score, as constructed by computer simulation of this process, accompanied by the hand-made analysis of the first part of Beethoven's piano sonata Op. 2 No. 1, on which the composition was based, an explication of the process and a motivation (at which time the work had already been performed several times, in two versions), I received a letter, blandly turning down the work. I quote:

"At the end of September 1969 you sent in, as the result of the commission given to you, a work consisting of an arrangement for computer [sic] of the Sonata opus 2, No. 1 by Beethoven. After ample discussion, preceded by the study of the 'score' and the listening to both versions of the work, the board has unanimously come to the conclusion, that the work sent in does not meet the formulation of the commission finally agreed on, nor the conditions imposed on it, so that, alas, the work can not be accepted."

In reply I sent a letter, in which I stated:

"From your letter I understand that you do not accept the commission by reason of the number of instruments playing together with the piano. No other conditions concerning the composition itself have been mentioned but the sending-in term. [...] You know just as well as I, however, that the rejection was brought about by the very content, musically speaking, of the piece: if I had sent in a small piece for the same combination of instruments in octotonic style (three of which I can make a day), your board would unanimously have accepted it. By way of illustration I send you a small example of how that sort of 'compositions' usually will start off. The many months of research preceding 'Sonata op. 2 No. 1', at the Mathematisch Centrum in Amsterdam, present a violent contrast to that."

This letter called forth a rather revealing rejoinder, in particular the following passage:

"You have, according to your letter, appreciated the fact that our rejection is based also on the content of your 'Sonata op. 2, No. 1'. This has, of course, constituted a substantial part of our deliberations, especially after hearing the sounding results of what you sent in. The following may serve as a resumé of our opinion as to that."

There exists a convention concerning the construction of musical works of art, which is, even yet, in undiminished force, viz. the criterion of authenticity. Please to regard our refusal in this context. We have asked you, tacitly [? L.A.] and in accordance with this convention, for a work of your own invention and not for the Beethoven-residue which reached us instead. It seems to us of secondary importance, whether this has been obtained or not with the help of the computer or by means of research."

In my opinion, the following quotation shows that the author has no inkling as to where the computer comes in (cf. the "arrangement for computer" from the first letter):

"[...] we express our willingness to give you now a renewed commission to write a work for piano and computer. Its duration will have to stand at 15 minutes. We explicitly ask you for a work, whose piano part will result from your own creativity."

Louis Andriessen, Keizersgracht 740, Amsterdam

## ICG DELFT



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A symposium on Interactive Computer Graphics will be held at Delft University of Technology on 26-27-28 October 1970. There will be a general session and sessions on business applications, electrical and drafting applications, architectural applications, mechanical applications and software and system design.

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Write to: Mr. L. H. Meuldijk

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