SOCIAL RESPONSIBILITY AND THE COMPUTER PROFESSIONAL: THE RISE OF AN IDEA IN AMERICA. PART I.

GUSTAV METZGER

This article seeks to trace the rise of a movement within the computer profession. It is based on three key documents: The Journal of the Association for Computing Machinery (ACM); the Communications of the ACM; the magazine Computers and Automation.

In January 1958, a letter appeared in Computers and Automation condemning the employment of computers in weapons of mass destruction. A similar challenge presented to the ACM on the issue of social responsibility, and is sure to lead to the strengthening of the campaign. (More information on the Counter-Conference elsewhere in this issue of PAGE.)

The theme of the 1971 Spring Joint Computer Conference, Atlantic City, May 18-20, will be RESPONSIBILITY. While one can expect the majority of the papers on the given subjects like data files; law enforcement and the judiciary; national policies; the techniques and practices of embezzlement to be angled in favour of maintaining the trend towards an integrated authoritarian-computer-linked kind of social system, the theme will inevitably permit the extensive discussion of an alternative approach.

The appended bibliography contains all the key references that have appeared in Computers and Automation, and in the Communications of the ACM. In the case of the former, the bibliography traces the origins and the controversy and its development. It includes related areas such as the privacy issue. With the latter publication a conscious attempt was made to list every article, news item etc., that contains the term social responsibility. Beyond this, other issues, such as privacy, law enforcement are included. The article and bibliography is presented with the hope that it will enable the movement to make further progress.

It is quite certain that next year will see a great upsurge of activity. In protest against the decision to hold the 1971 annual meeting of the ACM in Chicago, several hundred members are organizing a boycott. Though the decision by the ACM to its a discussion of this area in relation to the responsibilities of the computer professional. Ever since, the magazine has been engaged in a campaign on this issue. Computers and Automation is also of particular interest to artist since it was the first publication in the world that actively encouraged computer art, by arranging a computer art contest in 1963, which continues to the present day. 
There cannot be any doubt that computer professionals have been informed of the relations of the computer to the government and the military. As Frank E. Heart, MIT/Lincoln Laboratory, makes clear in his remarks in the Foreword to the Proceedings of the Eastern Joint Computer Conference, New York, December 10-12, 1956, H.T. Enstrom, of the National Security Administration, in the Keynote Address, made this point: 'As you all know, the great importance to this art (computing) came from the military during World War II.'

In the Foreword to the Proceedings of the EJC, Philadelphia, December, 1958, Frank E. Heart, MIT/Lincoln Laboratory makes remarks of this sort: 'It is perhaps a convenient rationalization, but I still find the computer an exciting and stimulating domain. The excitement about the computer arises in the same way as the excitement of studying a living body; one may almost feel the changes taking place in society. This enthusiasm for the computer is strongest in the older generation. A few years ago a scientific computer, one of the first in the world, had a special appeal to people who had grown up with the idea of a machine that could be used for scientific purposes. The computer, as a living body, is really a machine that can change, just as we can change. It is not just a machine; it is a living body. It is not just a tool; it is a machine that can be used for scientific purposes.

The American computer profession is focused on two bodies: the Association for Computing Machinery—ACM, and the Joint Computer Conference.

ACM started in 1947 as The Eastern Association for Computing Machinery and is the biggest organization for computer professionals in the world. It is largest in terms of membership, but in fact 68 countries are members, and about 2,500 members—9.4% of the membership—are abroad. Earlier this year a European Region was formed and now has about 1,000 members. The Association is a non-profit organization, and the Executive Committee consists of an elected president and a council elected by the membership. The Journal of the Association for Computing Machinery, In January 1958 a new publication was started—the Communications of the ACM, for Computing Machinery. In the absence, the Journal being a quarterly, whilst the Communications appears monthly, and carries news items, reports on Council activities, business developments, as well as longer articles.

The Digital Computer Newsletter of the Office of Naval Research is one of the first periodicals devoted to the computer. It started in 1951, and is a modest sized quarterly, weighing in at about 20 pages. It appeared quarterly, and when the Journal of the ACM was begun, the Digital Computer Newsletter was reprinted as a supplement, so that we could reach a wider audience. The Communications of the ACM appeared the reprinted the Newsletter was transferred to that publication. On that occasion the following advertisement appeared: "The ACM Newsletter is circulated to all interested military and government agencies and the contractors of the Federal Government. In addition, it is being reprinted in the Communications of the ACM. The Office of Naval Research wishes to contribute to the Newsletter. The Newsletter will assist in improving the contents of this newsletter, and in making it an even better medium of exchange between government laboratories, academic institutions, and industry. It is hoped that the readership will participate in the exchange by transmitting technical material and suggestions to the Office for future issues.' The statement was signed, Editor, Gordon D. Goldstein, Office of Naval Research, Mathematical Sciences Division. On the News Letter of the Patent Office Library, London is dated July, 1988, Vol. 20 No. 3. The Editor is still Mr. Goldstein. In May, 1959, the Newsletter was expanded to include contributions from the ACM due to "space limitations." Indeed the Newsletter had grown considerably since its first issue.

But then growth is the overpowering feature of the computer field. One has only to compare the first issue of the Proceedings of the Joint Computer Conferences with the bulky volume of recent years. The first Conference, held in Philadelphia, December 10-12, 1951, was sponsored by the National Joint Computer Committee, but this was the first to be sponsored by the recently established AFIPS. President of the Joint Conference, Washington, D.C. The Proceedings of the Joint Conference were published, and the conference sponsored by the National Joint Computer Committee.
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 or $3 per year; students half price. Members receive PAPER 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 PAPER for £1 or $3 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, Brocknell, Berkshire.
Secretary: John Lansdown, 50/51 Russell Square, London W.C.1.
Editor of PAPER: Gustav Metzger, BM/Box 151, London W.C.1.
Dutch Branch (CAS): Leo Guitis and Lambert Meertens, Mathematisch Centrum, Tweede Boekehavestraat 49, Amsterdam, Holland.

RENEWAL OF MEMBERSHIP
If you joined the Society before October 1969, your second year’s subscription is due now—unless of course it has already been paid. Members of the Society who joined in April, May or June 1969, and who do not renew their membership will not in future receive copies of the PAPER. Members are asked to renew their membership when it falls due; J. M. Sutcliffe, 4 Binfield Road, Wokingham, Berkshire.

QUICK RESPONSE. Under the heading ARTISTIC ENDEAVOUR the American Computer magazine DATAMATION had a short notice about CAS and PAPER, with an invitation to circle 360 on the reader response card for more information. Within a few weeks of publication 360 computer-printed address labels had arrived in England, and sample copies of PAPER dispatched. DATAMATION has recently changed to a semi-monthly; the notice on CAS appeared on the 15 August.

LONDON
Computer 70 at Olympia, 5–9 October 1970 will have an international exhibition of computer art presented by CAS. The central feature of this mammoth show will be a ‘COMPUEDME’ designed by the Computer Arts Society, in conjunction with Foundation General Systems Ltd. Members of the Society may buy tickets for this event at the reduced price of £5 (normal price £7) and obtain a ticket (from John Lansdown) a guest can accompany you. (Note to readers; The Times; The Financial Times; Science Journal, and other publishers will have special features on the shows. The show includes cathode ray tubes, Twentyfour Hours are planning to present computers nightly during the week.) Public relations for Computer 70 are handled by: D.E. Evans, Leedex Ltd., 100 Whitechapel Road, London, E.1. Tel: 01-427 6525.

SOCIETY MEETINGS

All meetings will start at 7.30 p.m. except for the talk by Willett, they fall on a Wednesday. At the British Computer Society, 29 Portland Place, London, W.1. The meetings are open for members and guests.

PAGE
A note to the new reader. Thousands of copies of this number are being distributed at Olympia at Computer 70. Normally, PAGE consists of one sheet only.

Statements made in the bulletin do not necessarily represent the views of the Computer Arts Society. In the next issue of PAGE we wish to print news and statements relating to recent work by members of the Society. We also wish to have articles on new developments related to computers/writing. Please include contributions of 800 words, and send as soon as possible. We would particularly like to publish information from members living outside Britain. PAGE is now on sale in London at the ICA bookstall, the basement of Better Books, and the computer section at Dillons.

ECOLOGY IN THEORY AND PRACTICE
A course of lectures at the Institute of Contemporary Arts, London, October 1970. 10–15 lectures will be presented. Subjects covered include: Population, Food, Conservation and Wildlife; Marine Ecology; Industrial Pollution; Drugs and Chemicals; Radiolactivity; Chemical and Biological Warfare; The Politics of Ecology. Speakers range from Dr. N.W. Pirie, to Professor Barry Commoner. The American and Soviet Embassies have been asked to send lecturers to talk on their respective countries attitudes towards world ecological issues. The Lecture Organiser is Jonathan Benthall. The lectures will be published by Longman in the autumn of 1971.

The lectures take place on Wednesday evenings at 8 p.m. starting 7 October. Season tickets are on sale now. Tickets for individual lectures will be on sale when available. Readers who want to attend are advised to apply immediately as tickets are likely to be taken up very fast. Contact Alan Lauther, 01-930 0493.

For information on the ACM Counter-Conference 35, August 1971, at the Harvest House Hotel, Boulder, Colorado, write to: David E. Burmaster, Room 903, 546 Main Street, Cambridge, Mass., U.S.A. A letter by Burmaster appears in the August number of Computers and Automation. The August number also contains this year’s computer art contest.

Workshop on the Data Bank Society
A Conference convened jointly by the National Council for Civil Liberties (NCCCL) and Allen & Unwin Limited. To be held at the Bloomsbury Central Hotel Camom Street, London WC1 on Wednesday 18th and Thursday 19th November, 1970.

The NCCCL has been concerned with the issue of computers and privacy for over two years and we have now decided to convene a high level conference to bring together representatives of Government and industry for an intensive and constructive study of the problems and possible solutions. The conference also stems from the impending publication of a book by Dr. Malcolm Warner and Michael Stone entitled “The Data Bank Society”, published by Allen & Unwin Ltd.

The data banks are now being built up in government and commercial enterprises will exercise a profound effect on the course of both our individual and collective lives for decades to come. They could be as beneficial as penicillin or as dangerous as the machine gun.

As yet, practical experience of the use of data banks in the full computer sense is limited. In the past such data banks as existed, and they do, have been under manual control with all the resultant inefficiency that human handling can mean, yet benefiting from the direct personal contact of their operators.

In the future such data banks will be under more remote control, and once established as working systems, will be nearly as unalterable as the Laws of the Medes and Persians.

It is now, immediately, that the technical, legislative, administrative and ethical rules must be established by which such data banks are implemented.

Fees. The inclusive fee for attendance in an individual or organisational capacity will be 20 guineas. The inclusive fee for attendance as a representative of a company will be 30 guineas. Conference facilities and services will include: Morning Coffee, Luncheon, Afternoon Tea, Reception (18 November). Secretariat. Printed Working Papers. Recording Equipment.


The meeting on 19 October 7.30–10 will be open to anyone. Tickets for this meeting will be 10s.

In particular, it is the aim of the organizers that both the special and general sessions will result in the production of a final workshop study which will accurately reflect the attitudes of all participants. A study which will provide them, and others, with a personal guideline in dealing with the problems of the data bank society, which many indeed be significant in ensuring that in our striving for a more integrated society, in which the data bank in all its forms will be a key part, we do not produce a data pollution problem for coming generations.

Draft programme
WEDNESDAY, 18th NOVEMBER, 1970

THURSDAY, 19th NOVEMBER, 1970
A NEW SORT OF COMPUTER?

The Guardian

"The fourth generation of computers is as yet unborn and is likely to remain so, because the emphasis is shifting toward computer usage rather than computer design. This statement by Donald Michie in "The Guardian" is typical of the point of view of people whose thought is dominated by the role of the computer as a machine. The majority of us are concerned with the mechanisation of operations, which, whilst they might be too large, too lengthy or too complex for human capability, involve little or no innovation. In the sense therefore that we have been concerned with what the computer can do in the present, Donald Michie is correct, but to see this as an instruction to look at what the computer of the present day cannot do, is to be from this point of view that my own work takes its departure.

The computer of the present is a numerical processing machine; even when we are not directly concerned with computation as such we are still using a number-theoretic machine in the sense that we place the symbols we are using in a one-to-one relation with binary equivalents of numbers and then find an algorithm or logic in which we relate the relation of "equals" to "is a subset of" and, whilst we may appear to be using different sorts of symbols, alphabets and concepts, we are really using the familiar numbers and equations with different hats on.

Now the analytic number-theoretic approach is fine as long as we are dealing with things which behave like or can be described in terms of linear algebras, algebraic geometries or Boolean logic and which we can define in terms of a set of "rules" or rules of a single-sentence or higher-structure grammar, like a computer programme. But there are immense categories of highly significant phenomena which do not fit linear equations, do not obey in orderly fashion like numbers, do not form number-like or Boolean sets, and which certainly cannot be described using the conventional number-theoretic and algebraic structures that give us language, music, the Arts and mathematics itself, and human society; are all examples of open-ended, evolving, syntactic and quasi-unknown systems. We cannot describe such systems completely from a knowledge of their parts or their "history" in terms of a "priori" rules, as we can with a number-theoretic system, nor can we generate them by simple phrase-structure grammar like a computer programme.

It is my view that the distinction between deterministic and quasi-unknown deterministic systems marks the limits of both our existing computers and much of our existing mathematics. Indeed, almost all the limits of the present day are related to unsolvable or undecidable problems in number theory. Nevertheless, the brain has evolved a different kind of machine-a digital symbol processing machine, is a quasi-deterministic device, and if we are not to assume a metaphysical process, its phenomena must arise from discrete operations. My most recent work has attempted to find an abstract symbol processing machine which would simulate those operations.

The basic difference between the two types of system is that the quasi-unknown deterministic system continuously evolves its structure by bearing changes of state whereas the deterministic system has the whole of its structure predetermined by its "a priori" rules, whether these are so-called natural law or a computer program. I use the term quasi-deterministic and (quasi-) random rather than non-deterministic deliberately to dispose of the idea that evolutionary processes and creation of "new" forms can take place by accident, or that organisation can only arise from "a priori" axioms of the system.

The kind of system we are looking for will be able to observe its own history in terms of changes of state, relate its current state with its previous changes of state, synthesise any possible changes of state and binary sequences with a distinct and very interesting language to describe, identify, locate or "choose" or generate data structures, which are stored elsewhere in the system. The best way to visualise the system is as a network of interfaced decision trees, divergent in the combinatory and convergent in the "choice" and control modes, distributed across the transitive phase space. The current model has three levels of input language and four levels of transitive metalanguage. If one could compute strings the length of DNA in the genetic code, the capacity of the system would be several times larger than the 200 base-code-protein synthesis system of the body, with which it may have affinities.

Work is progressing on a brain model with several levels of short and long term memory in a non-deterministic system of describing computer, based on the concepts we have outlined. A preliminary paper on the mathematical aspects of the work will be ready by the end of the year.

Before concluding I would like to say something about the computer and the arts. What I have said earlier on about the limitations of existing machines, applies even more to their potential use in the arts, since the arts are par excellence the highest expression of the brain's unconscious. I have an uncomfortable feeling that a great deal of existing computer art is a rather sophisticated kind of painting by numbers. I am also rather suspicious of the use of randomisation, as distinct from pseudorandomising which is the selective combinatorial use of structures which have an interest in the study of mathematical identity which may well be significant in natural quasi-deterministic systems. In music, I feel that tremendous things are happening, but I think that these are much more due to an increase in the intuitive awareness of the subtlety of non-linear time series, to which computer and electronic composition have contributed, rather than the direct use of these devices per se.

Although this article has been concerned with the almost impossible task of explaining a very complex and difficult piece of work in general terms, I hope some of the breadth of my practical and philosophical interest has come through.
This time it's for real. Imagine Playboy (the egghold side): the Bulletin of the Atomic Scientists; Dataweek, and Black Dwarf, amalgamated, and distilled into a few pages. This just about wraps up

Real Time. If you are in computers, read it. Display it openly, or read it furtively, depending on circumstances. Best of all, subscribe, ask for it to be sent in a plain envelope, then read it in the security of the home. Subscription: 12s. for six issues (includes postage). Real Time, 65 Hargreaves Park, London, N19. Tel: 01-272 0053. Copies may be inspected (gloves provided) at Dillons, the computer department, (in the basement).


A new anti-war organization is compiling a computer data bank on congressmen to keep abreast of all the decisions, attitudes and situations prevailing on Capitol Hill about the War in Indochina.

Initial efforts by The Continuing Presence in Washington operation involve the storage of the results of student surveys of congressmen in a GE-635 computer data bank housed in Dartmouth College's Kewit Computation Center in Hanover, N.H. "We want to develop a clear picture of what each congressman is doing," said Paul Velleman, CPW's EDP co-ordinator. He said they can do it best through a computer data bank.


The ICA is dedicated to the very laudable task of bridging the gap between the arts and the sciences. In this effort, there is a constant danger that the gap will be bridged by the reduction of art to the style of 'objective' science, a sort of 'objective' art which is dedicated to the elimination of all human bias or subjectivity in its composition. The detailed exploration of certain visual effects or the generation of purely random tonal sequences by computers can expand our range of sensitivity; but they can also become deliberate evasions of the central issue: an understanding and representation of our total being, of our experience and knowledge of ourselves and the world. This is the only possible valid goal of art; and it is also the only possible valid goal of science. Both constitute aspects of the creative dialogue, the interaction between the inner and the outer worlds.

Extract from statement by Dr. Brian Goodwin, University of Essex, printed in the ICA eventsheet, London, August, 1970.
THE ART WORLD ERUPTS
Remember EARTH DAY 22 April, 1970? The art world is about to experience an analogous action. A small cadre of dedicated revolutionary artists from Britain, America and other countries, held a meeting in Amsterdam with the memorable title—INTERNATIONAL COALITION FOR THE LIQUIDATION OF ART. A call was issued for artists to meet in Amsterdam on 20 October 1970 and demonstrate their opposition to the commercialisation of art, and other evils in society. Here are extracts from the manifesto:

INTERNATIONAL COALITION FOR THE LIQUIDATION OF ART
Art today is a monopoly among many others. Art today is a monopoly of creativity. Art today is a monopoly of knowledge. Art museums are the banks of the art world. Art auction houses are the stock exchange of art. Art magazines are the ticker tape. Art galleries are the ships. How can Art works are commodities. Artists are the creators of commodities.

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

ALL ARTISTS WILLING TO PROSTITUTE THEIR FUNCTIONS IN THIS WAY—
ALL ARTISTS WHO USE THE TITLE OF AVANT-GARDE TO HELP CONSERVE THE OLD ELITE.
ALL ARTISTS WHO REFUSE TO JOIN IN ATTACKING THE PRESENT SYSTEM—
ARE SHIT.

THERE IS ONLY ONE SOLUTION.
WE MUST LIQUIDATE THIS CRAZY THING CALLED ART TO MAKE IT POSSIBLE FOR ALL PEOPLE EVERYWHERE TO BE CREATIVE.

IT IS OUR DUTY AS ARTISTS TO BECOME SELF-DESTRUCTIVE IN A CONSTRUCTIVE WAY.
WE MUST LIQUIDATE NOT ONLY OUR OWN FUNCTION AS ARTISTS BUT WE MUST LIQUIDATE THE ART SYSTEM AS WELL.

The artist must liquidate the art world by demonstrating at museums, galleries, and auction houses until the markets collapse. The artist must liquidate the art world by closing down art museums, art councils, and art magazines because they are the tools of an irrelevant society.

ALL ARTISTS WHO CONTINUE TO WORK WITH THE SYSTEM WILL BE REQUIRED TO PRODUCE NOTHING BUT MINIATURES IN ORDER TO LIMIT THE GROWING ART POLLUTION. THOSE WHO DESIRE MAY ALSO BE PERMITTED TO MAKE ARTISTIC PAINTING ON BOMBS BEFORE THEY ARE DROPPED ON PEOPLE.

On the theme: Threats and Promises of Science, LASITOC International held its workshop at Imperial College, London in July. There was plenty of action as the young people from many countries went on with their work. LASITOC—Look at it! Search in it! Try out new concepts in science, study new alternative futures. Plenty of documents emerged from the duplicators as the various groups produced their reports. These are people worth knowing in today's Swedish LASITOC Centre. Jan Fiellander, Astravagen 5, S-181 31 Lidingo 1, Sweden. Tel: Stockholm 08/775 05 73. LASITOC British Centre. Peter Harper, Laboratory of Experimental Psychology, University of Sussex, Brighton, England. Tel: Brighton 0273/6675 ext. 65-66.

Group Integrative is a Centre for Interdisciplinary Socio-Technological Research. It consists of young people from the fields of engineering, architecture, sociology, linguistics, philosophy, criminology, public relations and communications, music, dance and poetry. They have an ambitious programme of information work. (Contact with Centre via Anneken den Heyer, Den Dobbert Steig, 108, 3000 Leuven, Belgium. Tel: 016/20580.)

‘The Next Fifty Years’ a 32-part television report on environmental control during the coming half-century has been produced by Visual Information Systems (15 Columbus Circle, New York 10023). The series features 60 authorities from all disciplines, among them Rene Dubos, Harman Kahn, Charles Abrams and B. Fuller. Each of the 32 programmes has a running time of 25 minutes and each deals with a basic aspect of urban crisis and environmental control. The series is designed for easy viewing, cleverly designed for mass groups.

CAP, Computer/Architecture programs. How can the computer help architects? What is now available for architectural application? Where are they now being used? (Go on.) How can the architect get hold of them? What equipment is available to meet the particular needs of an architect? Would you believe it? These questions are answered in the 3rd volume set of the "Computer/Architecture Programs Reference Manual. Over 120 (hundred and twenty) computer program abstracts are documented, illustrated and categorised according to their functions in the architectural process." Price in U.S. inclusive of post $28.00. From: Center For Environmental Research, 955 Park Square Building, Massachusetts 02116, U.S.A.
BACKGROUND TO COMPUTER ART NO. 4

THE ENVIRONMENTAL CRISIS AND THE ARTIST

Artists gathered in Italy in September to make works in protest at the pollution of one of Italy's loveliest rivers. The action was led by Bruno Munari of Milan, one of the most intelligent and influential artists in the country.

In America an organisation called 'Artists Against Ecological Suicide' has recently been formed. Their first action is based on using blank canvases with sticky resin which are to be exposed to the 'normal' atmosphere in seven major cities. The 'works' will then be sold to fight environmental degradation. Contact is Cori Randle, 162 31 Ninth Avenue, Whitestone New York, U.S.A.

In Britain, the British Society for Social Responsibility in Science, has formed an Art and Technology group. Among other plans, the group intends to mount a series of graphic demonstrations of environmental problems, such as pollution, the recycling of waste products and the potential harmful effects of widely used products. The aim is to bring these issues widely before the public. Anyone with ideas on the subject, or skill and talent which might be useful is asked to make contact. The Secretary of BSSRS is David Dixon, 70, Great Russell Street, London, WC1. 01-242 8535.

The group was connected with the BSSRS demonstration at the annual meeting of the British Association, in Durham last month. The first demonstration sponsored by the group coincided with the opening of the Arts Council's international KINETICS exhibition 24 September, at the Hayward Gallery, London till 22 November, 1970. The work MOBBILE was presented to critics and spectators and driven around London. It consists of a box covered with PVC, and mounted on top of a car. The box contained meat, flowers and vegetables. A tube fed the exhaust of the car into the box, with stunning visual (and chemical) results. The group hopes that the idea will be taken up by people around the world. A Multiple with a difference:

SOUTH AMERICA


| First Seminar: | Art and Social Structure | 25th July |
| Second Seminar: | Art and Industry | 29th August |
| Third Seminar: | Art and the psychological process | 26th Sept. |
| Fifth Seminar: | Art and Science | 28th Nov. |

Meetings take place from 4-8 p.m. The participants will be a multidisciplinary group formed by speakers and disputants. A questionnaire will be discussed by artists, critics, psychologists, sociologists, anthropologists, epistemologists, architects and industrialists. Each speaker will state his ideas for 15 minutes and then the group will discuss them giving arguments in support of or against them.
1) ART AND SOCIAL STRUCTURE. Co-ordinator: Gregorio Klimovsky
   a) What are the artistic languages of the 70's?
   b) Is the artist an element of social change?
   c) Are there any artistic expressions independent of an ideology?
      (form and aesthetic content, form and ideological content).
   d) Is it possible to talk about artistic expression in a situation or
      process of change?

2) ART AND INDUSTRY. Co-ordinator: Jorge Glusberg.
   a) Which are the points of contact between the industrial way of
      thinking and the "oeuvre d'art"?
   b) At which levels do art, technology, design and mass production
      interact?
   c) Do you believe in the possibility of a mass produced "oeuvre
      d'art"?
   d) Is it possible for an artist to work as a professional in an
      industrial enterprise without losing his autonomy?

3) ART AND THE PSYCHOLOGICAL PROCESS. Co-ordinator:
   Fernando Ulloa,
   a) Art as a clustering system of communication.
   b) The attitude of psychologists to the creative faculty and to social
      change.
   c) Is there any place for the psychologist among artists? His role.
   d) Review of the concepts of health and sickness in relation to the
      various contemporary artistic languages.

4) ART AND ARCHITECTURE. Co-ordinator: Carlos A. Mendez
   Mosquera.
   a) Do you think that Architecture in itself is a form of artistic
      expression?
   b) Do you think there exists a correlation between the language of
      contemporary art and today's architecture?
   c) In what way do you see artists and architects working together in
      the common task of shaping the everyday environment?
   d) Which factors from the development of industry, from new
      policies, and from social change, do you foresee having an
      influence on the greater integration of art and architecture?

5) ART AND SCIENCE. Co-ordinator: Manuel Sadosky
   a) Is the gap between artists and scientists decreasing or increasing?
   b) Which scientific knowledge should the artists have, and which
      artistic knowledge should the scientists have?
   c) Which scientific knowledge could the artist apply to his work at
      present?
   d) Which techniques are most related to artistic activity?

Panel for the First Seminar, Art and Social Structure: Martha Berlin
   (psychologist), Ernesto Deira (artist), Jaime Kogan (theatre director),
   Oswaldo Kreimer (sociologist), Lea Lubin (artist), Eduardo Menendez
   (anthropologist), Felipe Noé (artist), Margarita Paksa (artist), Juan
   Pablo Renzi (artist), Marta Slemenson (sociologist), Guillermo
   Whistelow (art critic).
Co-ordinator: Gregorio Klimovsky (epistemologist).

Gallery Bonino  Marcelo T. De Alvear 636  Admission FREE.