j david
Seattle
2/4/74

Environetic Synthesis
Peter Crown - Richard Lowenberg

Dear Friends,

I was very pleased to read of your existance and ideas in a current video magazine, as I have had paraled visions on biologically communicating on a visually synthesized-level. I am finishing my M.F.A. in the painting dept at U. of Washington after 7 years fine arts study in R.I., Atlanta, Ga. and Paris, France. My interests have included works utilizing photographic montage - film - video as well as all the technical training in 2dimentional, 3dimentional art expression, printmaking, graphics, etc.

Currently researching multiple large scale photo copying with cooperation of local I.B.M. facilities for my thesis this spring.

Please send me any and all information on your work thus far. I'm extremely excited about the possibilities of the cosmic consciousness which will inevitably occur. I will feedback and clue you to any experiments taking place here at KCTS and the Artists Television Workshop. Many thanks for whatever you can

(over.)

Send to - Jo David
4142 11th n.e.
Seattle, Wash.
98105

Thanks.

Jo David

DOLPHIN PRODUCTIONS
A DIVISION OF
COMPUTER IMAGE CORPORATION
305
EAST 45th STREET
NEW YORK,
NEW YORK
10017
TELEPHONE
(212) 725-8665

February 8, 1972

Peter Crown, PHD
317 West 92nd Street
New York, New York 10025

In accordance with the application of Dr. Peter Crown and Richard Lowenberg for the use of the computer image animation system, known as "Scanimate", interfacing for a project entitled "Physiological Video Interface" (See proposal attached herewith), the following data is supplied and contains the recommended price breakdown for the project;

1. 56 hours (approximately 5 days) computer time.	$17,400
2. 2 hours approximately videotape stock.....	600
3. 24 hours (approximately 3 days) videotape recording time.	1,920
4. 2 days live camera studio shooting with computer set-up.	2,880
TOTAL	22,800

NOTE: Our proposal is to work in a special category set aside for this type of project known as "Investigation of Computer Systems To Determine Additional Artwork Product Capabilities", therefore, the price in this structure for this project will be $10,000.

TERMS: ½ upon signing of contract and ½ upon completion of project.

Sincerely,

Conrad G. White
Operations Director

CGW/ge

A [illegible]
[illegible]
COMPUTER IMAGE CORPORATION

Special Products and Systems Division

Xerox Corporation
300 North Halstead Street
Pasadena, California 91107
213 351-2351

May 2, 1972

XEROX

Dr. Peter Crown
Department of Psychiatry
New York Medical College
Flower & Fifth Avenue Hospitals
Five East 102nd Street
New York, New York 10029

Dear Peter:

I enjoyed your letter and am looking forward to trying out the video tapes, both on myself for reactions and with some key associates. The proposal seems sound, though it will take a lot of internal selling to get Xerox to agree that this is a good place for their money. The gentlemen in Corporate Relations and Advertising are pretty creative people, so I am not at all discouraged about the effort.

The entertainment value may be the most easily commercialized aspect of an environment that is controlled by a human response. Dr. Nowlis has already been asked by a dance hall to set up such equipment (he could not, due to the press of other obligations). However, he and Dr. Edward Wortz (both Garrett AirResearch Corporation) sponsored the first Habitability Conference last year, and in that conference, much of the environment was alterable to affect the participants, coaching them into a more open mood. I believe it is fair to say that that was a highly successful effort.

Also, it occurs to me that you may want to harness some T'ai C'hi Chuan adepts into your apparatus, since they stress control of bodily movements ... with balance and flow being paramount. For students of dance, T'ai C'hi and other movement-oriented training, the interaction of a personally-sensitive environment should be positive. If so, an educationally-oriented market might develop. Certainly if some people are willing to pay heavily for seeing their golf strokes through videotape, others may be willing to have their bodily states fed back, so they can learn new skills.

I'll write or call after seeing the video materials.

Warm regards,

Roy Lahr

Roy J. Lahr
Manager, Special Projects

RJL:ef

Special Products and Systems Division

Xerox Corporation
300 North Halstead Street
Pasadena, California 91107
213 351-2351

XEROX

June 5, 1972

Dr. Peter Crown
Department of Psychiatry
New York College of Medicine
5 East 102nd Street
New York, New York 10029

Dear Peter:

As you can see, I never quite got there to visit. I am certainly hoping to get to New York soon and I will indeed call so that we can get together.

The general reaction to screening the video tape that I sent back to you was somewhat disappointing. The major problem was not knowing how well the video tape was reproducing what you had in mind. I think that I must wait to see your latest output before I can get an accurate idea of whether our communications group in Stamford would really be interested.

If you have any descriptions of some of your latest material, such as what sort of visual effects you were trying to produce, I can keep the communications group informed. I don't want their interest to die if it should be more than a few weeks until I get to New York City.

Regards,

Roy J. Lahr
Manager, Special Projects

RJL:ef

317 West 92nd St.
New York, N.Y. 10025
U.S.A. Feb. 9, 1974

Mr. Peter Lundberg
S:t Sigfridsgaten 17
412 66 Goteborg
SWEDEN

Dear Peter Lundberg,

I have just rediscovered your letter in a pile of books and papers. Please accept my sincere apology for taking so long to answer your letter.

Since the Radical Software article, Richard Lowenberg has moved to California where he is doing video animation with a new chroma key apparatus called technamat. If you want to reach him, write: 126 Redwood Drive; Box 736; Woodacre, California 94973.

I have joined forces with the TV Lab, a grant-supported experimental wing of WNET, the local public broadcast station. Briefly, my activities here include 1) working on the biological-video interface which has resulted in some videotapes called "Physio-Video", 2) using our hardware to produce stimulus video tapes for experiments in perception, and 3) I have become interested in the concept of the "TV addict", a problem which I believe is more prevalent in the US than in Europe. Anyway, I have applied for a research grant to study this phenomenon, as well as studying what factors in video images increase or decrease attention.

I work closely with Bill Etra of Rutt/Etra, he being one of the creators of the synthesizer, and myself being an artist in residence and physiological psychologist.

You might want to contact Bodo Kessler of WDR-TV, Musikabteilung, 5 Koln 1, W-Germany, as his people are making a documentary on the future

of experimental television. They shot a tremendous amount of footage here, including some of my work with Etra, Bell Labs computer digital video, etc.

The Rutt/Etra video synthesizer apparently is easily adapted to European systems, so if you are interested in this area, hardware should be no problem.

This has been sketchy information in that so much has happened since you wrote to me, I don't know exactly what to tell you. I hope that this is helpful. Please write again if you want some more information, and I will not lose your letter this time!

With best regards,

Peter Crown.

APPLIED MATHEMATICS DIVISION
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Telephone 58 769 *Box 196 Wellington, New Zealand*

24 Sept 1973

Environetic Synthesis
Peter Crown-Richard Lowenberg
317 West 92nd St
New York, N.Y. 10025

Dear Psychic Spacemen,

We would very much like to know more about the equipment you are xxx using, if you have any publications for sale, and if you could place us on your regular mailing list.

Many thanks

Yours sincerely

R.B.Nicholls

Richard Rosa
Harbinger Recordings
Box 384
Oakland, Ca 94604

317 West 92nd St.
New York, N.Y. 10025
November 26, 1973

Dear Richard,

Thanks for the letter and notes on your trip. To catch you up on ES projects: most of the work in NY is now happening at WNET-TV where there is a TV lab. Richard Lowenberg is carrying on things at 126 Redwood Drive; Woodacre, Ca. 94973.

My main activity is now the same sort of thing described in the last part of the article in RS...only I'm using more activities than just dance. I'm not really into environments per se , except for total video. I feel that physiological responses are not sensitive enough to the more subtle mood changes that would have to be monitored for an interesting environment to be created. So I'm more into the artistic aspects of the system, at least for now.

We don't have a newsletter. We have a tape called Physio-Video but all the dubs are out now at Colleges, etc. Usually we get $10.00 when we send one out, but freebees for the needy are also considered.

317 W. 92nd St.
New York, N.Y. 10025
(212) 749-0853

Dear Graham,

Many thanks for your letter. I enjoyed very much hearing about Electrons, Photons and People, and hope I get to see your work someday. Perhaps I will enjoy the extravagance of rapping with you on the phone.

About contacts: Richard Lowenberg of ES is now located in California. He does make trips to the southwest so perhaps you would want to write to him: Box 736; Woodacre, Ca. 94973. I also go to Arizona frequently and maybe will get to see you there.

Most of my work now is happening at WNET/TV 13 here in NYC. While you are working with location in space, I am working with the utilisation of biological body function to control video through the video synthesizer. The results have been extremely interesting as video, but so far we are not sophisticated enough so that it makes life more interesting for the dancer, save for the video effects he/she creates. The work is continuing, and we are exploring areas other than dance as well.

The idea of wiring an audience for there subjective response is intriguing, but I so far don't have a lot of faith in it as a whorthwhile project in any of the proposals I have heard. It would be very easy to have a very gadgety system of interest, but the chances of really getting audience subjective response are small as I see it.

I'm curious to know what your primitive video synthesizer is and does, and whether you have heard about the Paik/Abe and Rutt/Etra synthesizers? (The ones now at NET).

317 West 92nd St.
New York, N.Y. 10025
October 1, 1973

Mr. R.B.Nicholls
Applied Mathematics Division
Department of Scientific and
Industrial Research
Box 196
Wellington, New Zealand

Dear Mr. Nicholls:

Thank you for your inquiry. At this time we do not have any publications for sale, but there are some video tapes available on a rental basis. Since most Environetic Synthesis work is now being carried out at the TV Lab of WNET-TV (Channel 13 in New York), much of the work is technically their property, and the rental would be so arranged.

The video tapes available are general experimental and art pieces done on the Rutt/Etra video synthesizer, and "Physio-Video" pieces, made by interfacing electrophysiological monitors with the synthesizer. The EKG, EMG and EEG are monitored with a Narco Bio-Sytem telemetry unit. The receiver is patched directly to the synthesizer, and the bio signals used as control voltages. The rental price is probably about US $75.00/mo for a half-hour color 1/2" tape.

The TV Lab has IVC 1" tape decks, a Grass Valley Switcher, the Paik/Abe video synthesizer and the Rutt/Etra.

I have taken note of your address and will send you news of ES as it comes along.

Sincerely yours,
Peter Crown
Peter Crown

ENVIRONETIC SYNTHESIS

Project Proposal: To be done with Computer Image Corporation.

I. Processing of pre-recorded tape (No studio time required)

The input to the computer would be the audio track from a pre-recorded video tape. Prior to producing this tape it would be necessary to run preliminary tests to determine necessary characteristics of the audio signal, and tests of filtering, integration, etc., so that the final input is compatible with the computer system. The system would then be used to:

a) manipulate the pre-recorded video image itself, or

b) manipulate a geometric design, mandala or other figure. The pre-recorded video would be keyed against this background.

II. Studio project - monitoring device on the performer provides a DC or low frequency AC signal, which is used as input to computer. Then the same, procedures as A and B above would be followed (in case A, instead of a pre-recorded video image, the live camera output would be manipulated).

The end-product of both the above would be a 2-inch videotape, and possibly a 16mm film of the final tape.

Richard Lowenberg

Peter Crown, Ph.D.

January 31, 1972

Environetic Synthesis

Techno-Sensory Interface Projects

INTRODUCTION

The purpose of these projects is to explore and develop the interfacing, and hence, interrelationships of bio-feedback systems (physio-psychological) with sensory display systems (video-audio), and to produce video tape and film documentation of these processes and the resultant products. The projects will encorporate existing technologies used in bio-medical engineering, physio-psychology, computer video graphics and electronic music synthesis within a framework of a comprehensive art-communication systems theory and application.

The overall project is an expression of three general principles which we hold, and which in some cases are substantiated by observations made with the artistic and scientific communities. The first is that one's subjective state of experience (consciousness) is expressed to some extent by physio-psychological activity such as the EEG (brain waves), EMG (muscle activity), skin temperature and electrical properties, and that by monitoring and displaying these variables, one can identify and control them and the associated subjective states. New forms of non-verbal communication employing these modalities is an imminent possibility.

The second principle we follow is that Man, being part of a natural order, responds intuitively to the orders and patterns which exist in nature on macroscopic, microscopic, and familiar levels, and that this response is of artistic value, scientific value, and often a combination of the two.

The third, and most obvious principle is that the rapid growth and development of new technologies provides new and different modes of expression to the artist. Photographic film (black and white, and then color), motion pictures, radio and television are technologies in wide use, while computers, holography, 3-D techniques and man-machine interfacing are still largely on exploratory levels from the artist's point of view, and their further exploration promises interesting developments.

INTRODUCTION - Continued

Within this broad approach we propose a number of individual projects with specific goals, each working with specific aspects of this art-systems interface, with eventual symbiotic union of all factors to create a comprehensive systems presentation.

SPECIFIC PROJECTS

I. Dance: EMG Interface With Audio-Video Environment

EMG (Electromyogram) refers to the bioelectric potential generated by muscle cells. These potentials can be monitored, amplified, and transmitted by telemetry, so that the bioelectric potentials of a dancer's muscles can be observed while the dancer is free to move about, unencumbered. These electrical signals, which are related to the dancer's movements, are to be interfaced with 1) electronic music synthesizer systems, and 2) computer-controlled, color video systems. With this arrangement, the dance itself generates the musical visual environment in which the dance takes place.Computer control of video is now in commercial use, and proves to be a reliable, flexible technique for synthesizing unusual and pleasing video images. The final presentation is on videotape or film. Live presentations of the entire system are also feasible.

Personnel and Resources

Richard Lowenberg

Peter Crown, Ph.D. Physiopsychologist

Nick Pavel, biomedical engineer

The Multi-Gravitational Dance Group (Space for Innovative Development)

Computer Image Corporation; 305 East 45th St.; New York City

Purchase of, or access to:

Multi-chanel FM telemetry system

Computer-video system (Computer Image Corp.)

Music synthesizer system (such as ARP, Moog, Putney, etc.)

II. EEG (Brain Wave) Interface with Video-Audio Display

The human EEG (Electroencephalogram, or brain waves) can be monitored and telemetered with the same techniques and hardware described in Project I. In this instance, the electrical activity of the brain, rather than muscles, generates the audio and video displays. The system operates in either open- or closed-loop fashion, or both. That is, the display generated by one person's brain is pleasing to other observers (open-loop), but the individual being monitored can interact with the system himself (closed-loop). By practicing control over his moods, level of alertness and other psychological variables, the individual actively participates with the system to achieve the desired internal and external effects. This system can be used to produce videotapes, film, or live performances.

Personnel and Resources

Same as Project I

Project III: Interfacing Naturally Occurring Phenomena With Audio-Video Systems

Phenomena occurring in nature often are organized so that they are intrinsically pleasing to Man. Fluctuations in the Earth's magnetic field, for example, have been converted into music via computer interfacing (Charles Dodge, Nonesuch Records). This project would add a video component to such phenomena so that naturally occurring events would create Video (and audio) presentations. The hardware is similar to that described in project I, but rather than using human bioelectric activity at the input, recordings from radiotelescopes, seismographs, satelite sensors of solar winds, and so on, would be used. The purpose of this project is to take sources from nature and illustrate them by computer-video-audio interfacing, so that they may be appreciated in general presentations.

Personnel and Resources

Multi-channel instrumentation tape recorder (Hewlett-Packard, Ampex, etc.)

Music Synthesizer

Computer Image Corp.

FUTURE PLANS AND POSSIBLE OUTCOMES

We regard these short-term projects as ground-work leading to wider applications in the visual and performing arts, environmental design, and human communications and modes of interaction.

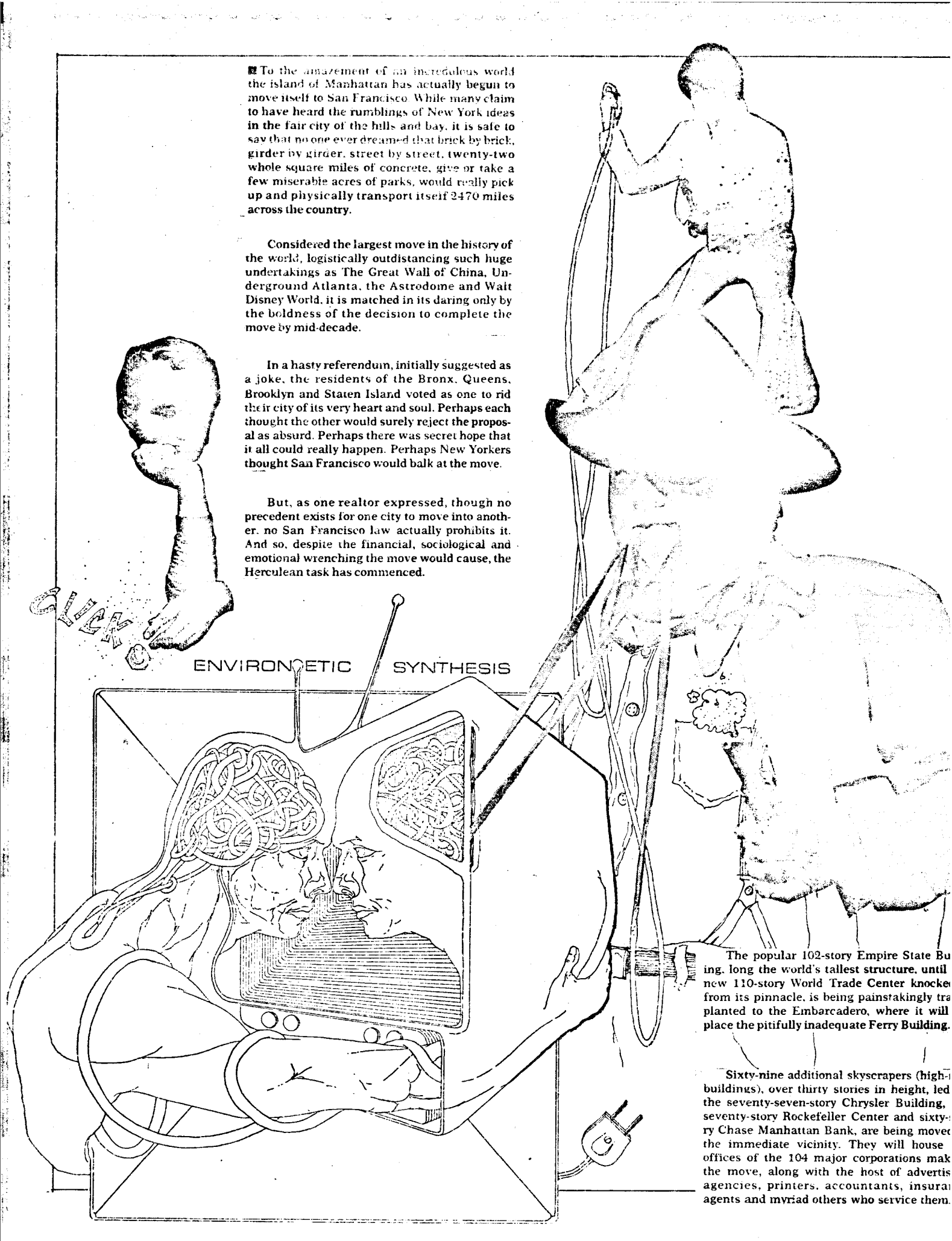
* Group contingent non-verbal communication utilizing bio-feedback techniques.
* Applications of bio-feedback displays to theater-like situations, particularly for audience participation.
* Environmental design according to physiological needs.
* Long distance communication-participation in bio-feedback experiences via trans-Atlantic cable, satelite, etc. , permitting language-free communication.
* Increasing our general understanding and appreciation of natural phenomena and forms in nature which are generally limited to scientists by transforming them to more artistic modalities.
* Three-dimensional motion pictures and video generated by computer interaction with original two-dimensional format.
* 3-D synthesized entirely by computer animation.
* Theater arts taking place in "on-line" video environment.
* Exploration of magnetic display systems, now under development at Harvard University.

To the amazement of an incredulous world the island of Manhattan has actually begun to move itself to San Francisco. While many claim to have heard the rumblings of New York ideas in the fair city of the hills and bay, it is safe to say that no one ever dreamed that brick by brick, girder by girder, street by street, twenty-two whole square miles of concrete, give or take a few miserable acres of parks, would really pick up and physically transport itself 2470 miles across the country.

Considered the largest move in the history of the world, logistically outdistancing such huge undertakings as The Great Wall of China, Underground Atlanta, the Astrodome and Walt Disney World, it is matched in its daring only by the boldness of the decision to complete the move by mid-decade.

In a hasty referendum, initially suggested as a joke, the residents of the Bronx, Queens, Brooklyn and Staten Island voted as one to rid their city of its very heart and soul. Perhaps each thought the other would surely reject the proposal as absurd. Perhaps there was secret hope that it all could really happen. Perhaps New Yorkers thought San Francisco would balk at the move.

But, as one realtor expressed, though no precedent exists for one city to move into another, no San Francisco law actually prohibits it. And so, despite the financial, sociological and emotional wrenching the move would cause, the Herculean task has commenced.



The popular 102-story Empire State Bu
ing, long the world's tallest structure, until
new 110-story World Trade Center knocke
from its pinnacle, is being painstakingly tra
planted to the Embarcadero, where it will
place the pitifully inadequate Ferry Building.

Sixty-nine additional skyscrapers (high-
buildings), over thirty stories in height, led
the seventy-seven-story Chrysler Building,
seventy-story Rockefeller Center and sixty-
ry Chase Manhattan Bank, are being moved
the immediate vicinity. They will house
offices of the 104 major corporations mak
the move, along with the host of advertis
agencies, printers, accountants, insura
agents and myriad others who service them.

Joseph Cucchiara, Ph.D. candidate

College of Environmental Design
Department of Architecture

Spring, 1972

The Reconnaissance Project

WHAT:

Proposal for a Reconnaissance Project to explore the possibility for the establishment of an environmental design education video communications network and an open in-depth dialogue of how this might effectively come about.

WHY:

It is first of all important to note that the general concept of a decentralized television network has already been made operational.

Briefly, the idea is that the present form of Broadcast Television is unresponsive to the comprehensive information needs of people and that popular access to new media encouraging participation rather than passivity is needed. Access, and a reversal of the traditional role of the TV viewer are possible through community originated video programming on local cable television systems and through the "alternative video network" idea of simply exchanging tapes through the mail. Both the network and the cable exist now, but their potentials have been largely untapped by established educational structures.

OBJECTIVES:

Through the vehicle of travel and personal inquiry, the Reconnaissance Project's primary objectives are to:

1. Find sources of information for the feasibility of an environmental design education video communications network, and to explore the possibilities for the establishment of a "newborn video exchange network center" for the Western United States in the College of Environmental Design, Department of Architecture, Berkeley.
2. To explore potentials for expanding the open boundaries and enrich the content of an environmental information exchange network.
3. At the very least contacts will be made and the process of exchanging information with the Department of Architecture, University of California, Berkeley, will be set in motion.

INTENT:

The intent of the Reconnaissance Project is to seek out, make contact with, exchange current information, and arrange for continued communications via the video media (while not discouraging other media formats). The information content will relate to the interest of the Department of Architecture at Berkeley.

EXPECTATIONS:

The expectations of the Reconnaissance Project is that the traveler(s),

equipped with a portable video tape recorder (arrangements must be made for the purchase or loan of such equipment), will visit educational and private institutions involved in the built environment, significant environments finished or in progress, conferences, interested individuals and a host of unpredictable places (see attached itinerary).

HOW:

The traveler(s) will carry representative tapes and information from and about the video work already undergone in the Department of Architecture at Berkeley to be used as "calling cards" to other international groups. Activities will no doubt vary from situation to situation, from making a tape with the carried unit, exchanging tapes, making use of equipment in visited areas, etc.

WHEN:

The Reconnaissance Project will take place from May through September of 1972.

WHO:

Joseph Cucchiara, Ph.D. candidate, Department of Architecture, College of Environmental Design, University of California, Berkeley. The Reconnaissance Project will be of direct application to the work in progress for a media synthesis for problems of architectural communication.

Note: A simultaneous Reconnaissance Project is scheduled for May, 1972 for 12 to 18 months by Joel Goodman, Lecturer at the School of Architecture and Landscape Architecture, University of Minnesota. Discussions with Joel Goodman at the Environmental Video Event sponsored by the Built Environment Communications Center at the University of Minnesota, School of Architecture and Landscape Architecture, April 27-30, 1972, sparked interest in a joint effort of exploration.

WHERE:

Conference Itinerary:

ITALY, Domus 4 Exhibit, Experimental Interior Environments, Torino, Italy, May 18-June 4. Video groups will be present at this event to both document and participate in creating an electronic environment.

SWEDEN, United Nations Conference on the Human Environment, Stockholm, Sweden, June 5-16. Simultaneous to this meeting other private environmental groups like the Club of Rome will be having a conference. Media groups will be present discussing the state of tele-communication.

ENGLAND, International Institute of Design, Summer Session '72, London, England, July 29th-August 25th, media information exchange and workshop presentations.

ENGLAND, International Carnival for Experimental Sounds, London, England, August 13-26, all major international video groups will be making presentations here and arranging for future exchange and collaboration.

BULGARIA, Union of International Architects, 11th Annual Conference, Varna, Bulgaria, September 25-30.

PEOPLE, PLACES AND INSTITUTIONS:

ENGLAND, contacts through Andrew Rabenek, Building Systems Development, London; James Mellor at the AA doing video work in Architecture; University of London, Department of Architecture.

AUSTRIA, Sepp Frank in Vienna, an old Berkeley buddy of Andrew Rabenek's who is making video contacts in the area of Vienna.

ISRAEL, Isaac Haissman in Tel Aviv, doing video work there; Avrahan Wackman, Israel Institute of Technology, concerned with Information Structures, used to teach Morphology at Department of Architecture at Berkeley, will be making video contacts in the area.

FRANCE, Yona Friedman in Paris, France, doing video tapes on urban design problems.

SCOTLAND, Mackintoch School of Architecture, Glasgow, Scotland, video in architecture work being done there.

AUSTRALIA, Western Australian Institute of Technology, Department of Architecture, Bentley, West Australia, 4th year architecture students concerned with non-verbal communications in the environment, can arrange for 1/2"and 1" video equipment for our use.

YUGOSLAVIA, Frank Nemeth, Fullbright student at Beogrod University, will make contacts of video work going on in the area.

NIGERIA, John Myers, Director of the School of Environmental Design, Lagos, Nigeria, concerned with communication as the basis for the built environment and the necessity to communicate out to a broader public, views environmental design as a large broadcast network.

GREECE, Doxiados, Center of Ekistics in Delos, Greece, meeting between Margaret Mead, Bucky Fuller and Doxiados to take place on a boat cruise.

GERMANY, Frei Otto, Institute of Lightweight Structures, Stuttgard, Germany.

SWITZERLAND, Nickolas Morganthauer, past member of Atelier Five, contacts for video work going on in Switzerland.

JAPAN, Kenzo Tange, Office of Kenzo Tange and the University of Tokyo, Communications as a philosophical base for the environment.

CALIFORNIA

SF. RADICAL LABS. - BRUCE HATCH - 759 HARRISON ST. - 362 9229
ELECTRONIC MUSIC/RECORDING STUDIO (MOOG) S.F.

DR. JOE. KAMYA - LANGLEY PORTER NEURO-PSYCHIATRIC INSTITUTE @
U.C. MED. CENTER. 1431 4TH AVE. 731 4476 S.F.
ALPHA-BRAIN WAVE RESEARCH

DONALD BUCHLA - OAKLAND / MILLS COLLEGE ELECTRONIC MUSIC CEN
DEVELOPER OF BUCHLA SYNTHESIZER

ALAN RUCKER - STANFORD U./PORTOLA INST. - 1021 COLLEGE AVE, PALO A
VIDEO

ANN HALPRIN - DANCERS WORKSHOP - 321 DIVISIDERO - 626 0414 S
LAWRENCE HALPRIN (HOME) 15 RAVINE WAY, KENTFIELD 461 536
PLANNER - LANDSCAPE ARCHITECT.

SPECIAL DATA SYSTEMS, INC. - 132 AERO CAMINO, GOLETA, CAL.
COMPUTER DISPLAY/COMMUNICATIONS SYSTEMS.

NATIONAL CENTER FOR EXPERIMENTS IN TELEVISION - PAUL KAUFMAN
VIDEO SYNTHESIZER - STEPHEN BECK. S.F.

BIO FEEDBACK RESEARCH SOCIETY - DR. BARBARA BROWN
CHIEF OF EXPERIMENTAL PSYCHOLOGY - VETERAN'S ADMINIST
RATION HOSPITAL, SEPULVEDA, CAL.

PHIL. MORTON - 1839 S. HALSTED ST. - VIDEO

LEIF BROSH - P.O. BOX 4557 - AUDIO COMMUNICATION-ENVIRON. DESIGN

ART INST. OF CHICAGO, MICHIGAN AVE. & ADAMS ST., CHICAGO 60603

COMPUTER IMAGE CORP. 2475 W. 2ND AVE, DENVER
FRANCIS HONEY - ON-LINE ANALOGUE VIDEO-FILM COMPUTER

N.Y.C.

EXPERIMENTS IN ART & TECHNOLOGY · 235 PARK AVE. SOUTH, N.Y.
BOB WHITMAN/PETER POOLE

C.T.L. ELECTRONICS - 86 W. BROADWAY. 2330754.
VIDEO PRODUCTS/SERVICE

THE EGG STORE - READE ST. - FRANK CAVESTANI
1/2" & 1" VIDEO PRODUCTION/EXPERIMENTATION

DR. EDGAR COONS · N.Y.U. DEPT. OF PSYCHOLOGY. /4 WASHINTON SQ. VILL
ELECTRICAL STIMULATION OF THE BRAIN/MUSICIAN
CO-FOUNDER w/D. ROSENBOOM OF THE BIO-FEEDBACK QUARTET.

"THE KITCHEN" ELECTRONIC MEDIA LAB. 240 MERCER St. 475 986
WOODY & STEINA VASULKA - VIDEO/RHYS CHATHAM - ELECTRONIC MU
DIMITRI DEVYATKIN - PERCEPTION & CYBERNETICS/
SHRIDHAR BAPAT - VIDEO (PROGRAMS - WORKSHOPS)

VIC GIOSCIA - EXEC. DIRECTOR @ CENTER FOR STUDY OF SOCIAL CHANG
30 W. 60 ST. #1-C /OR ROOSEVELT HOSPITAL/OR DELPHI U.
(EARLY INFLUENCE ON RAINDANCE PEOPLE.)

CY GRIFFIN - 86 W. BROADWAY % C.T.L. ELECTRONICS.
PUBLISHER OF "VIDEO TOOLS" (NEW PERIODICAL)

DRS. ELMER & ALICE GREEN, MENNINGER FOUNDATION, TOPEKA, KANSAS
BIO-FEEDBACK (BLOOD PRESSURE/THETA WAVES)

DR. LES. FEHMI, DEPT. OF PSYCHOLOGY, STONYBROOK, N.Y.
BIO-FEEDBACK & CREATIVITY

GRAHAM FOUNDATION FOR ADVANCEMENT IN THE FINE ARTS,
4 W. BURTON PL., CHICAGO
ART/ARCHITECTURE/ENVIRONMENTAL DESIGN GRANTS.

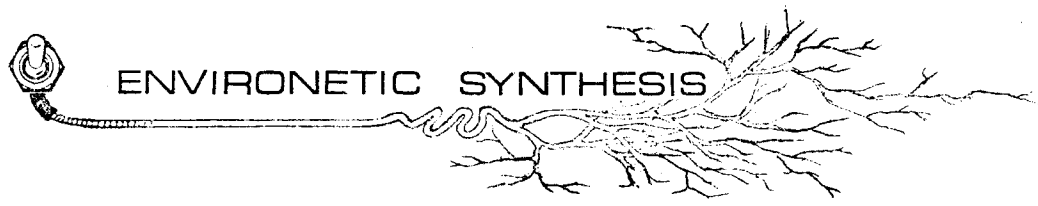
SAM CARTER, 340 SPADINA AVE., TORONTO, ONT. 366 0178 (416)
LIASON FOR B. FULLER'S WORLD GAME PROJECT.

WORLD DESIGN WORKSHOP - DR. DON WEATHERLY, DEPT. OF CLINICAL
PSYCHOLOGY, U. OF COLO., BOULDER
ADVENTURES TRAILS SURVIVAL SCHOOL, BLACKHAWK, COLOR
EXPERIMENTAL BRAIN RESEARCH & ENVIRON. DESIGN.

DAVID ROSENBOOM c/o D. BEHRMAN, GATEHILL ROAD, STONYPOINT, N
914-947-3372 ELECTRONIC COMPOSER - BRAINWAVES -
SYSTEMS DESIGNER - THEORIST.

CENTER FOR GESTALT LEARNING - JOHN GREYSON
AUCHINACHLE RD., DUNCAN, B.C., CANADA
PUBLISHER OF "RESEARCH"

"SYNTHESIS" 1315 4th ST., MINNEAPOLIS, MINN. 55414
ELECTRONIC MUSIC/SYSTEMS PUBLICATION



DEC. 23, '72
2529½ ETNA ST.
BERZERKELEY, U.S.A.

DEAR PETER,

SORRY FOR THE DELAY IN WRITING. LET ME WISH YOU A HAPPY + HOLIDAY SEASON; MAY YOUR STOCKINGS BE FILLED TO OVERFLOWING, AND YOUR NEW YEAR, NOT TOO STRAIGHT.

ENCLOSED IS SOME NEW MATERIAL, I PROMISED TO SEND. PLEASE SEND THE MATERIAL ON ELECTRODE & ACCELEROMETER PLACEMENT AND ANYTHING ELSE OF RELEVANCE. & I'M INTO IT NOW, & WOULD LIKE TO PUT TOGETHER THE N.C.E.T. INFO. AS I MENTIONED, THE MARINE MAMMAL PROJECT NOW SEEMS MORE FEASIBLE USING KILLER WHALES BECAUSE OF THEIR TONAL RESPONCES & LEARNING ABILITIES. I'M WAITING FOR A REPLY FROM DR. POULTER AT THE BIO-SONAR LAB, DR. SPONG, & OTHERS. HAVE ALSO GOTTEN ACCESS TO VIDEO EQUIP'T & ARP SYNTESIZER, AS WELL AS AN INTERESTED DANCE GROUP, AND WOULD LIKE TO START THE MUSCLE CONTROL WORK. WHAT ABOUT A TELEMETRY UNIT OR THE EXISTING "BOX"? ALSO, THE TAPE DUPES?

I'M SENDING OUT LOTS OF # INITIAL MATERIAL TO GRANTING ORGANIZATIONS, NOW, INCLUDING XEROX; NAT'L ENDOWMENT FOR THE ARTS; CETACEAN RESEARCH FUNDS; ROSWELL, N.M. MUSEUM OF ART, ARTIST IN RESIDENCE PROGRAM; & OTHERS. PLEASE SEE ROSS CONNOR @ N.Y. STATE COUNCIL, AND CHECK FOUNDATIONS LIBRARY. WHAT ABOUT N.E.T. & D. LOXTON? ALSO, LES. FEHMI? DID YOU CALL MR. BARANIK @ ART STUDENT'S LEAGUE, ABOUT RECORDING JOB? THE MUSEUM OF MODERN ART IS ASSEMBLING A BIG VIDEO SHOW. IT WOULD BE BENEFICIAL TO CHECK INTO PARTICIPATION. LET ME KNOW.

I'VE BEEN TOLD THAT THE CHICAGO ART INSTITUTE INCLUDED MY DRAWING OF THE REFLECTIVE FACE IN ONE OF ITS PUBLICATIONS. HAVEN'T SEEN IT YET, BUT WONDER HOW THAT CAME ABOUT. TIME TO CHECK INTO COPYRIGHTS ON OUR WORK.

WHAT ABOUT YOUR JOB & PLANS FOR THE PRESENT & NEAR FUTURE? PLEASE WRITE OR CALL SOON. I'LL BE AT MIKE & MARIKA'S (843 8376) UNTIL JAN. 7. HELLO TO JUDY. BEST WISHES TO N.Y.C.

Rich.

We are, on this page, involved in a graphic means of verbal communication.

Through a long, round about process, man is now coming to realize that verbal communication is a very limited medium, and that information exchange exists on many levels, some quite apparent, such as vision, and others so subliminal, transmissions of energy, that they usually escape our conscious sensory cognizance. This information, however, has no less effect upon our lives or upon any natural processes, being an integral part thereof.

Being a creature whose normal functions seem to include having to constantly explore and rationalize his very existance and the universal stimuli that surround him, man, at this time in his evolution and understanding, is confronted with numerous questions.

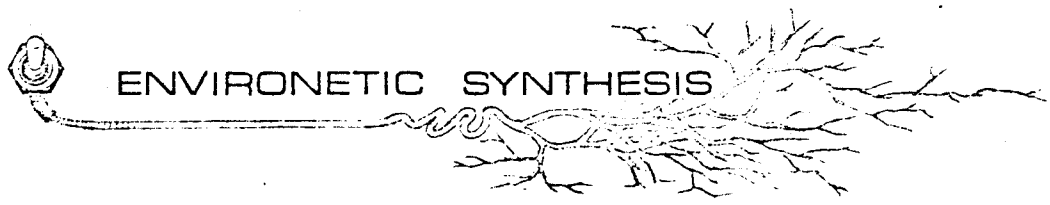
Are there other highly developed sensory communication processes employed by living systems on this planet and beyond it; how do they function; and how do they relate to their immediate environment and to man?

How do the energy forms that exist in nature: cosmic rays, x-rays, pulsars; and those that are man simulated: radio and television transmission, radar, affect natural processes and balances in man and other living systems?

How and to what extent can this information be better realized and understood in terms of achieving a greater universal harmony?

Much attention and effort has recently been directed towards the study of marine mammals (whales, seals, dolphins, etc.) because of their highly developed sensory processes and the ability of many species to instinctively relate well, often in an extraordinary manner, to man.

This, therefore, is the basis for the following project.



Interspecies Communications Display

A. Premise

To develop a presentation system to explore and develop interspecies communication. Designed as a self regenerative feedback loop, all elements therein being contingient upon the whole system in creating the desired output/processes.

B. Project Structure

1. Subjects for monitored response to given environmental stimuli: Man, Dolphin (Tursiops Truncatus?), Plant (?).
2. Response processing and display systems: Electronic audio synthesizer (Arp), Telemetric E.M.G. equipment, Oscilloscope, Video equipment, Hydrophones, Plant physiological monitoring equipment.
3. Information
   a. Physical data charts on each of the three subjects and details on hardware being used.
   b. Basis for project.
      - Research to date on interspecies communication, as related specifically to man, dolphins and plant life.
      - Bio-feedback systems and research.
      - Technical data for this specific interspecies interface.
      - Future implications and applications in the sciences, arts and nonverbal communications.
4. Videotape documentation.

C. Processes (subject to change with further study and development)

(The dolphin is selected as a random point in the feedback loop to begin the process description.)

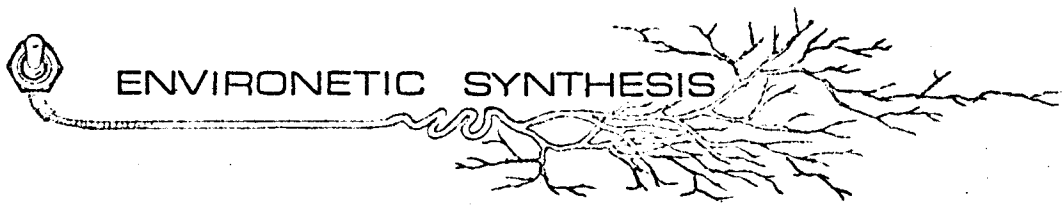
Responding to given audio stimuli, the dolphin will provide a certain response, either sonic, physiological, or as a physical manipulation, such as pushing a lever. This response in turn is converted into electrical impulses to be used as control voltage inputs to the audio synthesizer, generating a corresponding sound, determined by and variable with the synthesizer's programming.

A secondary tone or control (sequence, frequency, etc.) of the dolphins output is produced by the human subject (dancer), being monitored for specific muscle activity by telemetric electromyographic equipment; the task, in terms of communications, here and throughout the cycle, being to produce a pleasing, cohesive and nonrandom audio output, through understanding and control of physiological functions.

Individuals (audience) viewing the presentation may become participants and a key factor in the process by hearing the audio output and in relation to this, providing sensory stimuli (tactile, sonic, etc.) for the plant, being monitored (resistance change) for its response, producing the third input for the synthesizer. The combined audio signals become the sensory stimulus initiating the dolphin's response and completing this regenerative cycle.

The previously listed information (item 3.) is presented in graphic form to the participating audience for a greater understanding of the project and its meaning.

The entire presentation-process is to be documented on video tape for live, on-going viewing, as well as for possible future research, and hopefully, informative and entertaining television programming.



THOUGHTS RELATED TO THIS PRELIMINARY PROJECT PROPOSAL:

To develop parameters for interspecies sensorial communications by determination and processing of information through a common medium.

Audio and video synthesizers and other sensory simulation and display technologies as a possible interfacing link between man and dolphin, or other living systems, in the development of an interspecies communication.

Possibilities for working with various marine mammals and their habitat in terms of the present project.

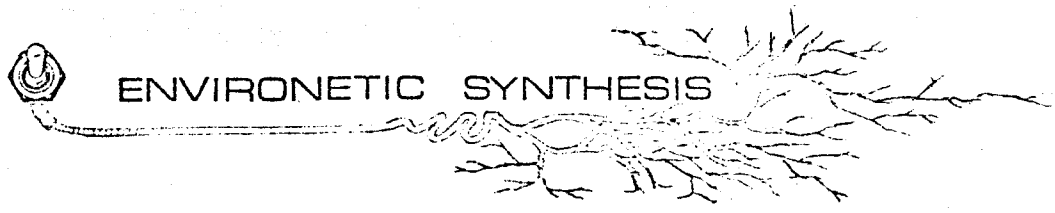
This project to be part of long term or currently conducted research and to be flexible in terms of feasibility and change relating to this ongoing research.

Information needed for feasibility of the project and the development of necessary synthesizer hardware:
Subject frequency ranges and threshholds in echolocation and other sonic processes and responces.
Type of audio signals and patterns and their associated meanings.
Hardware necessary for subject monitoring and stimuli feedback.
Determination of best environmental conditions for work.

Use of these video and audio systems for other ongoing research projects in terms of documentation, analyzation and presentation.

List of personell and resources for project assistance, information and funding.

Numerous applications for this project, its direction and findings.



VIDEO / AUDIO MATRIX DISPLAY DOME

The geodesic structure designed here, is one solution to the problem of developing a system for more comprehensive presentation of audience oriented, video and audio information.

Specific presentation considerations and design criteria:

-Live and preprogrammed video/audio synthesizer compositions.

-On-going presentation of information transmitted by the Earth Resources Technology Satellite (E.R.T.S.).

-Special multi-channel matrix information.

-Spherical sequencing and movement of material along a 360° surface, for full spectrum environmental simulation.

-Modularity, for computer controlled, multi-channel sound mixing/output, and multiple or singular visual programming; employing panel inserted, standard video monitors or currently being developed, flat screen plasma display systems.

-Most minimal, yet greatest load bearing structure, allowing for flexibility of size to meet presentational requirements.

-Expedience and ease in fabrication, servicing and programming for mobility, at minimal cost.

This is an initial step towards creating a symbiotic union of current environmental design capabilities and communication media technologies.

RICHARD (YESHAYAHU) LOWENBERG.

BORN: AUGUST 31, 1946 - HAIFA, ISRAEL
EMIGRATE TO U.S.A. - JUNE, 1951

EDUCATION: LAKEWOOD, N.J. - PUBLIC SCHOOLS.
PRATT INSTITUTE, BROOKLYN, N.Y. - INTERIOR DESIGN - 1964-68.

WORK EXPERIENCE:
MORGAN DAVIS, ARCHITECT, LAKEWOOD, N.J. - DRAFTSMAN, SUMMER '66
M. PAUL FRIEDBERG, LANDSCAPE ARCH., N.Y.C. - DRAFTSMAN, SUM. '67.
MAGNUM PHOTO, N.Y.C. - PHOTOJOURNALISTIC ASS'T, 1/68 - 3/68.
UNIV. OF DENVER - CONDUCT WORKSHOP IN ENVIRONMENTAL MEDIA, DENVER, COLO, SPRING QUARTER '68
DESIGN & DO PRELIMINARY LAYOUTS FOR RETIREMENT COMMUNITY, MULTI-DWELLING UNITS, LAKEWOOD, N.J.
SKIDMORE, OWINGS, MERRILL, ARCHITECTS - INTERIOR DESIGNING/DETAILING FOR AMERICAN CAN CO. HEADQUARTERS. - N.Y.C.
HAMMAL, GREEN, ABRAHAMSON, ARCH. - RENDERINGS FOR FOUR DAY-CARE CENTERS TO BE BUILT - N.Y.C.
CHERMAYEFF & GEYSMAR, DESIGN - CONSTRUCT MODEL FOR CONVERSION OF UNION TERMINAL, WASH., D.C., INTO U.S. INFORMATION CENTER. - N.Y.C.
FREELANCE DESIGN & ILLUSTRATION - JAN. '70 - DEC. '71
WARNER LEROY - PREPARE INITIAL DESIGNS FOR PERSONAL RESIDENCE, RESTAURANT, & WILDGAME PRESERVE - DEC. '71 - MAY '72, N.Y.C.
ART STUDENTS LEAGUE, N.Y.C. - AUDIO-VIDEO RECORDING & CONSULTATION - SPRING '71 & SPRING '72.
PRATT INSTITUTE, BROOKLYN, N.Y. - VIDEO TAPE INSTRUCTOR - SPRING '72.
RICHMOND COLLEGE, STATEN ISL., N.Y. - GUEST ARTIST - FALL '71 - SPRING '72.

PROJECTS:
"ELECTRIC INTERCOURSE" - MULTI-MEDIA THEATER EVENT, PRATT INSTITUTE, NOV-DEC. '67.
PHOTOGRAPHIC TRIP THROUGH MEXICO, SUMMER, '68
DR. CHASE'S THIRD, LAST & COMPLETE WORK - ORGANUM - EXPERIMENTAL THEATER PRESENTATION - THE CHANGING SCENE, DENVER, COLO., JAN. '69.
ESTABLISH MEDIA PRESENTATION & FOSTER ILLUSTRATION GROUP, IN AFFILIATION WITH UNIV. OF COLO., BOULDER, & JELLY ROLL PRESS, OAKLAND, CALIF., JAN.-DEC. '69.
COLLABORATE WITH WOODY & STEINA VASULKA ON EARLY VIDEO - ELECTRONIC MEDIA WORK - N.Y.C., 1970
* ESTABLISH & DEVELOP "ENVIRONETIC SYNTHESIS", IN COLLABORATION WITH DR. PETER CROWN. 1971
COMPOSE NUMEROUS VIDEO & AUDIO TAPES, INCLUDING: "AERODANCE", AND "ALTERGROUND" - ELECTRONIC TAPE MUSIC FOR THE MULTI-GRAVITATIONAL DANCE GROUP, N.Y.C.
ESTABLISH COMMUNITY ACCESS CABLE T.V. PROGRAMMING WITH RAY HERNEZ & SANTA FE CABLEVISION, SANTA FE, NEW MEXICO, SUMMER '72.

SHOWINGS & PUBLICATIONS:
ART DIRECTOR'S CLUB, N.Y.C. - MULTI-MEDIA PRESENTATION - JAN. '68
"ROLLING STONE" ARTICLE ON VIDEO ARTISTS (WITH VASULKAS) - MAR. '71
UNIVERSITY OF COLORADO, BOULDER - VIDEO PRESENTATION - APR. '71
"THE KITCHEN" @ MERCER ARTS CENTER, N.Y.C. - ONGOING VIDEO-AUDIO TAPE PRESENTATION - 1971
UNIV. OF CALIF. ART MUSEUM, BERKELEY. - VIDEO SHOW - AUG. '71.
WHITNEY MUSEUM, N.Y.C. - VIDEO SHOW - DEC. '71
REVIEWED IN N.Y. TIMES & VILLAGE VOICE.
MOVING IMAGE THEATER, SANTA FE, N.M. - VIDEO-AUDIO SHOW JULY '72.
"RADICAL SOFTWARE" - REGULAR CONTRIBUTIONS ON ENVIRONETIC SYNTHESIS.

DOLPHIN PRODUCTIONS

A DIVISION OF
COMPUTER IMAGE CORPORATION

305
EAST 45th STREET
NEW YORK,
NEW YORK
10017

TELEPHONE
(212) 725-8665

February 8, 1972

Peter Crown, PHD
317 West 92nd Street
New York, New York 10025

In accordance with the application of Dr. Peter Crown and Richard Lowenberg for the use of the computer image animation system, known as "Scanimate", interfacing for a project entitled "Physiological Video Interface" (See proposal attached herewith), the following data is supplied and contains the recommended price breakdown for the project;

1. 56 hours (approximately 5 days) computer time.	$17,400
2. 2 hours approximately videotape stock.....	600
3. 24 hours (approximately 3 days) videotape recording time.	1,920
4. 2 days live camera studio shooting with computer set-up.	2,880
TOTAL	22,800

NOTE: Our proposal is to work in a special category set aside for this type of project known as "Investigation of Computer Systems To Determine Additional Artwork Product Capabilities", therefore, the price in this structure for this project will be $10,000.

TERMS: ½ upon signing of contract and ½ upon completion of project.

Sincerely,

Conrad G. White
Operations Director

CGW/ge

Attachment.

A DIVISION OF
COMPUTER IMAGE CORPORATION

ENVIRONETIC SYNTHESIS

Dance Project With Computer Image Corporation

EMG Interface With Computer-Video-Audio Environment

EMG (electromyogram) refers to the bioelectric potentials generated by muscle cells. These potentials can be monitored, amplified, and transmitted by telemetry, so that a dancer's muscles can be monitored while the dancer is free to move about, unencumbered. These electrical signals, which are directly related to the dancer's movements, will be interfaced with 1) a computer-controlled, color video system, and 2) an electronic music synthesizer system, such as the ARP, Putney or Moog synthesizer.

With this arrangement, the dance itself generates the musical-visual environment, rather than the dancer responding to pre-programmed music. The computer video system provides an extremely flexible set of possible formats, such as keying the view of the dancer against a kaleidoscopic background which is controlled by her muscle potentials.

Budget The cost for the entire project is about $20,000. Computer Image Corporation has set aside a special category for the project known as "Investigation of Computer Systems To Determine Additional Artwork Product Capabilities". Their proposal is attatched herein.

ENVIRONETIC SYNTHESIS

Introduction

Environetic Synthesis is both a concept, and a group engaged in projects directed at actualizing the concept. Our starting point was the premise that one's environment could be designed to respond to one's own physiology, such as the brain waves (EEG) and muscle potentials (EMG), with video, audio and other sensory devices responding to the person. One could thereby interact with, and control, all the parameters of this environment to meet the needs of the moment. We soon realized that this simple concept applied to communication, theater, dance, and new forms of video entertainment; and that it could be a meeting ground for many people with diverse interests and backgrounds, to work on group projects around this concept.

Activities

We presently are working on several projects, including a cassette production, teaching at the college level and experimentation, and have planned several projects for the immediate future. Some general descriptions include:

- Development of video-audio interfaces with human electrophysiology
- Documentation of on-going projects in art, science and technology for cassette and other sources, including reference and teaching libraries
- Community interaction through teaching, and making mobile video-electronic hardware available to others
- A comprehensive patchboard interface system with computer link between inputs from nature and the video-audio output

ENVIRONETIC SYNTHESIS

Summer Project - 1972

The purpose of this project is to produce 1/2-inch videotape studies with outstanding and innovative people working in art, science and technology. Because 1/2-inch videotape can be easily transferred to 3/4-inch, the final material would be suitable for video cassettes, teaching and reference library sources, and so on. The diverse locations visited will also afford opportunities to work with migrant workers, indian reservations, and other groups and events of current interest. We plan to work with the following people:

- Dr. Tung Hon Jeong, Associate Professor of Physics, Lake Forest College
  Nobel Prize winner, holography, holographic portrait studio.
- Daniel Callahan, Director of the Institute of Society, Ethics and the Life Sciences, Hastings-on-Hudson, New York.
  Ethics and Population Limitations.
- Elmer and Alice Green, Menninger Clinic
  Bio-feedback and creativity.
- NASA Center, Houston, Texas .
- Buckminster Fuller and Associates, World Game, Carbondale, Illinois.
- Salvator Martorano, Electronic Music Center, University of Illinois.
  Composer, Digital electronic music synthesizers.
- Paolo Soleri, Scottsdale, Arizona
  Architect, planned community in progress.
- David Knowlis, Physiopsychologist, Los Angeles. Bio-feedback.

Budget: Some equipment has been obtained, but general funding required.

FORWARD

The Television Laboratory was ~~set up~~ formed in early 1972 at WNET/13 to research and develop the aesthetic and technological potential of the television medium. Since its ~~formation in early 1972~~ beginnings, the Lab has been supported by grants from The Rockefeller Foundation and the New York State Council on the Arts, with special project support coming from the National Endowment for the Arts.

Several years ago, Dr. John Knowles, President of The Rockefeller Foundation, watched a man experience an epileptic seizure which appeared to be induced directly by the "roll" of his television set. Subsequently, Dr. Knowles encouraged the Lab to extend its research ~~into the area of~~ toward perception and physiology in an effort to shed new light on the medium as a unique mode of visual stimulation.

In 1973, the Lab commissioned Dr. Julian Hochberg, Chairman of The Psychology Department at Columbia University, to begin major research in that area. The result, "The Perception of Television Displays" written by Dr. Hochberg and his associate, _____Brooks, is the first known attempt to survey the mass of individual related research conducted throughout the years, and to analyze that research.

The paper, as Dr. Hochberg states is "as a first attempt, undoubtedly incomplete and may contain errors of detail or emphasis; but it should provide a foundation that can be filled in further, explanded, and revised with relative ease." "The Perception of Television Displays" is rich in ~~xxxxxx~~ information. At this point in time, in view of rapid technological developments, it is difficult to assess the practical value of ~~all the material~~ each point. However, without minimizing the importance of all the information, there are several points covered ~~xxx~~ which seem particularly noteworthy:

Video displays (pictures) have particular characteristics which make them different from cinema and other forms of visual displays. Video displays flicker 30 times per second with each "frame" composed of 525 "scan lines" (in the American system). The size of home television receivers and the distance at which

INSERT for page 2, paragraph 2:

One of those consequences is the apparent ability of "flicker" (i.e., rapid lightness changes in the display) to induce, among other physiological responses, epileptic seizures in those few individuals who are particularly sensitive to this type of stimulation.

from Peter Crown

people sit from them results in the stimulation of the retina ~~of the eye being stimulated~~ over a smaller area as compared with stimulation from conventional movies, for instance. These characteristics have interesting consequences (both favorable and unfavorable) when also considering the structure and functions of the human visual system from eye to brain.

One of those consequences is the apparant ability of "flicker" (i.e. lightness changes in the display) to induce, among other physiological responses, seizures in those who are epileptically sensitive. Perhaps even more important than this, Drs. Hochberg and Brooks also ascertain that epileptic sensitivity to flicker-induced seizures can be extinguished or greatly reduced by "teaching those affected to "unlearn" their sensitivity.

The authors also state that certain measures of brain function such as alpha-rhythms, can be employed effectiv as indicators of attention to video images. And also, the speed and accuracy with which text is read on the video screen can be increased by, for instance, controlling the pictorial images which accompany it.

Of particular interest to video artists may be the information relating to the physiological and psychological effects of different cutting rates (editing rates) and techniques and their relationship to the limited display size and detail of the television receiver; the text also covers points regarding the acuity factors that affect visibility of details in the display, and the effects of moire patterns produced by the interaction of the scan raster with certain other patterns (such as stripes).

The authors have, throughout the work, indicated the great need for more research in specific areas, and have also outlined procedures for research in many instances. For instances, little is known about the possible unesirable responses of normal viewers to pictures which induce repetitive eye movements; specific effects on the visuomotor system when viewing the world through such a small "window"; viewing distances as related to age groups and socioeconomic strata; and, the effects of synthetic visual surfaces, volumes, and edges which can now be effectively

created by computers and other related equipment.

The need for more research is undeniable apparant if more is to be learned about the effects the medium can have on generations of people.

The Television Laboratory is proud to have had the opportunity to sponsor this major step toward further understanding the television medium as a scientific field of study. We extend our deepest thanks to the authors and hope that "The Perceptionof Television Displays" will prove a successful foundation for gaining new and more valuable insights.

THE kitchen 475-9865

240 Mercer St. New York 10012

OFFICIAL PROGRAM
THE 1973
International
Computer Arts
Festival...
April 1 through 14

THE FIRST SHIFT-KEY TYPEWRITER—1878

Graphics exhibited at the Computer Arts Festival

George Chaikin
Courant Institute of Mathematical Sciences
New York University, New York
Graphics co-ordinator of the Festival
One of the chief implementers of the computer language ARTSPEAK, Mr. Chaikin is also an architect. He is involved with many different applications of computer graphics, and does much consulting and research work.

Vladimir Drozen PhD
Hradec Králové, Czechoslovakia
9 stills from the film "CREATION"
"The pictures are photographic records of the reflections of the sunlight from undulating water surfaces, thus representing solutions- at particular moments of time- of the two dimensional wave equation under specific- rather complicated- boundary and initial conditions. They have been obtained without any computing technique at all"- from Dr.Drozen's letter

Cyprienne Schroeppel
M.I.T., Cambridge, Massachusetts
14 x 16 inch needlepoint of one frame of the movie "SOLAR CORONA"by Michael Beeler (film entry)

Ramesh Misra
ARKISHOP, New Delhi, India, and New York.
Computer animation by Walter Wright
Photography by Ramesh Misra.
Generated at Dolphin, Computer Image Corp.

Lou Katz Columbia University, New York
"SPACE, TIME & SUBSTANCE" 40 slides
"These pictures are a part of a study of three dimensional surfaces and shapes, and two dimensional patterns that change with time. The "double" images are stereoscopic pairs, and can be viewed in 3-D by those who can "cross" their eyes. These sldies were made using an ADAGE AGT/50 graphics computer, using programs by Lou Katz, Mr. Reidar Bornholdt, and Mr. Christos Tountas."

Aaron Marcus
Princeton University, Princeton, New Jersey
"Computer art promises to challenge more profoundly than ever before what is real and what is not." -Aaron Marcus; film:"THE BEGINNING"

Paul Hrozenchik, Bruce MacFarland
students of George Chaikin, New York

William Fetter - see film entry

Gary Nelson - see music entry
Computer generated musical notation

Afternoon events of the Computer Arts Festival

Sunday April 1 5pm Lecture:
COMPUTERS AND THE ART OF MEDICINE
Juan de Dios Pozo-Olano, PhD, Fellow in Neurology
Mount Sinai School of Medicine, New York
Beginning with a brief survey, Dr. Pozo-Olano will discuss in detail the work that he has done using digital computers to record graphic representations of brain waves. Illustrated by slides.

Friday April 6 5pm Workshop:
VIDEO SYNTHESIS AND COMPUTERS
Walter Wright -see video entry

Saturday April 7 2pm SYMPOSIUM
COMPUTER COMPOSITION: Comparison of Aesthetics and Techniques in All Media. All artists in the Festival are invited as panelists. Chairman of the meeting, George Chaikin. Proceedings will be video taped, ½ inch crews are welcome. Microphones open to the floor.

Sunday April 8 5pm Lecture:
COMPUTER MUSIC Charles Dodge
Music co-ordinator of the Festival

Sunday April 8 1-4pm; Monday & Tuesday 9,10 5-7pm
COMPUTER INTERACTION Computers on hand will be open to public use, to generate patterns, carry on conversations, etc. Computers courtesy of Leasco Response Co, Electronics Associates Inc, and Pratt Institute.
Special workshop: Fred Stern, Sunday 1pm

ALL EVENING PROGRAMS START AT 8PM, AND INCLUDE MUSIC, VIDEO &FILM:

Films shown during the Computer Arts Festival....continued- see next page

April 10,11 Doris Chase
"CIRCLES"
Doris Chase now lives in New York, and is working on a film named SQUARES. The film "CIRCLES" was made using a 40/20 Stomberg Carlson plotter, computer analyst Bob Tingley. This film was produced with computer graphics animation techniques dveloped under the direction of William Fetter at the Boeing Aircraft Company, Seattle, Washington.

April 10,11 Aaron Marcus
"THE BEGINNING"- see graphics entry

Films shown during the Computer Arts Festival, 1973, at the Kitchen.

April 1,2 William Fetter
"VISUAL OVERTURE" "FILM SAMPLER"
Previously the director of computer graphics at the Boeing Aircraft Company, Seattle, William Fetter is currently adapting the technology he developed to other design/graphic representations, as Head, Computer Graphics Laboratory, Department of Design, Southern Illinois University, Carbondale, Illinois.

April 3,4 Michael Beeler (will be repeated, Apr.12)
"SOLAR CORONA"
Artificial Intelligence Laboratory, MIT
Cambridge, Massachusetts. Music by Peter Samson.
SOLAR CORONA was made from data taken from August 14,1969 through May 7,1970, OSO-VI, one of the Orbitting Satellite Observatories. The sunlight which was measured in this experiment is only that of the corona, above the surface of the sun, is light of only one color, (wavelength 625 +or - 3 Angstroms), light from a heat of about 2 million degrees.

April 3,4,12 Peter Struycken
"IMAGE PROGRAMME-1-1972"
Galerie Swart Amsterdam, Holland
Computer programme by Drs. S. Tempelaars
"In order to gain acquaintance with the premises applying to the reciprocity between element and structure, the changing degree of variation being the criterion, I make models which relate to this problem....One of these models is my image programme 1-1972." -from Peter Struycken's letter.

April 5,13,14 John Whitney
"MATRIX III"
The Whitney family is famous for computer movies. This is John Whitney's newest film, sent from Pacific Palisades, California.
Thanks to I.B.M. for making this print available.

April 6,7 Stan Vanderbeek
University of Southern Florida, Tampa Florida
Mr. Vanderbeek is a famous filmmaker, formerly at M.I.T.

April 8,9 Lillian Schwartz
1)"PIXILLATION" 2)"UFO's" 3)"MUTATIONS" 4)"ENIGMA"
5)"APOTHEOSIS" 6)"AFFINITIES" 7)"GOOGLEPLEX" 8)"MATHOMS"
independent filmmaker, Maplewood, New Jersey

April 8,9 Arthur Layzer
"MORNING ELEVATOR"
Steven's Institute of Technology, Rutherford, New Jersey
Resident Visitor at the Bell Telephone Laboratories,
"The digital computer has negative expressivity-a black border that can be used to bring out human expressivity."
Assistance in programming from Joan Miller, Bell Labs.
...ALSO: two pieces of computer music-
"PIECE FOR SIX VOICES","FANFARE"

Music events in the International Computer Arts Festival

April 1,2 JOSEPH OLIVE "STUDIES # 4 & 5"
Bell Telephone Labs
Murray Hill, New Jersey
Employed in speech and acoustics work at Bell Labs, Mr. Olive has a PhD in physics, and is a respected composer. He uses the GRØØVE computer system, with 14 lines from a PDP-10.

April 3,4 THOMAS WELLS "APOTHEGM G.K."
Director of the Electronic Music Studio
The University of Texas at Austin, Texas

April 3,4 JOEL GRESSEL
Princeton University, Princeton New Jersey

5,10,11 CHARLES DODGE "THE SPEECH SONGS"
School of Music, Columbia University, New York
Mr. Dodge is an internationally known lecturer on the subject of computer music, and a composer of renown. He is the music co-ordinator of this Festival.

6,7 EMMANUEL GHENT 1)"PHOSPHONES"2)"COMPUTER BRASS" 3)"INNERNESS" Bell Telephone Labs, and New York City. Well known as a composer of instrumental and electronic music, Emmanuel Ghent has in recent years devoted himself to synthesizing music and stage lighting by means of the GRØØVE computer system.

8,9 GARY NELSON
Purdue University, West Lafayette, Indiana
4-Channel tapes, using MUSIC65,(a descendant of MUSIC4) Also doing work in computer generated musical notation, in exhibit in the Kitchen. With Mr. James Lesko, who uses a computer to generate plans for steel sculpture, Mr. Nelson is combining sound with sculpture, by placing speakers within the object..

8,9 MAX MATHEWS 1)RUNNING MAN SUITE, 2)"ELEPHANTS MAY SAFELY GRAZE" 3)"SCALES 4)"MISTAKES" Bell Telephone Labs, Murray Hill
Max Mathews is a widely published author, an engineer, and a composer. He is largely responsible for the highly adaptable GRØØVE computer system, which so many composers use, at Bell Labs.

4,5 STEPHEN SMOLIAR "SRVAR 6, CLIFF 2, SRVAR 3" &12th/ Department of Computer Science, Technion Haifa, Israel. Stephen Smoliar has devised a programming language EUTERPE. The various pieces use the same program, with different thematic subroutines patched in.

5,12 EZRA SIMS "FROM AN OBOE QUARTET"
Artificial Intelligence Lab, M.I.T.
Cambridge, Massachusetts

Music events in the Computer Arts Festival

Ezra Sims uses the PDP-6/10 system, and
the EUTERPE program devised by Stephen Smoliar.

April 10,11 F.RICHARD MOORE
1)"VARIANTS" 2)"PIXILLATION" (original soundtrack)
Bell Telephone Laboratories, Murray Hill, New Jersey
"Technological art will succeed or fail according to the success of the real time interaction as opposed to only programming abstract structures. We have to maximize the capability to play the machine as an instrument."

April 9 ALISON KNOWLES "PROPOSITION 4 (SQUID)"
New York
Performance piece for four voices

April 13,14 ALVIN LUCIER
"RMSIM 1 (THE BIRD OF BREMEN FLIES THROUGH THE HOUSES OF THE BURGHERS)" 1972
Wesleyan University, Middletown, Connecticut
A computer controlled sound environment, comissioned for Radio Bremen, using a PDP-10, four channels.

April 13,14 RICHARD COFF
Wesleyan University- student of Alvin Lucier

April 17 LEJAREN HILLER
"THE ILLIAC SUITE FOR STRING QUARTET"
Performed live, New York debut. Musicians from the State University of New York, Buffalo
The historic Illiac Quartet, never before played in New York, dates from the 1950s, and is a pioneering work, using a computer to carry out serial techniques, producing a veritable string quartet. Other works will be performed. Thanks to Jim Burton, of the Kitchen.

Video events in the International Computer Arts Festival, April 1973

April 2,3 Bill Etra "IMAGE WARP"
Artist-in-residence WNET-TV Ch.13, NYC
Live performance, debut of the new
R U T T / E T R A video synthesizer.
The synthesizer, designed in conjunction with engineer Steven Rutt, has many advantages over previously existing systems-"Pray for sync!"

April 4,5 David Dowe, Jerry Hunt
1) "HARRINAN PLAYING HEISENBERG/ EYES"
and 2) "ELECTRIC EXO-SKETCH"
Southern Methodist University
Dallas, Texas
Dancers are able to control video and audio signals by mia-electric pick ups which respond to discrete muscle movements, the X and Y co-ordinates are fed through a scan converter, allowing the two way reversibility of pictures ⇆ sound.

April 6,7 Walter Wright, New York
An architect, and a design engineer, he first became interested in computer generated images in 1965. Computer graphics system at University of Waterloo, Ontario, Canada; Computer animator for Dolphin Productions, Computer Image Corp, NYC; presently Artist-in-residence at WSKG- TV in Binghamton, NY, is designing and building his own video synthesizer.

April 8,9 Ed Emshwiller "SCAPE MATES"
Well known filmmaker, and Artist-in-residence at WNET-TV Ch 13, New York.
Made at the Experimental Television Lab, and at Dolphin, Computer Image Corp.; SCAPE-MATES is a hauntingly beautiful voyage into the depths of man/machine interaction, using expressive dance motions and computer animation, and geometric graphics.

April 10,11 Nam June Paik
Artist in residence at WNET Ch.13, New York
One of the Great Grand Parents of Video, in fact said to be the "Mao Tse-Tung of video," Nam June Paik is a pioneer in the use of electronically distorted images. A Korean, he has an engineer's degree from Tokyo, and is a famous artist of the avant-garde.
He will show a film made with Michael Noll, James Tenney, of Bell Laboratories; and some video tapes of the synthesizer he designed with Shuya Abe.

April 10,11 Jud Yalkut "THE WHIRLING ECSTASY"
Video-Film Collective, New York
Thanks to Walter Wright
"How can one undergo transformation without being shattered?"
-Jalal'ud-din Rumi

April 12,1 Dimitri Devyatkin
"SACHDEV","STEEP TURNS","MOTOWN"
Thanks to Walter Wright for the computer animation, and assistance,
Music: G.S.Sachdev; J.Brahms; Smokey Robinson and the Miracles,The Temptations, and Marvin Gaye. Original graphics.

April 13,14 Ron Hays
Artist-in-residence at WGBH-TV, Boston, Massachusetts
Ron Hays, born in Nebraska, is a widely seen video artist. He plays the Paik/Abe synthesizer as a fully responsive, improvisatory instrument.

SYMPOSIUM: April 7 at 2pm*** Will be video taped. Other ½ inch video recording crews are welcome- panelists will have two microphones, one on the floor, mixed.

THE COMPUTER ARTS FESTIVAL is supported by a special grant from the New York State Council on the Arts. The Kitchen is run non-profit by artists, and audience contributions are split to pay the artists'and the Kitchen's expenses.

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Graphics coordinator: George Chaikin

Music co-ordinator: Charles Dodge

General Co-ordinator: Dimitri Devyatkin

ALL EVENING PROGRAMS BEGIN AT 8PM, lasting approximately 2½ hours. Programs subject to change without notice.