Arts in society: the communications explosion. Volume 9, Issue 2 Summer-Fall, 1972

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ARTS IN SOCIETY
THE
COMMUNICATIONS
REVOLUTION

ARTS IN SOCIETY

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This issue was designed by Linda Heddle.

ARTS IN SOCIETY is dedicated to the augmenting of the arts in society and to the advancement of education in the arts. These publications are to be of interest, therefore, both to professionals and the lay public. ARTS IN SOCIETY exists to discuss, interpret, and illustrate the various functions of the arts in contemporary civilization. Its purpose is to present the insights of experience, research and theory in support of educational and organizational efforts to enhance the position of the arts in America. In general, four areas are dealt with: the teaching and learning of the arts; aesthetics and philosophy; social analysis; and significant examples of creative expression in a medium which may be served by the printing process.

The editors will welcome articles on any subjects which fall within the areas of interest of this journal. Readers both in the United States and abroad are invited to submit manuscripts for consideration for publication. Articles may be written in the contributor's native language. An honorarium will be paid for papers accepted for publication.

Manuscripts should be sent to: Edward Kamarck, Editor, ARTS IN SOCIETY, The University of Wisconsin-Extension, 610 Langdon Street, Madison, Wisconsin 53706. Address review copies of books, recordings, tapes and films to the same address.

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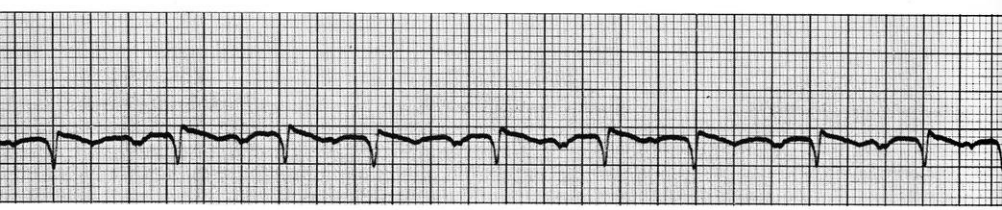

Electrocardiogram. Courtesy: University of Wisconsin Hospitals.

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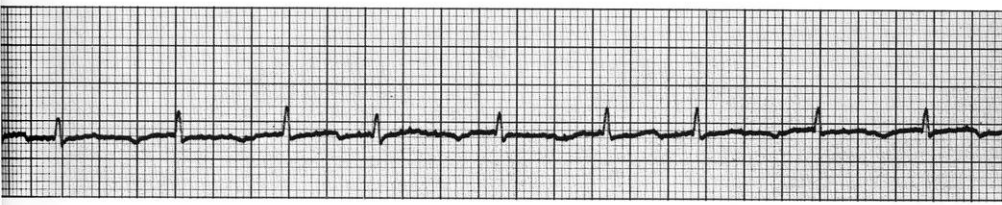


LEONARDO WAS A COMMUNICATIONS SPECIALIST

Behind all the forms of communication—the many arts, sciences, skills, methodologies, and technologies—stands a primal unit of energy, which the fragmentation of the disciplines and the development of occupational specialties has tended largely to obscure. In matrix a unified totality, that energy is the expressiveness of the life force of man, manifesting itself through all of his efforts to create order out of chaos and certainty out of vagueness. For that reason communication must be seen as an unremitting activity in every social grouping, no matter how primitive in organization and understanding, and much of the real substance of a society's communication should be expected to move over and beyond the largely self-conscious processes of information encoding, transmitting, and receiving, and the technological extension of the senses in these roles. Communication is, in fact, embedded in our very dream-making—private and communal, in our conscious acts, and in all our social and symbolic conventions. Because its impelling impulse is man's need to define and know, to participate in and enjoy, to utilize and shape the nature of his reality, there can be no delimiting parameters for communication. Its proper context is the entire gamut of human life.

In advanced technological societies, scientific ingenuity enormously extends our capacities for the transmission of information. In their impact these self-conscious processes now not only outrun all other forms of societal communication but even man's intention as well. It is an anomaly of the communications explosion that the more we have enhanced the range and potential expressiveness of the technological media, the more battered seem our concepts of reality. If as McLuhan cheerfully suggests, the media really do constitute the message, then we are in truth far gone in idiocy, and the only rational act open to us is to turn off the television set and prepare for the final cataclysm.

On the societal level, the torrent of information flow tragically shows little capacity of being able to stem the growing acceleration of crises in all areas of life. One suspects, in fact, that the lopsided nature of the "information-overload" may be exacerbating the crises, for it is not data per se that we urgently need, but understanding. The achievement of a creative society,

which is to say a human society, is contingent upon each of us, individually, becoming ourselves Communications Specialists—with respect to both our personal and communal reality.

On the apparent assumption that they are asserting a valuable prerogative, many artists and critics are today questioning whether the arts are actually forms of communication. This dismal fact says much about the contemporary status and role of the arts. It speaks even more eloquently about the trouble we are in as a society.

At their best, the arts must be considered preeminent in man's communication. By definition they are the most important modes we have developed for conveying an intense and deeply evocative delineation of the essential nature of reality. And what is more important, because the arts are symbol-makers, in the sense of making manifest what Simone Weil called the "unstated intuitions" of the creative unconscious, they furnish sensitive and authentic guide-posts for describing reality. As Sir Herbert Read never tired of reminding us, the artist's job is not to express himself as an individual, or to portray the world precisely as it is, but to extend through metaphor and symbolization the horizons of man's consciousness, so that new forms of social reality can take shape.

Against the background of his lifetime work, what was Leonardo speaking of if not communication, when he wrote, "Painting is poetry that can be seen"? Had those spokesmen for the visual arts that have seemed most disposed to espouse aestheticism heeded Leonardo's insight, we could have been spared endless reams of tiresome rhetoric.

In the Age of the Communications Specialist, the arts face a double challenge: to help strengthen and validate those other forms of societal communication that lie beyond the technological media—particularly those that most affirm our humanness; and also, to *use* the media, imaginatively and boldly, and with full-voiced eloquence. Both tasks will take some doing.

Edward L. Kamarck

Science has opened up immense new vistas, but we shrink from accepting the deeper and richer sense of life uniquely inherent in the new parameters of our Twentieth-Century world. Where our age falls short is in the harmonizing of our outer and our inner wealth. We lack the depth of feeling and the range of sensibility needed to retain the riches that science and techniques have brought within our grasp.

* * *

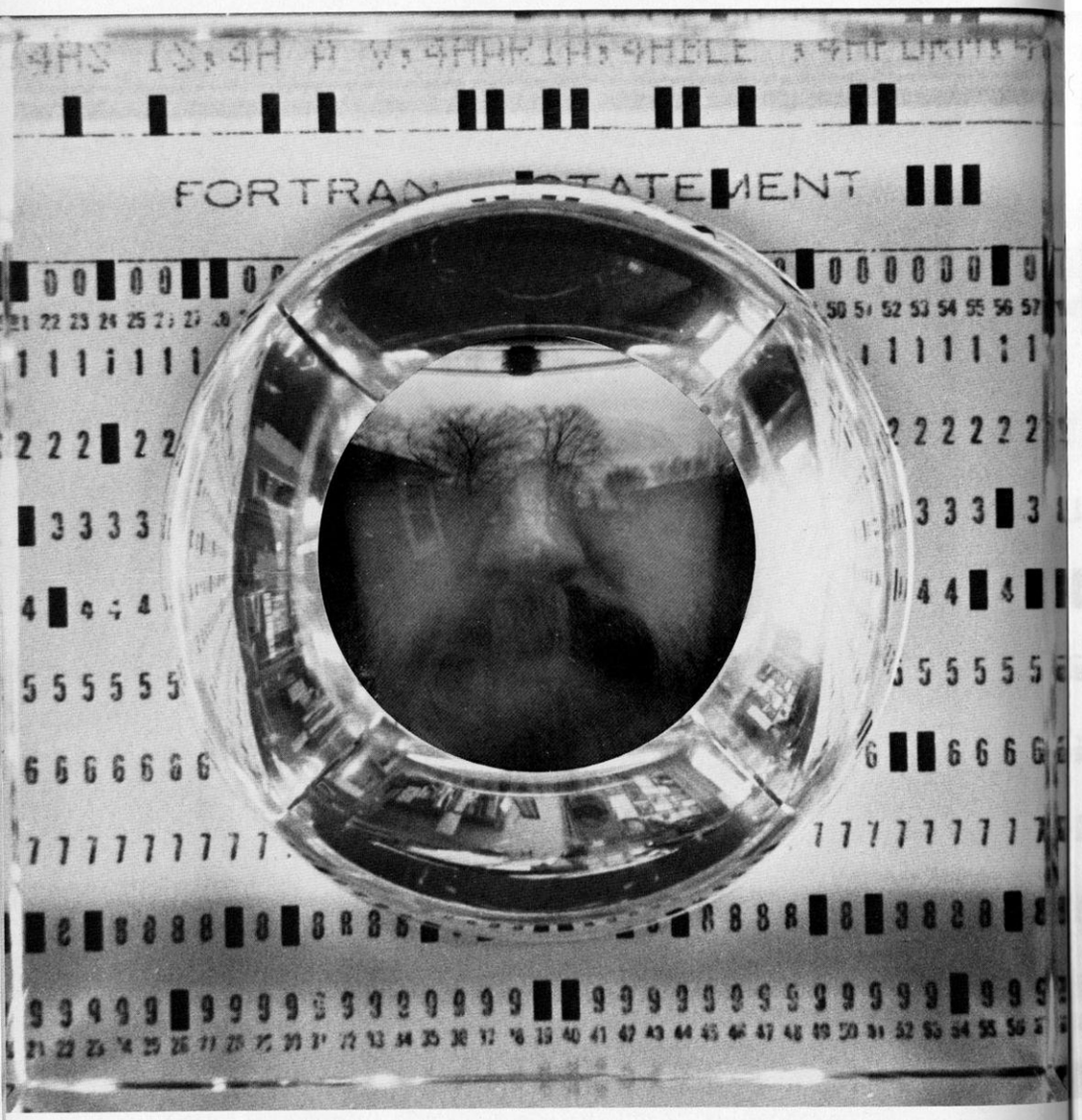
We have, then, three basic tasks before us. First of all we must build bridges between man and nature—construct a physical environment which is on a truly Twentieth-Century standard. Second, we must build bridges between man and man—create a new scale of social structure built from progressive common purposes. We must establish a sense of belonging, of interdependence, in order to achieve the teamwork that the first task demands. And, finally, we have to build bridges inside ourselves. Only if each individual can unify himself, so that one aspect of his life will not intercept and cancel another, can we hope to tackle the second task efficiently. Only the man who can work with himself can work with other men.

The building of these bridges—the reintegration of all aspects of our life through Twentieth-Century knowledge and power—is our great contemporary challenge.

Gyorgy Kepes,
"Values in Visual Arts,"
Outlook on Man's Future, M.I.T.

THE EMERGING ELECTRONIC ENVIRONMENT

THE COMMUNICATIONS REVOLUTION: LOWER RATES FOR LONG DISTANCE TELEPHONE CALLS OR THE TRANSFORMATION OF SOCIETY



THE COMMUNICATIONS REVOLUTION: Lower Rates for Long Distance Telephone Calls or The Transformation of Society

Barry Schwartz
Writer, lecturer and Associate Director of the Center for the Study of Social Change

In his letter of December 21, 1971, Editor-in-Chief of *Arts in Society*, Edward L. Kamarck,asked me to write an article of a broadly speculative nature for this issue on the following:

Possible insights for the arts coming out of the rapidly growing communications theory

Futurist thinking and planning as they relate to the arts, arts development and culture

The range of possibilities (and hazards) for the arts opened up by the new media, resources, materials and techniques

The cultural problems, impacts and opportunities—both likely and already manifest—posed by the new technologies of communication

The definition of a more responsible social role for communications in our culture and a contingent consideration of the necessary social changes.

Mr. Kamarck's letter communicates as much about print as through it. At first, I was hesitant to quote from it; I may be violating a print ethic. Print is a communication media with implied degrees of privacy. It is personal, and has a varying impact depending on how it is used and with whom. Thus print supports hierarchies of information as

well as secrecy, fragmentation and concepts of communication propriety. Print begins in isolation and only reaches an audience of more than one by an expenditure of energy. The decoding of print requires that the reader too must exist in isolation. When he reads, he can do little more. He must stop experience in order to participate in a communication process.

These qualities do not characterize the new communications media. It is nearly impossible to communicate with the new media in privacy. The new media are electric; it takes energy to restrict the flow of information. The new media communicate publicly; there are no more secrets; no more private discussions.

Print is essentially a cognitive experience. Print encourages the invention of categories and then requires that they be legitimized. The history of theological writing is one excellent example of how much energy can be spent trying to validate print categories. Print is concerned largely with ideas and analysis. If I am to write this article on communications, I must *think about and analyze* the problems that have been posed. I must use cognitive units to give order by their meanings to a world that, if unordered, appears as frightening, chaotic and inexplicable. If I chose to use one of the new media—video, for example—I would comply with Mr. Kamarck's request by *doing,* not by thinking. My response would be an action through the media; I would respond rather than work out an appropriate response. It is one of the more revolutionary features of the new media that *communication is simultaneous with experience.* The communication process is not a reflection of experience but a part of it. Thus, the outstanding feature of new media is their capacity to provide feedback. If the new media are to affect the arts, it will be in the direction of leading artistic experience back into real time, not delayed response time; the artist will be encouraged to unify life experience and artistic experience into the same space in real time. Artists will become highly sophisticated forms of human feedback in real time situations.

Today's world can not be ordered effectively by print or by the still-frame aesthetic of photography, painting and image making. The world is surrounded by an envelope of electronically communicated information. Print is encapsulated by the electronic environment. Print may in fact confuse us because it leads us to the erroneous assumption that our description of an experience resembles the experience, that the phrasing of a problem is a perimeter containing the problem. Print, however, does poorly as a container for contemporary experience. What is needed is the dynamic frame of the newer communications media.

Print allows no feedback. If Mr. Kamarck and I were able to communicate telepathically we could

discuss his letter and my response to it before he would sit down to write me. The letter itself would be merely a record of what was communicated, not a media through which we communicate. The new media are not telepathic (not yet, telepathic?), but insofar as they do permit the process I have described, we may think of the new media as slow motion telepathy. By slow motion, I may mean only microseconds from coded communication to decoded message to feedback. Like telepathy, the new media are electric.

There is not sufficient space to discuss all the new media, their varied use in communications systems, and hybrids between systems and media. I will confine my discussion to the most important media development at this moment —video—which will have far reaching impact on our lives, and leave holography, computer systems and laser communication systems for another time.

Each moment we are inundated with electric information via television, radio, teletype, record players, tape machines, computers and satellite communications. In this environment young people are first acculturated into the society electronically. All learn a visual/electronic literacy long before they learn print. A child who stutters when reading aloud may be indefatigable and fluent on the telephone. The inevitable outcome of exposure to the new media is that society is relinquishing the view that print has a more valuable function than reportage of sporting events or the instructions to the toaster. Despite the efforts of the print nostalgia cult called college, slowly but irreversibly the importance of print is subsiding.

For most people, print is after the fact. They are becoming accustomed to media that communicate in real time. Of course, real time, all the time, is very taxing. Survival may come to be more dependent on the durability of the nervous system than on the cognitive muscularity of the brain. Some analysts of the electronic environment (energy trippers) proclaim that modern man is a crude form of electric man, whose advanced nervous system presumably places him higher on the evolutionary track.

Electricity holds no allegiances to custom, national boundaries, geography, or roadblocks. An electric perception is *de facto* an ecological one. The launching of satellites and the pictures they electronically communicate constitute feedback to the earth that it is a planet. Countries, states, institutions are aggregates of matter; they hold bodies. In the electric environment, we are told we are no longer convinced of the need for separation and fragmentation. Electricity brings us together. In the electric current, we find a holistic view of man in the world. We will seek communality rather than egoistic death-wish power drives.

In the electronic environment reality

is only one's accumulated information. For twenty-five years, this country has created myths of China. Our great men of state have characterized her as "the yellow peril," and her people as "yellow dwarfs with pen knives." But in the electronic environment, there are no men of state; only men of media. The first few seconds of live video coverage via satellite of Nixon's visit to China destroyed twenty-five years of illusions for many people. All at once China was no more threatening than Dodge City or the Twilight Zone; no further away than our chief celebrity, the man usually televised from the White House, the only man in America who can preempt the regular programming at will.

According to a Newsweek poll, the average American household watches more than six hours of television a day. There are more television sets in homes than telephones, bathtubs or refrigerators. In 1948, 200,000 American homes had television, and there were fifteen broadcasting stations. Today, 95% of homes have television—14 million of them in color—and there are 520 broadcasting stations. In America in 1972, there are few things more *essential* than television.

Broadcast information is our environment. Unfortunately the use of the media is predicated on commercial/exploitative values rather than on cultural or educational ones. Recently advertising studios have begun to run programs which they have packaged to show between their commercials. These programs are primarily geared toward developing and advancing consumerism, toward creating a passive, anxiety-ridden populace, ever ready to buy the latest innovation on the American dream. Television, we are reminded, is a mass media, and mass media cater to what those with broadcast power euphemistically call the "common denominator."

Now hold on to your antennas. This situation is about to be altered dramatically. Enter video. Broadcast television is a one-way communication directing an audience toward programming with which they have no relationship. Now with a hand held camera, a playback/record deck and a monitor or an RF unit (which plays back through your regular TV set), you are able to create your own programming. You are your own commercials.

The ability to make your own "software" coincides with the maturation of the first generation to grow up electrically. This generation has watched television all its life. It is not surprising to find that as adults, they insist that there be a new television, one that is relevant to the lives of the viewers, not to the profits of the broadcasters. This generation is committed to the box, the video medium, and watching television. It was inevitable that they would demand and utilize a technology that would remake their experience into a more meaningful one.

A lot of people are now creating

their own video. But how do they communicate this information? The crudest method available involves the swapping of tapes. I mail you my software; you mail me yours. Effective? Yes. Satisfactory? No. Some have turned to theater events using multiple television screens and a comfortably darkened room. But this too has its limitations.

The efforts of software creators would be of minor interest were it not for the two most important developments in media: cable television and video cassettes. Here is the media revolution. A Community Antenna or Cable Television System (CATV) consists of a super antenna, a "head" which processes signals and a coaxial cable which, like the telephone cable, connects to home reception units. Subscribers pay as little as $5.00 a month for their hook-up. Present capacity is from twelve to twenty television channels through each cable, though in time, the contemplated forty-two channel hook-up projected for San Jose, California will not be unusual. Cable now connects to 4.5 million American homes. By 1980, it is estimated that 40% of all American homes will be connected to cable.

Cable is radically different from broadcast TV. For one thing, the program does not travel over the airwaves, which are considered public space. Though the program is televised, the process is most analogous to telephone conversation, which suggests that an enormous variety of contents is possible within the system. The private cable owner, like Bell Tell, is in the position of renting a service for the transmission of messages without control over their content. The possibility exists for what Paul Ryan has called "cybernetic guerilla warfare." Every receiver of cable becomes a potential program originator. The implication is, and the reality may soon become, that every community will control its information. It means that the cable subscriber will have available to him a wide variety of alternatives to the one-dimensional broadcast television. It means potentially that the entire information envelope surrounding the earth will be accessible to every single human being. It means the optimum communication system: high variety of programming, low cost, built-in feedback. Finally, the introduction of video cassettes will do much to insure that not even cable regulation and government restriction will stifle the communications explosion.

Obviously, the effect of video on the arts will be dramatic. Throughout the process of technocratization, artists have chosen between two options: the first offered artists the possibility of paralleling or complementing science and the seemingly bold forces of technology, thereby playing a supportive role to the historical pattern and affirming the commitments of society. We have called this option modernism. It is a form of technological portraiture. The second option is the human resistance to the blind technocratization of the natural and

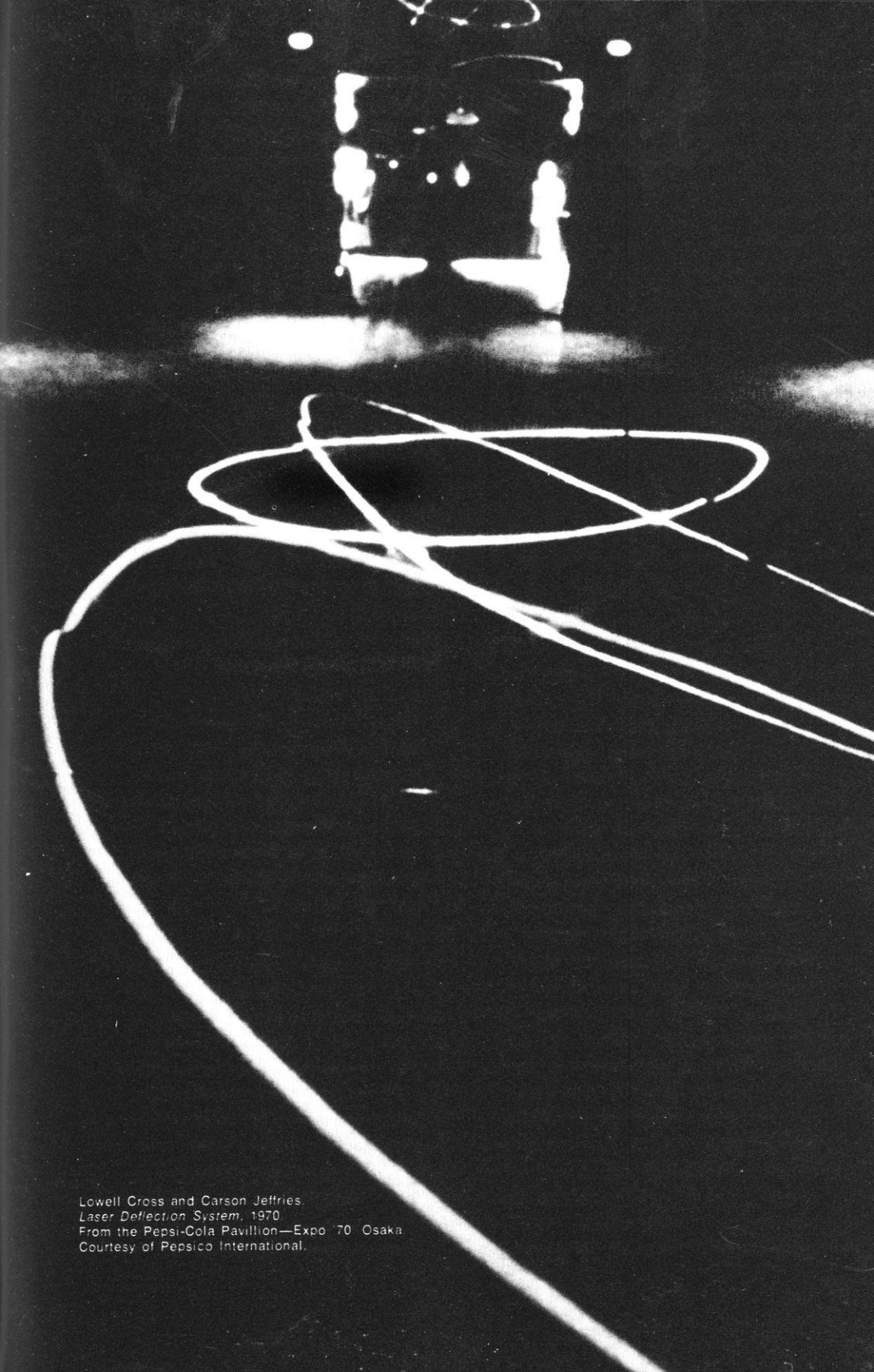
human environments. This option has been characterized by Marcuse as "the Great Refusal."

Modernism anticipates an avant-garde defined by its ability to innovate, discover and change at a rate comparable with technological development; the second option pictures an avant-garde based on the artist's ability to provide a counter-cultural force—an opposition to the acculturating forces that are part of the technocratization movement. The new media will be embraced by artists of both persuasions. The media will be used to further incorporate the arts into the frozen structures of American life, as demonstrations of a modernist aesthetic, *and* the media will promote very effective counter-cultural creations.

Our society values the continual discovery of those things that can be known only through specific processes. The questions it likes to explore are dictated by the ways it believes it can find answers. It encourages the application of a pseudo-scientific method which increasingly places emphasis on the process rather than on the value of what is achieved by it. As art has become integrated into society, planned obsolescence has been built into it. The artist, in turn, has redefined his role in ways that are consistent with the idea of the professional, the marginal role assigned to his specialized behavior, and the art marketplace.

We are living with what amounts to a "science-centered curtailment of human understanding."[1] As Edgar Wind has noted, many artists "seem to act in their studios as if they were in a laboratory, performing a series of controlled experiments in the hope of arriving at a valid scientific solution. And when these astringent exercises are exhibited, they reduce the spectator to an observer who watches the artist's latest excursion with interest but without vital participation."[2] The old is continually rejected for the new, like the processes of science itself, which affirms a method but never claims any particular discovery is of lasting value. The turnover of new data is seen as a sign of the health of the process itself. Artists speak of color theory, serial painting, field painting and other categories, based on pseudo-scientific explorations of visual experience.

Thus modernism in art, the cultural analog to the technological system, emulates science and technological innovation, and "proves" art to be a legitimate activity within the environment. I am reminded of the museum catalog in which artist Richard Anuszkiewicz says "My work is of an experimental nature and has centered on an investigation into the effects of complementary colors of full intensity when juxtaposed and the optical changes that occur as a result."[3] In a similar fashion, Vasarely argues "The masterpiece is no longer the concentration of all the qualities into *one* final object, but the creation of a *point of departure prototype,* having specific qualities, perfectible in pro-



Lowell Cross and Carson Jeffries.
Laser Deflection System, 1970.
From the Pepsi-Cola Pavillion—Expo '70 Osaka.
Courtesy of Pepsico International.

gressive numbers."[4] Thus, art is released with a count-down.

How will the new media affect art? The modernist will take to video. In fact, many of the important video developments in the past few years have been due to the discoveries of artists working with the media. The video synthesizer, Eric Siegal's colorizer, and many sophisticated techniques for use and production of ½" videotape are attributable to the contribution of the artist. Since video is audio and visual, comprised of light and sound, artists will explore its compositional potential. To use what may prove to be a poor analogy, many artists are now painting with energy.

Video is not film. Still, used as film, it makes possible major cinematic productions because of its greater *editing flexibility and erasable tape.* The ability to see what you have shot without waiting three weeks for film development, and the ability to make changes, edit and mix seconds after the initial impressions are made makes possible greater flexibility in the filmmaker's craft. But, in the end, video is electric, not chemical. It introduces feedback as an artistic variable. Feedback not only makes it possible for a viewer to experience an event or interaction, but also makes it possible for the viewer to experience his reaction to the event or interaction. And then to experience his reaction to his reaction to the event. Built into this system is the idea that the artistic event is a process, not a product. The artist's involvement with his audience is multi-dimensional. Because video greatly accelerates human time, the intensity of the experience is very great.

Video will further encourage the present shift in the arts generally to dynamic events. The new media, particularly video, use a dynamic reference. If you give a porta-pak (portable video set-up) to a novice, encourage him to shoot some tape, and then sit down and look at it, you will soon be able to demonstrate one of the most important aspects of video use. As the tape is playing back, you arbitrarily select a frame and hold it on "still." In any tape, there are dozens of still shots that are masterpieces of still-frame photography. The camera man did not try for them; it was just that by shooting reality itself within *a dynamic frame, a number of* excellent still-frames are recorded on the tape. If the novice using video for the first time can achieve photographic excellence, then the criteria for excellence in video must be based on a dynamic and not a still-frame aesthetic.

In some sense, video completes the transition from painting to conceptual art; theater to participatory theater events; sculpture to earth works. Art and life are increasingly inseparable, and video is the most appropriate media for their joining. Under the influence of video, the arts will be encouraged to give up their elitism and learn a vocabulary that speaks to an ever-widening audience. The artist will be re-

quired to learn how to participate in dialogue. Since the gap between life experience and artistic experience is closing, the artist has both the potential for influencing mass perception and a greater danger of becoming a commodity in the entertainment business.

As a counter-cultural force, the artist can choose to fill the media with social change software, or can choose to dismantle or render ineffective (symbolically or otherwise) the existing media structures. The artist can upset structures by a political documentary (a small taste of this can be gleaned from the developments that followed Helado Rivera's recent exposé of Willowbrook) to the creation of experiences that provide the electronic turn-on for new life styles and life-affirming activities. Further, the artist can join with the community in the creation of an information system designed to assist self-expression, identity, control of resources and new mechanisms for democracy at the community level. The implications for educational reform as a result of artistic input with new media are enormous.

The artist can choose to become more sophisticated in the role Herbert Read assigns to him: *ein Ruttler,* an upsetter of the established order.[5] These kinds of artists will short-circuit establishment electronics. The technodadaists will be twenty-first century Robin Hoods, taking from the communications systems rich and distributing to the information poor. Right now, for example, there are a new breed of technodadaists, generally known as phone phreaks, who engage in the process of phone tripping. With "blue box" in hand, they instantaneously take control of the entire telephone system. For no other purpose than to demonstrate the single man's mastery of the electronic maze, the phone phreaks seize control of cable, satellite, and millions of telephone lines to set up their mobile underground communications network. For the Telephone Company to weed them out, they would have to spend one billion over the next twenty years in the development of a "fool" proof system. Some phone phreaks are now getting into computer raiding; they are tapping into computers with their own programs, using them for purposes other than those for which they were intended. There are even rumors that if enough phone phreaks worked together, they could bring Ma Bell to a standstill . . . .[6]

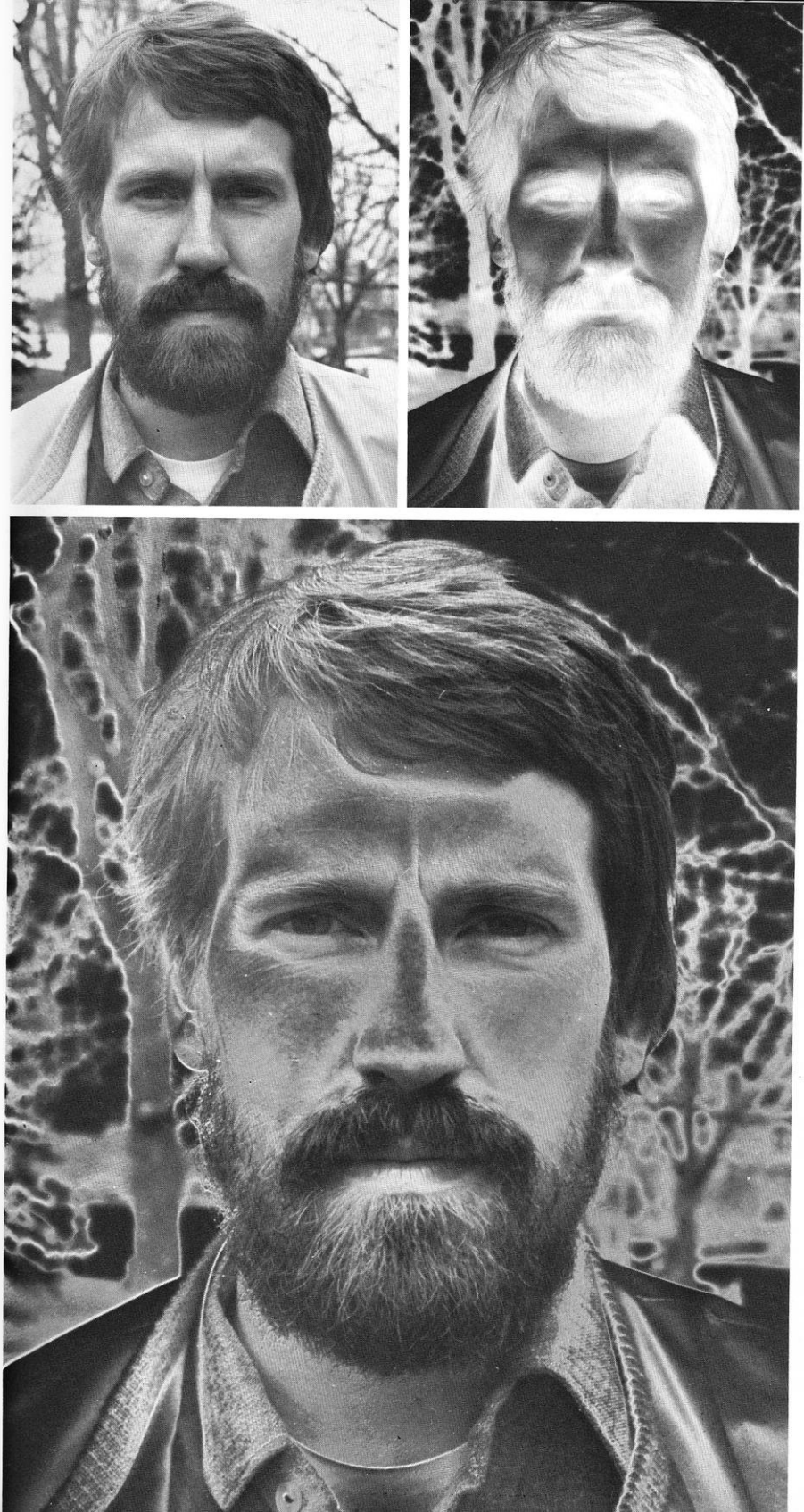
Any discussion of the new communications technology and its impact on the arts must take into account the equally probable use of the media to extend the present consolidation and control of the arts. Across the country we see the continuing institutionalization of the arts and the centralization of patronage. With the integration of the arts into the mainstream of American life, with the "professionalizing" of the artist, the soft underbelly of culture has been exposed. The artist is made respectable, and in the process, the arts are fully

devitalized. The new media will have two dramatic impacts on arts management. They will enable management to be more efficient. They will bring thousands of diverse creative activities under an electronic umbrella and further serve to castrate artistic activity. Finally, Prufrock will be able to be a highly regarded painter. And the arts will be brought closer to the popular arts by a form of techno-translation, which will cause original art activity and creation to be translated through media into devitalized carcasses for a mass audience that will eventually come to believe that the arts are no more important than the rest of the meaningless fare.

An example of the misuse of communications technology was to be found at last June's meeting in Washington of the Associated Councils of the Arts. Joseph Farell, formerly Executive Vice-President of the Associated Councils of the Arts and President John McFadyen made it possible for Louis Harris to conduct a poll of opinions at the conference. Most read the questionnaires, laughed and threw them away. Yet Mr. Harris used the answered questionnaires to quantify the results. At a business meeting of the ACA, a motion was brought to the floor to create a special category of membership with dues of $5.00. Prior to this time, the only members of ACA could be institutional affiliates who paid $100.00 memberships and received a small newsletter three times a year. The $5.00 membership, if passed, would make it possible for artists to be members of the Associated Councils of the Arts. Just before voting was to commence, Louis Harris took the floor and informed everybody that they should not yet vote because the next morning his office will have computerized their attitudes on this and other questions.

Six months later, the New York Times announced that a "Data Bank on the Arts Is Established." An independent subsidiary of the Louis Harris firm, the National Research Center for the Arts, is headed by the same Joseph Farell of the ACA. "Louis Harris, president of the market research and polling organization that bears his name, said that he had discovered, when he served on the boards of various cultural organizations, that the supply of data on the arts was woefully inadequate."[7] The consequences of computerized information guiding, advising or determining major decisions involving the arts will prove to be one of the most destructive applications of communications technology on the arts.

Many who bask in the cybernetic sunshine believe that the new communications technology will heal us. They are convinced that the new technology of communications is larger and more influential than those who control it; that the integrative, synergetic powers of the new media will survive the attempts of corporation heads and politicians to keep information access from the people. It is a widely held belief among techno-freaks and media heads that the electric environment is inherently positive. The individual



who sees the communications technology as a tool available for use but not, assuredly, a panacea or the demonstration of fascism is considered unhip to both the technofreaks and the Luddites.

Something very important is happening on our planet. Our young souls are buffeted by the shockwaves of radical evolution. The first dissident students at Berkeley were born the year commercial television began. The ghost of electricity howls in the bones of their faces. They could see for themselves that the world is not an inn, it's a hospital. Television brought us the human condition and a commercial message, and we intuited that all old customs were treacherous.

—Gene Youngblood

One of the fun things to be done with video relates to speculation about the futurist prospects of the new media. I have made a videotape and I show it to you. You sit down and in front of you is a monitor which shows my face. The camera recedes (recedes to the eye; in point of fact, you are observing the alteration of time), and you see me standing next to a monitor that has on its screen the image of my face. The tape goes blick, and you see me standing next to a monitor that shows me standing next to a monitor that has the image of my face. Blick! and I am standing next to a monitor that shows me standing next to a monitor that shows me standing next to a monitor that shows my face. A simple case of multiple feedback! I ask you how many monitors do you see, and you count them. Invariably you are one short: you forgot the monitor on the table before you. So engrossed did you become in the images on the screen, you forgot the screen itself. This experience takes much less time in video than it has taken for me to describe it in print. Warren Brody points out, a print person asks: "Can you follow my reasoning?" A video person asks: "Can you get into my space?"

I would like to use the forgotten screen as a metaphor in this dis-

cussion of the ultimate impact of the new media and communications theory. It serves to dramatize experientially the fact that when we perceive, it is through our screen: the psyche, values, social pathology, cultural background, etc. Unfortunately, the discussion of the media revolution is often obscured by those who forget their screens.

In an age of disbelief, when nothing is to be trusted, and all enthusiasms are cons, it takes a lot to get people excited. At a time when everything is revolutionary, when World War II films of Japanese-American conflicts are played on Sony televisions in Denver, Colorado, sponsored by Datsun Cars; At a time when twenty years of negative China images can be reversed in one week, people no longer believe. But the young and and the youthful want to believe. They want to find a way out of this madness. They want to have a vision of social change, a better world, humanity, sanity and justice. Unfortunately partial victories, tentative optimism, self-motivated enthusiasms are insufficient to break the despair that comes with impotency. They need a good hype, and they, in turn, feel compelled to hype the good.

A hype is when something of substantial value is fantasized to many times its actual worth. Perhaps good ideas must be presented as the greatest ones so that they can be heard over the clamor of commercial noises. Unfortunately, those who hype are only creating situations where, in the end the thing hyped will disappoint them, be less than a miracle, become subject to corruption, and they will then become dejected, more depressed, less able to believe in the powers of any new vision to remain free of contamination by the world they wish would die.

The flower children generation was hyped. An important youth development became "The Greening of America." The psychedelic experience was hyped; important and satisfying experiences with a few specific drugs became a vision of God, the way to the truth, the death of the ego. The Eastern religion trip is hyped; the significant and enduring wisdom of the East is turned into service to Krishna, urban yogas, and the achievement of nirvanas. We are always hyping ourselves. Each new hype comes on like it is the transforming force of the world, the dramatic departure from the past, the healing mechanism for the whole society. We become enamored, then true believers and then, with our disillusionment comes the resentment at having been betrayed. We even hype people. Marshall McLuhan is ex-hype; Buckminster Fuller is present hype; John Lilly is future hype.

While our less sophisticated fellow creatures consume new products, our intelligentsia consumes new fascinations, new ideas, new heroes, like they were so much hair dressing. The intellectual's

goldmine serves as a contemporary symbol of insincerity. Believing ourselves unable to make anything happen, we sit around fantasizing the importance of what is happening without us.

My purpose in elaborating on the hype is that this article on the communications revolution must conclude by extracting the substance of communications theory from its hype. If we are to profit at all from the new communications, we must —absolutely must—reject the hype so that we can fully utilize the substance. If we continue to hype ourselves, we will toss the potential benefit of these media back to the institutions. For the hype discounts the political nature of the environment and the problematic outcome of any new tool which can be used for better control or liberation. If we discount the dirty little secret of politics, we will wind up not with Childhood's End but with Hogan's Heroes.

Unfortunately many are turning the media into a cultism. Unable to say that here is something that is really important, something that counts, they require it to be salvation, a new vision, a panacea for a new age and a new man. Unfortunately the religious trip confuses more than it clarifies; the new media are already becoming surrounded by a vocabulary and a linguistic DMZ created by communications "experts" though incomprehensible to others. As well as jargon and evangelistic rhetoric, the new media people can be characterized by a form of intolerance called the "more electric than thou" syndrome. The vision of young men and women armed with portapaks, standing up to America with their software, their blue boxes, or their spacy games may be exciting to some; but if we are to believe that the new media will make a difference, it will only be because the kind of long-term strategy, careful planning and post-crunch survival tactics are now being worked out.

1. The Human Predicament: Dissolution and Wholeness, *George W. Morgan, Dell Publishing Co., 1970, 348 pp., page 10*
2. Art and Anarchy, *Edgar Wind, Random House, 1969, 212 pp., page 20*
3. The Anxious Object, *Harold Rosenberg, New American Library, 1964, 223 pp., page 47*
4. Late Modern: The Visual Arts Since 1945, *Edward Lucie-Smith, Praeger Publishers, 1969, 288 pp., page 273*
5. Art and Alienation, *Herbert Read, Horizon Press, 1967, page 24*
6. *"Secrets of the Little Blue Box," Ron Rosenblum, in* Esquire Magazine, *October, 1971, pp. 117-125, 222-226*
7. The New York Times, *by Howard Taubman, October 26, 1971*

ON A COMMUNICATION FROM JOHN DEWEY

Peter Yates
Poet, Music Critic, and Chairman of the Music Department at the State University College at Buffalo.

ON A COMMUNICATION FROM JOHN DEWEY

In human affairs and in relations that range extensively and penetrate deeply the mere idea of invention awakens fear and horror, being regarded as dangerous and destructive. This fact, which is important but rarely receives notice, is assumed to belong to the very nature and essence of morals as morals. This fact testifies both to the reconstruction to be undertaken and to the extreme difficulty of every effort to bring it about.

John Dewey,
Reconstruction in Philosophy

The rapid extension of communicative systems and the present rapidity of communication by these systems have enormously expanded and critically subtilized the ideas by which we criticize ourselves. This fact has grown in relevance so almost instantaneously, as compared with the general and the individual habitudes, that in the most important matters we have been reduced to blaming and incomprehension.

For the first time in man's history invention is not a part of the ongoing life of the individual in his community but something apart from him which seems to proceed by its own generative powers of multiplication. Man fears it, naming it "technology," and calls on it to cure his troubles. Like any primitive encountering a power he uses but cannot understand, technological man confers on technology a life of its own; the voice is that of the

computer, already endowed with an anticipatory animism.*

Knowledge is, in my statement, ability to do with the information one has; the product of knowledge is more information. One must reconceive knowledge each time one puts it to use. By far the greater part of knowledge is "know-how," the habitude of common information reconceived only in that it is used again: "know-how" thinks itself. "Know-how" is for most of us most of the time of "the very nature and essence of morals." We cannot feel at ease (safe!) with any act of reconceived knowledge until we have found a place for the resulting information in the common habitude. Man has climbed Everest, man has landed on the moon; the event ends, like other broken records. Lesser changes, in seemingly obsolete religious and political matters and often in art, are less easily assimilated. Although the physical size of the human animal seems to be increasing, intelligence, even to the selective pressing of buttons, has become more important for our lives than muscle-power.

Man is the one creature in whom, for six thousand to ten thousand years, the adaptation of intelligence to new conditions has outrun evolution; during the last centuries the increase of information has been accelerating. Today the speed of invention inventing invention—the progress of knowledge as ability to do and the resulting increase of information—has reached cybernetic disproportion. Technology, the methodology of invention, is producing information more rapidly than the ability of the human intelligence to process what it learns. A superstition of received science has replaced the superstition of received religion.

The communal habitude now lags dangerously behind the individual habitude, both politically, which is the storm warning of revolution, and imaginatively: we are unable as a community to conceive what individuals among us have made possible for us to do. The lag shows in the almost total negativism of the arts, the loss of convinced purpose and belief in education, the archaic modalities of governmental action. We bury in the pyramids of the successive presidential libraries not a sacred body but millions of documents; scholars are already devoting entire lifetimes to editing and publishing for other scholars the scantier papers of earlier presidents. Scholarship reverts to being information about information. Accurate observation cannot communicate by footnotes.

We have extended our detailed information about the earlier history of mankind by thousands of years and our general information about the origins of life by millions of

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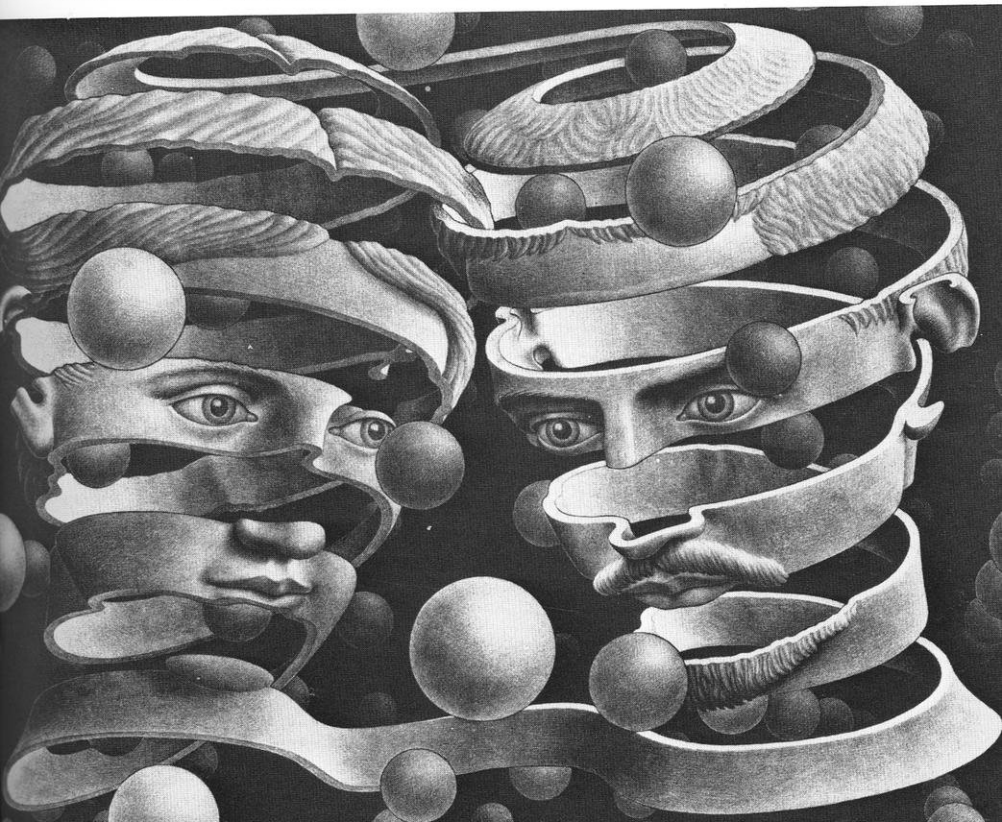
**The voice speaks out of the box, and we fear it because it is not the voice of a man.*
The voice speaks out of the box, and we admire and revere it because it made the box.
The voice speaks out of the box, and it is our box.
What do we do then?
The quick wish answers.
If communication is no more than a multilateral relay of data, no criticism.

years. We have transformed our understanding of substantial materiality to a condition approaching spirituality, while throwing aside the inherited stability of traditional religions. We have explored the physiology of human bodies as mechanisms, but we do not comprehend how we think. The versatility of new economic situations annually outwits the competing theories of economists. Cultural voices admonish us to remember our ideals and standards. Yet we learn that the ideals and standards conforming the insights of our Western analytic tradition do not comport with the intuitive moralities of other cultures. Today every society, primitive or complex, is being shaken and disrupted by a moral crisis of communicated learning.

Freedom of information, instantaneously transmitted, has penetrated to the remotest tribes, destroying the last remnants of aboriginal innocence and often destroying the tribes as well. If a simple people cannot keep its songs and ritual, it ceases to exist. What of ourselves? The commercial blighting and social inaccessibility of the urban core have scattered their superficials among suburban shopping centers. The branch library with its display of currently popular books, the little theater without repertory or dramatist, the annual dollar-attendance deficit of middle-class cultural institutions, the vacuity or viciousness of popular entertainment warn us of the anarchy underlying the amenities patching together the fragmented center.

Few people today, even under the severest dictatorship, are so iso-

M. C. Escher, *Bond of Union,* lithograph.
From the collection of C. V. S. Roosevelt, Washington, D.C.



lated from communication and exchange of information as the majority of people were a century ago. Do we grasp what it signifies that for ten years we entrusted the leadership of the United Nations to a man from Burma? No people today is ignorant of the potentiality of liberation, however peculiarly interpreted by government. What do we mean by "liberation?" Is it liberation to have exchanged our ritual and song for a passivity of entertainment?

Today we are our own censors. And, almost unwittingly, we resent, resist and strike against that censorship. Instead of consulting oracles, we compute polls and statistics, confusing impersonal probability with the requirement of personal choice. The spokesman of mankind today is not an angry prophet but a dissatisfied student, breaking out in fury and riot in the name of causes which do not engage his attention for more than a few months, outraged by invisible censors who seem to deny him what he cannot formulate.

So we reason with students: "If you don't know what to do about what bugs you, what plan do you offer?" Confounded by this tautological non-sequitur the student is momentarily quiet. "Don't disrupt the administration until you have a plan." The academic mind presumes that learning exists for its own sake, cut off from need. Not surprising, when "need" is interpreted as numbers of students slopping through available courses on the way to a credit rating (degree) which is supposed to guarantee job, home, income . . . and what else? What is a student expected to do with a "liberal art" when he has it? The barbarians who destroy our culture may be those who have had every benefit of it.

We all have faith that we can somehow communicate. What? We all have faith that, if we can learn the answers, we will understand the questions: the examination theory. We call on "creativity"—ugly, meaningless word! In the processing of information that we call "intelligence," answer and question are inseparable. We share an historical vision of the whole world, past, present, and potential. Though we read the vision as a succession of accidents and failures, denying progress, mankind has only during the last two centuries become capable of such a vision.

We are aware that we inhabit a globular bit of matter hurtling through space. We have seen our planet in a photograph. Space in our information of it is not so companionable as the heavenly spheres of Dante. But although we are not fully informed about our earth and space, we are not misinformed.

We have begun exploring the immense realm of human intelligence: how within living bodies we process, store, recall and by insight reconceive information. False theories abound. Everything else depends on this. We may even rediscover divinity and the uniqueness of each human spirit.

Almost overnight we have begun informing one another that we cannot continue fouling and exploiting the limited resources of the world.

That discovery may be the start of a new epoch of intelligence. Belatedly, at the edge of panic, we wish to do something about it; what we are doing is incommensurate with what we have learned.

Give thought to that word, "about." Too much of our information, our education, our communication, is *about* things. We learn about poetry, we hear about disaster. Poetry is: it is not to be explained. Formerly, but in my lifetime, a couple of lines in a corner of a newspaper reported that a million people had perished of famine in India; it seemed to be an annual event. The local authorities were doing what they could. No man can foresee poetry, but we are learning as a world community to counteract and to anticipate famine.

The world population is increasing too rapidly! Children survive, that's one difference. We are no longer content to let disaster decimate populations comfortably out of sight. We see within a day pictures of the disaster, the living who must be saved. We have eradicated smallpox, which until recently wiped out entire populations; that millennial event has been in preparation for two centuries.* Poverty angers us. Should we argue the cause of Zero Population Growth or alleviate the miseries of the "have-not" peoples, among whom sex is a recourse against desperation?

We are told that mankind will never rid itself of war. We do not yet admit that armaments are now being directed not against other equally armed nations but against the seething demand of the unweaponed to share the wealth of the weaponed. We have had warning, from Russia and from China, from Algeria and Cuba, and lately from the little "bush-war" in Vietnam, how rapidly and how variously the unarmed can arm themselves.

We are told that one big war, as war can be fought today, will finish us. So we have summoned the nations to assemble and disagree in public. We have, as one result, a proliferating of new nations. We say that nationalism is a political disease, fault, fallacy, of our time. It is also a prime symbol of the freedom of peoples. For them, looking at us through today's communicative means, freedom means more than freedom to exist.

I dedicate this article to the late Kenneth Patchen, the Blake in our time, who foresaw the need of the helpless and recorded his passionate prophecies and warnings in poetry and painted books. Bedridden, in physical anguish, cut off from acclaim by the cultural arbiters of his generation, he sustained his vision of the poet during the thirty-three years since I first heard him say what he would do.
In beauty, desperation, and never without recourse to humor, mingling high eloquence with a vernacular of the comic strip, he fulfilled his promise.

Epidemics and mass vaccination in Yugoslavia indicate that again a millennium has been delayed.

ART BEYOND THE COMMUNICATIONS EXPLOSION

Vytautas Kavolis
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ART BEYOND THE COMMUNICATIONS EXPLOSION

1

All statements about art must be qualified by the assumption that it performs what Robert K. Merton has called latent functions — i.e., functions that are neither intended nor recognized by the people who produce, sponsor, or use art. In the case of art, these functions are not so much "social" — pertinent to the survival of societies — as "psychocultural" — performed on the boundaries between individual psychic structures and shared symbolic designs. It is possible to argue that art connects human beings with civilizations, bracketing "society" out.

But the ways in which art connects human beings with civilizations — its functions — vary from group to group and over time. The same works of art perform one set of functions for one group and different ones for another. (This is indicated in such findings as that the content is more important for the lower classes, form for the higher classes.) And in time the same works of art assume new functions, discarding old ones, if they possess the structural richness to perform any functions outside of the social context in which they have been produced and which they must be presumed to be "reflecting."

2

A further difficulty in trying to predict the effects of the communications explosion on the future development of the arts is that the

electronic (or any other) media do not influence the imagination in isolation from other factors affecting it. The electronic media may be expected most closely to approximate the effects which Marshall McLuhan has predicted for them when three other factors are present: (a) an unstable pluralistic system of controls over the "messages" transmitted, so that different types of messages cancel each other out and only the "medium" — the technique of transmitting messages — itself seems to remain trustworthy; (b) a high degree of geographic and social mobility, which affects the imagination in ways similar to the effects that the mass media have (and "confirms" the latter); and (c) affluence, removing most of the pressure of "hard" reality on the imagination which has, in the past, done much to stabilize it. Regardless of the extent of the communications explosion, its effects are therefore likely to be more pronounced in societies like Sweden or the United States rather than in those like Greece or the Soviet Union.

The art of society consists first in the maintenance of the symbolic code, and secondly, in the fearlessness of revision . . . Those societies which cannot combine reverence to their symbols with freedom of revision must ultimately decay.

—Alfred North Whitehead

3

In attempting to envision the long-term effects of the electronic media on the arts (after the initial fascination with gadgetry wears off), I begin by postulating a model of the "dialectics of imagination." According to this model, imagination works by responding to any element of "objective" social reality in two ways: by affirming it and shaping itself in the mold of the structural characteristics of that element, and by repudiating this element of social reality and form-

ing itself as its precise opposite. We imagine in patterns that we have been most struck by in social reality and in patterns embodying that which we have missed most in it. The raw material of the imagination consists of affirmations and denials of various aspects of social reality. In the creative act a selection of such raw materials is constructed into a unique design of its author.

Applied to the electronic media, this model (developed in "Postmodern Man: Psychocultural Responses to Social Trends," *Social Problems,* 1970) suggests the following hypotheses:

A. The noise, color, vivid imagery transmitted by the electronic circuitry will produce an increasing disposition of the imagination toward these qualities — but also an increased experience (or fear) of numbness, silence, inability to respond.

B. The "flickering image" that constantly changes will generate a disposition of the imagination to affirm the impermanent, the fluid, happenings, accidents — but also an increased need for stable points of reference, criteria of choice, new rituals and dogmatisms.

C. The "dematerialization of the world" — the transformation of substances into images — through electronic media results in a disposition toward a completely arbitrary subjectivity which perceives itself capable of establishing *any* kind of reality by the simple act of constructing an image of it. But the experience of dematerialization also causes a demand for "basic substances" that exist beyond images, on a more fundamental level of being, and both compel and nourish by their presence — the warmth of human bodies, natural ecologies, symbolic designs that fuse necessity and emotional need, personal relationships that reconcile long-term commitment and day-to-day utility.

D. The electronic media have a tendency to convert everything into "entertainment" and to use up all objects, regardless of their unique qualities, wholly in the process of doing so. An object that has been so processed becomes too "soft" — too spongy — to make an enduring claim on a sensible human being. It is *sufficient* to consume it, and there the matter rests. Those types of imaginations which shape themselves as the opposite of existing social reality begin seeking for that which *resists* being converted into nothing but an object of entertainment.

Real-life events frequently have a greater capacity of such resistance than works of art do. Therefore tendencies to replace "aesthetic structures" by "event-structures" — as in the art exhibition, precluded from opening in a New York museum in 1971, which was to have consisted of photographs of slum buildings to which addresses of their owners were to be attached.

A more promising strategy of resistance against being used up


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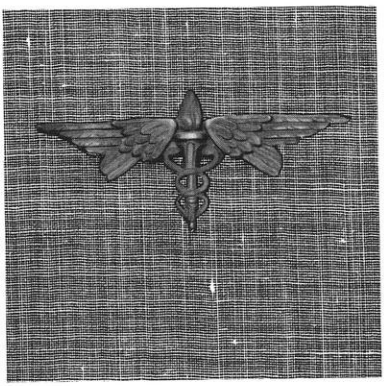

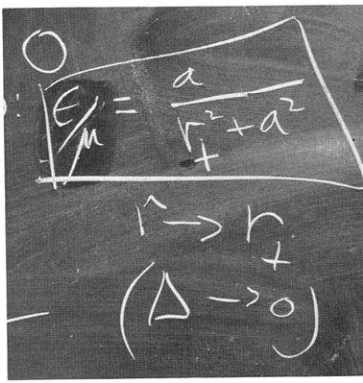
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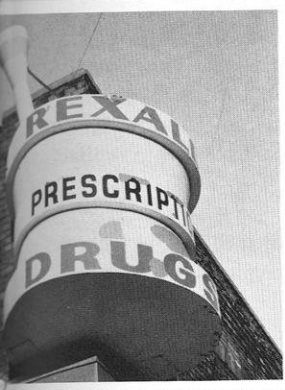
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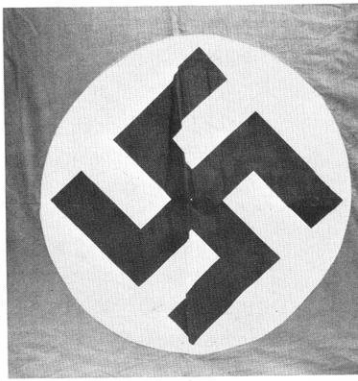

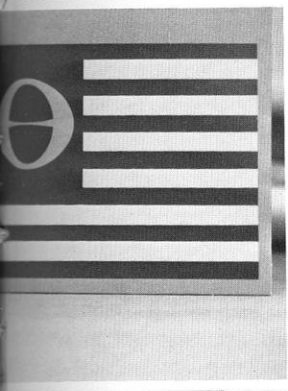

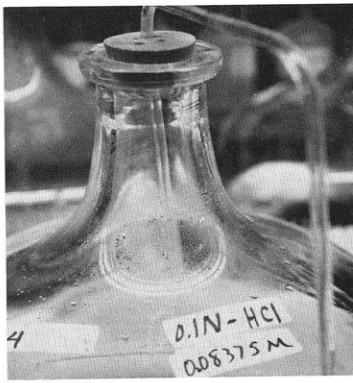
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by the mass media would be for the arts to develop a more insidious kind of aesthetic toughness. The shock effects by which the avant-garde has sometimes defended itself against being consumed by the bourgeoisie having proved entirely exploitable by the mass-entertainment industry, such resistance may have to take the form of building a not easily comprehensible complexity or a very private sensibility into a work of art (subtlety being, for the arts, the toughest defense).

It seems expectable that the most important artistic works of the age when the communications explosion will be taken for granted will represent not one or another of these alternative responses of the imagination to particular aspects of the electronic media, but that they will reconcile both types of responses, relating perceptions of "social reality" to its "negations" by the imagination. And these works will presumably express responses of their creators not only to the electronic communications, but concurrently, in the same aesthetic structures, also to other elements of post-industrial civilizations.

4

When people lived surrounded mainly by hard, immediately pressing realities (e.g., compelling material need, political or ideological oppression), art had — and still has — to legitimate the "softness" of the imagination. But as a great many contemporaries, in the most advanced industrial societies, live increasingly surrounded by soft realities (expansion of the sphere of consumption, proliferation of evanescent imagery), the more important function of art becomes that of revitalizing the "hard" imaginings — the ultimates of human existence, not its playthings; the rockbottom rather than the ornamental.

This line of reasoning leads to the prediction that the most "natural," unforced course of development of the arts will, in the most advanced industrial societies, bring them not so much into a closer alliance with the sciences and the technologies, as to an increasing — though not necessarily intentional — proximity to ethics.

As a response to ontological insecurity, constructivism — or madness — without an ethical quest is not imaginative enough.

COMMUNICATIONS IN A HEAVENLY CONTEXT

Max Kaplan
Director, Leisure Studies Program,
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COMMUNICATIONS IN A HEAVENLY CONTEXT

I

Christianity has traditionally been counter-revolutionary: things will aright themselves in Heaven. But religion weakened in its hold over the past century, in Europe as much as—some would say more than—in the U.S.A. There were many reasons, among them several great wars, the church's failure during Hitlerism, the growth of a science ethos, urbanization, and greater literacy. The decline of the religious hold did not leave a vacuum: rather the concept of Heaven was revolutionized. *Heaven was simply moved to earth.* No more did one have to wait; installment buying was more pragmatic and effective than prayer. Even the minister obliged with installment sermons, breaking them up into sermonettes.

Our vision of Heaven is rather fuzzy, for we lack the discernment of a Bernard Shaw to see how dull it could be. But put in the form of a new golf set, a flight to Hawaii, a six-pack of Schlitz or Pabst, or an air-conditioned 480 horsepower Cadillac—this kind of Heaven was clearly visible on the TV screen every night or in the newspaper ads every morning.

Thus leisure became a symbol of Heaven, and when fully realized, an affirmation of the fact. God did not die; he became much more alive, in the form of theosophical teaching—not in every tree and flower, but converted in every commercial on TV, discount house, or car salesman.

Clearly, with Heaven already here

or obtainable by credit card, what is there to revolt about? Bank-Americard goes—without the asking—to every household head in every city directory.

The youth, who already have used their fathers' credit cards, have had a taste of Heaven even in their early years, and like Shaw's precursors in Don Juan, would rather meet in Hell. For their view of Heaven as an ideal is not that of things and goods, but strangely an old-fashioned, humanistic concept which Reich summarizes as Consciousness III. Leisure, to youth, could be a symbol of this old-fashioned Heaven, accepting the Hellenic view of leisure as *paidia,* which they see articulated by de Grazia. But to them, both Heaven and leisure are schizophrenic; each containing the duality of Light and Darkness—the what-could-be *versus* the what-is.

II

The arts, on the other hand, have provided their own Heaven. For the artist, or for the faithful listener to music and viewer of color, there were already a full set of gods, saints, and angels—the three B's, Da Vinci, Van Gogh—and the Act of Creation was an ongoing process. It is no wonder that between Priest and Artist there has been an ongoing confrontation: arts have only used symbols of the religious state of mind (madonnas, Biblical scenes) but can function independently of them; the church has used the arts for its own purposes and under its own conditions, but can also exist independently. God has often been spoken of as a mathematician, but never as a musician, or dancer, or sculptor. And as a Creator his power is mysterious and unexplainable, but so is a Mozart.

The youth needed no credit card to purchase this earthly-Heaven of the arts: it was already there, in the sounds which surrounded them at birth, crystallized for them in classrooms or youth clubs, amplified in Woodstocks, large and small. It is more than coincidental that music—as a synthesis of instrumental and vocal—became an integral part (some would say, a fundamental foundation) of the Youth Movement.

III

Communication takes place within a context. If, then, the social values of acquisition, status, comfort, etc., have become earth-oriented rather than Heaven-bound, a new relationship exists with the aesthetic dimension. The context is that of the aesthetic as the host, long familiar with the common man, and able to tell him, "But don't confuse the superficialities of Heaven with the realities. You have not completed the move, only started it. For there is something deceptive about Heaven when you experience it up close. It is really not something that comes by credit card or is traversed by power steering. Heaven is more than a 4-day work week, or early retirement. Or Peyton Place in color."

Indeed, the closer one approximates the conditions of which Heaven is shaped the more elusive becomes this . . . . this . . . . what? What, indeed, is Heaven, if the credit card has brought, not its substance, but its physical images?

IV

The question is new, for the material base of Paradise is available now to most of us. If time alone be taken as one element of the new base, the past seven decades have witnessed a reduction from 60 to less than 40 hours of weekly work; and the increment of 20 hours x 52 weeks (= over *1,000* "free" hours per year, or *50,000* over a working life time!) is enriched by the increasing utility of each hour through the instruments of communication and transportation.

"As this trend increases," notes Arthur Schlesinger,[1] society faces a tough problem. For those who are likely to have the most free time in the high technology society are also those who, ... are often least trained by education and environment to use free time wisely and creatively—to convert free time into genuine leisure."

It is at this point that the arts find it difficult to communicate as hosts in the new context of Earthly-Heaven, or if you prefer, Heavenly-Earth. For the arts have hardly penetrated the Americans of Consciousness II, as evidenced by the paucity of flowers in the windows of American homes, or the plethora of decadence in the architecture of super-markets, or the low priority of the arts altogether in the Federal budget. Here the antithetical relationship is notable between the arts and the new-occupants of Heaven: the material gadgetry is more form and temptation than substance, and reaches the masses; the arts, with the more difficult, substantive content have always appealed to the fewer. There is a natural logic here, understood by all critics of the mass culture.

The communications of the arts are of a special relevance, therefore, to the newly-shaped Heaven which is yet unaccustomed to its new cosmic location. Those in its technological quarters have hardly learned their way about. They need guidance from their hosts—a sorting out of means from ends, or secondary from primary. Yet before the arts can communicate effectively, they must first talk more among themselves, redefining their own assumptions and aesthetic directions within the strange new, democratic context. Can they do it? Or will they, in turn, be awed by the technology that has descended upon them; rather than reaching out to their neighbors who stand in danger of missing the essence of Heaven in the computerized togs, will they themselves become victimized, mechanized, and eventually, Fortran-ized?

This is the great problem of communications which will shape the arts in the next decades: how to live in sufficient accommodation with technology without destroying its own immeasurable, un-computerized, and un-predictable essence.

[1] *In* Technology, Human Values and Leisure *(editors, M. Kaplan and P. Bosserman) Abingdon Press, Nashville, Tennessee, 1971, p. 76-77.*

SENSIBILITY UNDER TECHNOCRACY: REFLECTIONS ON THE CULTURE OF PROCESSED COMMUNICATIONS

Andy Warhol, *Marilyn Monroe* (detail), silkscreen, 1962. Collection of René de Montaigue, Paris. Courtesy of Leo Castelli Gallery, New York.

SENSIBILITY UNDER TECHNOCRACY: REFLECTIONS ON THE CULTURE OF PROCESSED COMMUNICATIONS

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Writing in an earlier phase of the "communications explosion," in an era of the burgeoning of American newspapers, Henry David Thoreau defiantly asserted that he would have nothing to do with the weekly news. Even in rural Massachusetts in the first half of the nineteenth century that sounded a bit odd. So Thoreau went on to explain at some length that what passed for news rarely achieved that quality and, besides, was mostly irrelevant, redundant and distracting. That has been the usual view of the sage. Two millennia earlier, Chuang-Tzu suggested that the wise man might be awakened each morning by a crowing cock in the next village yet never bother to find out more about what was happening a cock's crow away. The Taoist and the Transcendentalist taste, and its astute perceptions about the redundant irrelevance of what passes for news, may still be valid. But the claims to autonomy of Chuang-Tzu and Thoreau often can't be extended into our time. Western urban man's media environment is ubiquitous and the news and the crowing cocks will not keep their distance.

Their signs and sounds—imprinted, xeroxed, neoned, transistorized—pervade our villages and Waldens. No one, not even the ultimate media ascetic, can long escape the communications explosion, and its shrapnel of labels, ads, directions, pop tunes, news; shattered images and other fragments of processed ideology will surely riddle his consciousness. We may choose not to

communicate but we shall be communicated with, no matter what, short of a complete state of catatonia.

"News," rather more than ideas or art or entertainment, suggests the first focus for considering contemporary communications. For the mainline justifications for technological media, I conclude after surveying scores of such discussions, center on "informational utility." The priority of the whole panoply of our amazing equipment, from ballpoint pocket pens to computerized phone systems and vast television networks, rests on quickly, accurately and vastly disseminating news and other information. Obvious—or is it? News, as commonly defined, actually plays but a small part in publishing and broadcasting, providing less than thirty percent of most daily newspapers, less than ten percent of most daily broadcasting, and proportionately little of book and magazine and other material. We might, of course, metaphorically extend news-information to include, say, top-forty pop records, commercials, sports, the standardized fantasies called media entertainment, the pseudo-events of celebritydom and the pseudo-truths of officialdom. But to credit to most of this the rationale of "informing" people seems rather peculiar. By any reasonable calculus, the larger part of what is printed and broadcast serves, at best, as organized misinformation.

Here I need not demonstrate the obvious selectivity and bias and superficiality of most mass journalism. No doubt there can also be fair and subtle and imaginative reporting, though journalistic "objectivity" and "neutrality" must generally be viewed as ideological cover-ups. Direct experience of some reported event often provides shocking confirmation of the usual omissions and distortions of "the news." The consequent disenchantment of perceiving outside the media has salutary effects, and may be a crucial experience for providing critical and aesthetic awareness of what our communications systems really are and do. In any "break-through" awareness, the standard claims for our communications processes will be drastically devalued.

The pertinent understanding of contemporary media can hardly accept the "informational" camouflage. Cast a cold eye on, for example, the ways most people relate to the media "news." They seem to only half-listen to the hourly radio "news spot," disassociatedly scan the surreal jumble of newspaper pages, mesmerize themselves in front of the half-hour television news program. As with the usual responses to most ads and entertainment, consciousness seems to be moving in some strange realm of epiphenomenalism based in a quite different reality. Taking in "the news" seems to be rather more ritualistic than informational.

News-as-ritual may be confirmed by the aesthetics of news presentation, as in the pretentious formats with the banner headlines, shamanistic announcers, portentous music and visuals, and the revealingly narcissistic emphasis upon the process itself. Not the world reported on, but the news processing becomes the crucial experience. Processed style consumes all, merging all

experiences into the arbitrarily delimited package, equalizing the sporting event and the brutal war, the commercial quip and the social philosophy, the trivial and the tragic. Sometimes skillful, of course; grandiloquent packaging may be the ultimate American art. But "informing" can hardly describe its purposes or effects.

Look, too, at media news in terms of its least varying contents. Local weather reports, for example, come out as comic interludes on television, a mixture of weak joke and jargon and visual display—of little real concern to most viewers yet seemingly essential to the package. Similarly with "sports reports," specialized yet almost never analytic, at once arcane and simple-minded. That is just another definition of ritual style. Some recent studies suggest that many people follow the sports "scores" who do not otherwise relate to the athletic activity and who understand few of its nuances. One finds a similar response in most mass religious practices. The ceremonial function appears equally strong in those most rococo sections of the "news service"—the decorum riddled "press conference," the fatuously fractured and controlled "interview," and the other quaintly decorative "features." More generally, "content analysis" of media news shows a tremendous redundancy combined with a low rate of "information," and even lower levels of analysis and interpretation. But such studies assume, against the perceivable grain, that information communications, such as the "news," primarily aim to inform.

As I see them—and myself—the audience responds to media information in devotee fashion, piously and repetitively going through the normative reading, listening and viewing of the same events over and over again at the same times in the same ways. The media material, like the hormone-injected salt mush for forced animal fattening, simultaneously feeds and increases the ritual hunger. Surely, in their daily duties, the media do impart some information and a certain, albeit often misleading, sense of the world, just as more ancient rituals impart some metaphysical dogma and a certain, albeit often misleading, solace from the world. All such rituals serve to confirm accepted views of reality and, says Joseph Klapper, one of the systematic students of media effects, "re-sanctify the sanctified." No doubt this ritualization seems essential in what many feel to be an acceleratingly complex and confusing world. Disorder requires more sanctioning and solacing description than does order. Which is to say that it requires more misdescription. Thus the "informational utility" of technological communications in large part rests in rituals of misinformation. And thus it is not at all odd that media consumption tends to inverse relation to understanding. The audience responds obsessionally rather than critically, less learning of and interpreting reality than exorcising and ceremonializing the larger world and its threats.

Conservative moralists like to pontificate about our amorphous-appearing culture's lack of adequate rituals. But the actual rituals of a society rarely get recognized, self-consciously, as such. In our mass media, and in whole pattterns of many of our institutions—such as

schools and universities—we constantly move in an immense play of ritual forms and responses. Our communications processing, I suggest, claims to "communicate" and "inform" as part of its essential mystification. To understand ritualization means to condemn it, for its falsity as well as compulsiveness. We may forgive the need for ritual order but not the established ritual claims, for they cannot be and cannot do what they pretend. Whatever their subsidiary utilities, such as information and entertainment, our mass rituals serve, under false guises, to re-enforce the dominant mythologies. Ritual aims to control sensibility, and only, I think, in some such awareness can we understand the otherwise inexplicably peculiar and elaborate processing that styles our technological communications.

An obvious example would be the television "talk-show." When electronic devotees attempt to identify teleculture's favored and distinctive forms, they usually put "news" first, then, variously, sports events or old movies or talk-shows. All but that last arrive as re-runs of other media, and remain available elsewhere. In a generation of mass television programming, in all its voracious and exploitative efforts, only the talk-show seems to have achieved a distinctive popular form. Yet it, too, remains parasitic and an anti-form in most aesthetic and moral senses. Even at its most ambitious, the talk-show presents less art than the artistic personality as its surrogate. The intellectual, in his or her rare appearances, becomes a spot performer between commercials. The popular adventurer or monumental eccentric appear incongruously and stutteringly disconnected from their realities. The sexologist or demographer or mild dissenter or other wiseman must operate as polite quipster to the dominant show-biz entertainers. Homogenized into a synthetically theatrical time and space, artist, intellectual, adventurer, expert, and character become props in a rigid and restrictive ceremonial-commercial package. Though sometimes curiously amusing or poignant, all authentic persons become denatured and can only ritualistically parody themselves. The undercutting commercialism, the mechanical timing (so experience rarely finds an organic length), the ornate arranging (so that artificiality overcomes any possible substance), the show-business professionalization and domination (so that flashy grossness and ignorant narcissism tone all), the entertainment stylization (so that decorous amusement limits seriousness; more, in an hysterical refusal of all meaning the maestros giggle constantly at nothing), this ritual processing is the art of it all, and just about all the art of it.

However, such negative effects are not, contrary to traditional intellectual views, confined to the commercial mass media, but characterize most of our techno-communications systems. Granted, they appear especially strong in the mass publishing and broadcasting media because those primarily devote themselves to exploitation. And granted that the hierophants of the media reveal themselves, as a group, to be shrewdly stupid and dully corrupt. I have no argument with the sensible prejudices of the leftist and the moralist, but they

don't sufficiently recognize the incremental role of technocommunications and the sensibility they demand. The problem requires some discrimination. No doubt traditional political and moral criticism do apply to our technocommunications. Technology probably cannot produce its own social and cultural forms. Indeed, almost by definition technocracy can no more achieve a completely distinctive sensibility than the mass media can create art forms rather than just parody them or than bureaucratic communications can carry individual meanings rather than just warp them.

So far, we have not come anywhere near a distinctive "technological man," argues political scientist Victor Ferkiss, and our supposed futurist communications just reveal "the dominance of bourgeoise man, with new tools." Whether the telephone system or the multimedia corporation, the organization subordinates technology within non-technical socio-economic and ideological purposes. Business is still business, and the absolutistic state still operates on its power imperatives. Technologists as such neither rule nor even program our technocommunications, nor are they likely to. If one wants to predict the future of technocommunications he would best not consult scientists and communications experts but market analysts and social ideologues. Näiveté about social orderings and institutional imperatives makes most futurist writings rather silly. Technologues, such as Buckminster Fuller, argue from the utility of communications, ignoring their crucial irrational roles in mythologizing reality and ritualizing behavior. Unless drastic social and cultural reorderings take place, we can expect future technocommunications to considerably serve the doctrines and dominations of the past, and to be limited by them.

Yet, as the communications theorists love to point out, technocommunications "enlarge exponentially." So does their "information." From an arithmetic base we get a geometric expansion. As with population, technocommunications "explode." The metaphor may not be incidental, in several senses. Many things get blown up by the acceleration and the quantity of the changes, art and humane discourse among them. The means will master the messages, the expansive communications will take over and determine much of what is to be communicated. We reach—perhaps now?—the watershed point in which the more that changes the more must change, finally flowing into rather different sensibilities. Technocommunications start by selectively serving social and ideological powers—the state, corporate orders, certain dubious "elites," pre-technological views—but the masters end in thrall to their servants.

By its own inherent logic the massive use of technocommunications undoubtedly furthers what Erich Kahler called "the contemporary imperative to disintegrate the forms of art." Art also tends to lose many of its past purposes—representation, the maintenance of craft, the creation of autonomous sensibility, and other ordering and refining functions. Because of defensive elitism, early modernist literary intellectuals and social theorists mis-

described this and put the blame for "the decline in aesthetic taste" on the media appealing to uncultivated audiences (newspapers and novels) and on the dominance, first, of the materialistic middle-class, then, on the rise of the industrialized urban masses. A great tradition of anti-industrial and anti-bourgeoise critics and artists later carried these arguments into theories of "mass culture" for a mass society, with its totalitarian implications. They gave us brilliant dystopian images, as with those of Yevgeny Zamiatin in *We* (the forerunner of *Brave New World* and *1984*) in which an authoritarian "Benefactor" uses all the methods of technological communications, plus surgical "fantisectomy" to remove the rebellious individual imagination, and thereby obtains a complete control of human sensibility in the ultimate religion of robotized power. It remains a possibility, but much more likely, we face a less harsh but broader technological social dominance and its cultural shorting-out of full human sensibility.

For example, technical manuals and computer print-outs, both proliferating and crucial modes of communication (ignored by literary intellectuals), neither come forth as authoritarian diktats nor as witty and humane statements. And there's the rub on feeling and intelligence. Subject neither to taste nor form, much of our technocommunications must lack most moral and aesthetic possibilities. And when turned to more responsive purposes, they must still lack most moral and aesthetic qualities. As the ancient philosophers would say,

Photo by Lee Friedlander, *TV Set in Room, Galax, Virginia.*

"it is not of their nature." So, too, with bureaucratic paper, that dark ex-forest hiding us from ourselves, whether put out by museums, or corporations, or universities, or military commands. It lacks most art and sensitivity, not to mention literacy and sense, and probably cannot be otherwise. Our technical-bureaucratic communications must, first, be characterized by their anti-aesthetic. That may be logical for them but it may not be reasonable for us. As a larger proportion of our experience becomes anti-aesthetic, we may too. I think we already have.

From sheer quantity, technocommunications may impose their own qualities, or lack of them. Some are obviously good, in the senses of useful and convenient and pleasant. But the technical and quantitative responses also bleed into other things. For instance, most scientific and humanistic scholars despairingly comment on the impossibility of "keeping up with the literature in the field." Whether one's concern be with genetic experiments, neolithic artifacts, explications of romantic poetry, applications of microwaves, or research on the mass media, the information on the subject seems unmanageable. Is the expansion the result of "real" and "new" knowledge, or the result of the processes of communication? In the fields in which I can judge, the "knowledge explosion" is, like media "news," largely not new and, besides, to echo Thoreau, is irrelevant, redundant and distracting. A noted scientist tells me that "about eighty percent of the literature in my field is nonsense"; in my own fields I would have to propose both a higher percentage and stronger language. Yet he and I struggle to keep up with the "information explosion," perhaps out of ritual compulsions.

The "information explosion" also encourages some new "laws" of information-handling which apply to scholarship as well as to bureaucratic paper and the mass media. Much information must be treated as if it were not real. Indeed, when one scans through the latest pile of journals, or plows through yet another committee report, or watches an evening of TV, he may intentionally relate to the material for satiation of sensibility or ritual avoidance, including the ironic pleasures of accumulating much nonsense. A second law might be that as information increases so will a low-level pervasive fraud, whether it be dubious statistics and declarations by institutions, the very widespread plagiarism in higher education, the dependence on phony official handouts in journalism, or fake aesthetic gestures. This results less from malicious motives than from the personal need to impersonally fill the communications channels with something, be it PR releases, purchased term papers, ersatz news or pseudo-art. Officials, students, reporters and artists unable to meet the massive demands of communications systems, none of which shut down when no one has anything to say, become disingenuous frauds.

Institutions and learning also respond with overload-display, such as endless unconsumable committee reports, neatly duplicated in multi-volumes, or, say, the current style in biographies of literary and

political figures, which swell to absurd proportions in a mania for trivial detailing and documentation. Pedantry is not new but some of the means to it are—taped interviews (practically a new semi-literary form), xeroxed files, technical skills which create technical problems which create technical answers, and publishing and other bureaucratic imperatives. Relentless collection of information conjoins with a decline in coherence, and becomes its substitute. The means of communication become self-demanding and saturation the major end. Nor do the higher arts show much more immunity than the lowered arts from the saturation of technique-induced and media-faddish disposable styles. The presses will roll, the programming will go on, the institutions will demand, and they will all be filled and re-filled. Our communications, too, abhor a vacuum, except perhaps that of the self which they encourage within us.

Non-technical selectivity, that of sense and feeling and dialectics and form, seem inappropriate. The libraries of the universities and the paper and film depositories of the corporations and the state become unstylishly monumental, as do our other garbage dumps. In spite of various elaborate systems for miniaturizing, digesting, compacting, indexing and evaluating, we cannot achieve adequate ways to refine and dispose of our communications refuse. As with FBI and credit files, much of the accumulated information remains "raw" and open to misuse. As with book publishing, ritual confirmation of role becomes a major function, authorship certifying academics and other bureaucratic specialists, politicians and other public figures, artistic pretenders and other status aggrandizers. Publishing is about as intellectual and honest as real estate brokerage. As with book reviewing, scholarly as well as popular, selection and judging come out quite arbitrary, incompetent and sycophantic. These deplorable effects are demonstrable; the suspicion must arise that the expansive processing encourages them. Anyone who disinterestedly probes the communication-information heaps must find so much ritual service and natural fraud and incoherent saturation that he may reasonably suspect those to be their real purposes.

We surely do have news-information-knowledge problems, of which the very accumulation may soon be the largest. The desire to expand may provide much of the unresolveability. For the stock answers to the problem are to increase the problem itself. Many "liberal" critics of mass media "news" insist that we need more "news coverage," or even one or more new nation-wide systems of news broadcasting. Institutional reformers cry out for more committee studies and reports and public relations stuff. And sincere specialists everywhere self-interestedly demand more learned compilations and conference excretions and new sub-fields of research and grant study and ego-reinforcing communication. Since so many of the intentions are good, the responses must be part of a larger pathology. Just as our answer to nuclear war dangers is to elaborate, produce and stockpile yet more nuclear weapons, so the answer to our communications-information problems is to elaborate,

produce and stockpile more of the same. Whether this logic inheres in technocratic order, or more deeply in the cast of mind and society which encourages that exponential processing, remains a nice question. Certainly we see their fusion in a technocommunications religiosity.

Otherwise put, our poisoning by overdoses of incoherent information-communication is to be cured homeopathically by taking more of the same poison. Such magical treatment for sated sensibility runs through most futurist discussions of communications. "The knowledge factory" of the future, the electronic mystagogues tell us, will be "a total information environment." By any available evidence and reasoning, satiation, mis-use, fraud and incoherence will also be massive characteristics of any further maximized communications and information systems.

But consider a more specific illustration. Pushed into the corner of the near future within our present cultural and social patterns, even the cautious information futurist, such as Ben Bagdikian, tells us that there will be a wonderful enlargement of television and its informing public services, with the current urban American access to about six channels (VHF) to become, by way of cable TV, access to twenty to forty channels. By some weird extrapolation, multiplication of the same translates into diversity and freedom, and even increased art and enlightenment. The epitomization of this attitude may be the McLuhanism of a few years ago in which by multiplying all the automobile models times all the optional accessories we arrive at the fantastic consumer options of 25 million transportation possibilities. Since none of the choices included significantly different power plants (such as non-polluting steam), or an inexpensively safe and well-crafted car, or comfortable and efficient public transportation, the millions of trivial variations merely confirmed the lack of significant choice which they helped to disguise and deny. Fake non-standardized standardization may be the most common reality of the future order that Nigel Calder calls Technopolis. Parallels already pervade publishing and broadcasting though because, unlike automobiles, communications materials are not subject to the minimums of internal combustion and gravity, their variety may be even less real.

There could of course be a small increase in mass media options for reasons of more sophisticated market exploitation and institutional control. Whether in the current mass media, in the developing home entertainment-information appliances, or in yet more unusual modes of further ritualizing play and thought, there may well be efforts to maximize special group appeals (and profits), rather than focusing on the current "One Maximum Audience" of most mass programming and apparatus. A vast enough market can become multiple masses. Evidence is often cited that this is already happening, in partial ways, in radio broadcasting and the mass magazine markets. But, given the social structures and cultural ideologies, any real increase in diversity and quality might only be slight. Radio stations devoted only to classical or rock

music, magazines devoted only to popularized psychology or *au courant* art, may provide greater pleasures to their aficionados because of less distraction—a crucial longing of current overburdened sensibilities—and because of a distinctive vulgarization which highlights the identity of the special audience, thus giving further ritual appearance of personal definition and value. But the imperatives in expensive and competitive conditioning of a particularized but still large and anonymous and otherwise disconnected audience promises no great increase in diversity or quality. Current examples, most not very admirable, can be inspected. More may usually be less when maximizing the inadequate for exploitative purposes. Put another way, diversity and art and intelligence developed in technocommunications tend to be functional, not moral or aesthetic: ninety-nine ways of reproducing, redividing, redistributing the same material but not nine new ways of sensing, feeling and understanding the realities. Since our technocommunications have so far initiated little of significant aesthetic and intellectual quality, there is little reason to believe they ever will unless subject to radical changes in their social and cultural base.

Not the urge for finer future sensibility but the desperate desire to escape present processing of sensibility may significantly, and negatively, effect the media and the material to come. For much of our current communications already produce excess, variously described as "the heavy communications overlay," the "information overload," "media saturation," "knowledge explosion," "electronic enervation," "media shock," "stimuli redundancy," "technological burdening," or, in the superficially inflated metaphor of Alvin Toffler, "future shock."

Some of the basic overload theories now current seem to derive from the awareness of their opposite, including knowledge of the effects of "sensory deprivation"—another example of the dialectic involved in important ideas. The restricted laboratory animal or solitary invalid or prisoner suffers from a lack of stimuli and communication, and his symptoms of shock, anomie and apathy point to a physical as well as social and psychic decline. Over-population, over-stimulation and over-communication produce strikingly similar effects to deprivation. Too much, like too little, leads to withering and withdrawal at all levels. Is that why our classical ancestors spoke less of minute particles and massive gods than of "man as the measure of all things"?

I emphasize the obvious: a "total information environment" or any other massive technocommunications system lacks human proportions. If not subject to the converging limitations of audience control and effective criticism (aesthetic as well as moral and political), the communications will tend to impose their own processes and powers, violating the human sensibility historically oriented in previous communications. Part of this will be the imposition of the controllers of the communications, part will simply be the communications systems themselves. Patently, the warped and inadequate controls of the bureaucratic-corporate market do

Still from *Film with Three Dancers* by Ed Emshwiller.

not, and will not, provide sufficient criticism and participation. Techno-communications may tend to take off on their own, over-riding and overloading the audiences, partly because a humanly reduced and passive sensibility more generally fits the demands of a technocracy.

In a complex order, withdrawal from a communications and information overload takes various and even perverse ways. Communications addiction appears to be a major current way of inadequate or exasperated response. Desensitized or otherwise disoriented from the overload, the sated TV watcher, obsessional memo-writer, sports glutton, rocked-out adolescent, fanatic info-accumulator, telephone-head, or other communications compulsive may increase the dosage in desperate hope that more stimuli will make up for the deadening by the previous stimuli overload. But this can only succeed in the sense that the traditional drunkard's hair-of-the-dog-that-bit-him provides momentary recuperation.

Yet total withdrawal from communications intoxication does not seem a generally viable possibility. Our information-indoctrination explosions and fallout can now hardly be avoided. Furthermore, as Emile Durkheim correctly predicted, mass industrial society reaches a condition in which "collective sentiments are weakened." As a result of the feelings of isolation and uncertainty, substitute relationships and identifications, such as those provided by the mass media and other communications networks, become necessary. We have now completed a generation of mass television programming and its saturation of audiences. For some time, the self-consciously critical and aesthetically cultivated minority intellectually rejected such mass media. Yet, the evidence indicates, most people, intellectuals included, watch a considerable amount of standard programmed television, however scornful, irritated or guilty they may be about it. Quite likely, their needs for ritual participation made them join in. Furthermore, the aesthetic barriers went down, as we can see in the fusion of vanguardist pop art with the mass media, and with similar technoart styles since then.

American society has also completed a generation in which class education became mass education, with a supposed increase in critical and aesthetic awareness. But, as one of the empirical students of the effects, Harold Wilensky, put the issue some time ago, the rising level of education does "not cause large populations to break the mediocrity barrier," and so the much educated and rather critical and considerably aesthetic have "become full participants in mass culture." Basically, I suggest, they do so because there is no other church in town.

From media content, one suspects that a generation of development produced a slight increase in sophistication. And from audience responses, one suspects that cultural affluence-education produced a slight increase in resistance within the addictive processing, by way of cynicism about the information, contempt for aesthetic pretensions, and a defensively low-level of attention. Even to these hardly radical

changes the media respond with increased redundancy and ritualization, in an endless cycling of low-level dissatisfaction. So we achieve, for the media and more generally, the apathy called "tolerance" where anything goes, which means nothing goes with high verve or great intensity. It also seems that many kinds of madness become normative, such as obscenely trumpeted pseudo-products, a decade-long televised brutal war, basic alienation from craft and intelligence, and much else. Dysfunction, in human terms, becomes functional in a disintegrating culture held together by shoddy but energetic technological systems. We all participate in this but at reduced ritualistic levels.

Though compensatorily resisted, cheated and ritualized, our communications overload must lead, perhaps after a time-lag and displaced concern, to exacerbation of the problems of society and sensibility. For instance, the administrative personality alienated from those he manipulates must maximize his "in-puts," such as multiplying his directives, though memos memorialize only the unmemorable and call forth a low level of response. Similarly with the "sensitivity sessions," new "internal information systems," and other social scientized, psychologized and technologized substitutes for common sentiments and authentic communications. (Quite possibly, of course, real rather than ritualized communications would break up the bureaucracy or other organization since its authorities and products and purposes may be illegitimate and unjustifiable.) The increased pretenses at communication do not significantly restructure organization or re-legitimatize authority or liberate other vitalities. The radical problems remain and the ritual communications-information cannot enduringly camouflage them. New techniques and technology then get pressured into play to answer the now self-evolving "communications problem." And the synthetic answer itself becomes the real problem. As with new superhighways to relieve the overload of old superhighways, which were to relieve the overload of highways, which were to relieve the overload of roads and streets, the morass may become intolerable, and we arrive at the infinite regress of technocommunications.

What happens within the Chinese box tricks? Sensibility morass and distortion. The sages, such as Thoreau and Chuang-Tzu, objected to being bothered with too many communications partly because, they argued, wisdom required intellectual open spaces, a recuperative personal wilderness of quiet and contemplation. But when we everywhere get communications pollution some essentials have been lost, including crucial kinds of inner attention (not the mere inattention so necessary to survive our communications), solitude (not urban loneliness and technopolitan paranoid senses of isolation), and tangible communion (not mere media images and identities).

The sensibility both deprived of some of its crucial resources and burdened with others it can't absorb must suffer disorientation and desperation. Art in this context, suggests a sociologist of popular

culture, Orrin Klapp, starts out systematically strained and submerged. Consequently, the artist goes in for "ego-screaming" in order to be heard, not only by others but by himself. Norman Mailer might exemplify the shrill ego substituted for art, and the courage of such confusion. Since even in its initial impetus the art is overburdened with the desperate effort to attract attention to itself, the style will likely be overloaded, the forms over-strained, and the techniques over-charged. Hard rock music became so loud that it literally deafened its players and listeners. Popular melodramas, such as the "western" and the detective and spy fables and the "family drama," become fantastically decadent. Heroes then appear as weird cripples and psychopaths. The reversed eros and violence become extreme and gratuitous. The props take over the actions, as in mannerist art, and moral implications become comically perverse. The shrill demands for attention, like conducting a conversation next to a turbine at a constant shout, must lose attention because of inability at nuance and persuasive variation and proportion. Such exacerbated artistry becomes self-defeating and eventually must self-destruct.

What might be called the "double-bind aesthetic" takes over. Physical violation fuses with moral blandness, and tends to be perceived as the same; ornate hysteria becomes one with simplex palliatives. We are simultaneously pushed towards passionate responses and pulled back into passive packaging. Intense demands for our concern conjoin with massive indifferentism.

Probing the states of mass art styles forces upon us paradoxical descriptions of technological sensibility and its violent apathy, its optimistic despair, and its most insistent condition of overloaded emptiness. The stage directions for the personae in a technocracy may just repeat the paralytic circle that concludes both acts of *Waiting for Godot:* "Yes, let's go. *They do not move.*"

Again, the double-bind aesthetic extends quite beyond popular entertainment forms. Currently, much of the traditional novel fuses with mad rhetorical grotesqueries and traditional studio painting fuses with technological materials and simulacre, against the basic orientation of those arts towards bourgeoise verisimilitude and contemplatable icon. Admittedly, modernism in the arts, for more than a century, depended on reordering tradition by disorienting patterns and stylized incongruities: a modulated shout for attention from the retardaire official order and the smug bourgeoise audience—and, probably, against the industrial static. The bind at least seemed to be external and overt, and therefore recognizable—still, in Herbert Marcuse's sense, a two-dimensional culture. Now the art double-binds itself, mocking the styles it posits, simultaneously creating and destroying its own forms.

My point here is to suggest the general dilemma, not to criticize the post-modernist artist. For he may also respond, at best, dialectically against the conditioned communications bind. Sensing the loss of reality, the visual artist returns with a vehemence to capturing the sen-

sate qualities of our existence and may even rearrive, by way of technological materials and photo-fact, at neo-realism. The serious novelist carries his screaming rhetoric and fantasy perceptions, as in the poetic-documentary fictions, right back to our realities and returns to the novel's origins in intense reportage. But it still seems that at even its most self-conscious and cultivated levels our technologized culture becomes destabilized. What Barry Commoner describes as the major result of technology, "the fundamental imbalancing of ecosystems," may apply to culture as well as to nature.

However, we probably should resist the simple assumption that the "communications explosion" just serves as a cause rather than also as an effect of the failure of communication. Does our culture follow our technology, or does our technology follow our culture? By now, of course, the relationship is circular, as I have several ways tried to suggest, though just how we got our tail-in-our-mouth communications confusion remains an elegant theoretical question. Surely in some senses our technology provided what we needed to carry out some deeper imperatives of our culture and society. The Protestant Work Ethic secularized into production for production's sake, and our technocommunications come out of it. The bureaucratic rationalization of American society required massive ritualization of communications. I also suspect that our exaltation of technocommunications systems—hardly anyone seems to be seriously against them—expresses a desperate religious surrogate for a just communal reality, the sensate mirage substituting for a good society.

Cartoon by Franco Giacomini, Torino, Italy.

Certainly our technocommunications developed from and still serve institutional advantages and ideological dominations, but the processing, I have argued, tends to take off on its own. Not all effects seem bad; demagoguery, contrary to our earlier prophets of mass communications dangers, may have declined, along with other impassioned responses. Some commentators relate the undeniable loss of legitimacy of institutional hierarchies to the by-passing of them by the communications systems. But the technocommunications hardly operate as egalitarian and libertarian structures—that would require breaking the whole system—

and the processing provides substitute authority rituals which maintain much the same order. Technocommunications can also serve oppositions, carrying rebellious messages from off-set "underground papers" and neo-dadaistic arts. American revolutionaries, like Russian poets, can xerox their countercommunications. But all of that remains small and bitter fruit, which also tends to be processed away in the ritualized overload and disoriented sensibility.

At some point, perhaps only recognizable in future perspective, the processing by technocommunications becomes sufficiently self-generating and self-serving that freedom of communications doesn't belong even to those who own the communications. We may come under rule by technology in the same sense that earlier cultures have been ruled by their religions. Of course technocracy is never complete or uniform. Internal Luddittism and other ways of resistance continue, as do parts of traditional culture and counter-culture. But the technocommunications processing must drastically limit them. Beaten and cauterized sensibility may lose the old skin without growing any new skin.

In *The Day of the Locust,* Nathaneal West dramatically commented, a generation ago, on the modern media-focused lower-middle class mob, that they "burn with resentment" from their pervasive and uncomprehended "boredom and disappointment." With a mixture of mockery and sadness he posed an apocalyptic burning. But modernist artists may have overrated the explosiveness of cheated sensibility.

However massively communicated, boredom and disappointment may produce more of the same but also defuse them. Still, in spite of the mad electronic mysticism of many of our futurists, man appears mortal in his sensibility and, whether by explosive rage or by anemia of passion and purpose, too much technocommunications are not human enough.

We may conclude with the rule of the sages: Too much communication is no communication at all. Perhaps we should add the Don Juan corollary: Just as the more one seduces the less one loves, so the more one is informed the less one knows. The seductions of maximized technocommunications and all their processing ways have become a religiosity which must be broken through. Otherwise, the aesthetic and social catatonia of a technocracy may be the final tidings of the communications explosion.

HARDWARE

DR. JEKYLL AND THE BRIDE OF FRANKENSTEIN: SOCIO-HISTORICAL ASPECTS OF MAN-MACHINE INTERACTION*

John McHale
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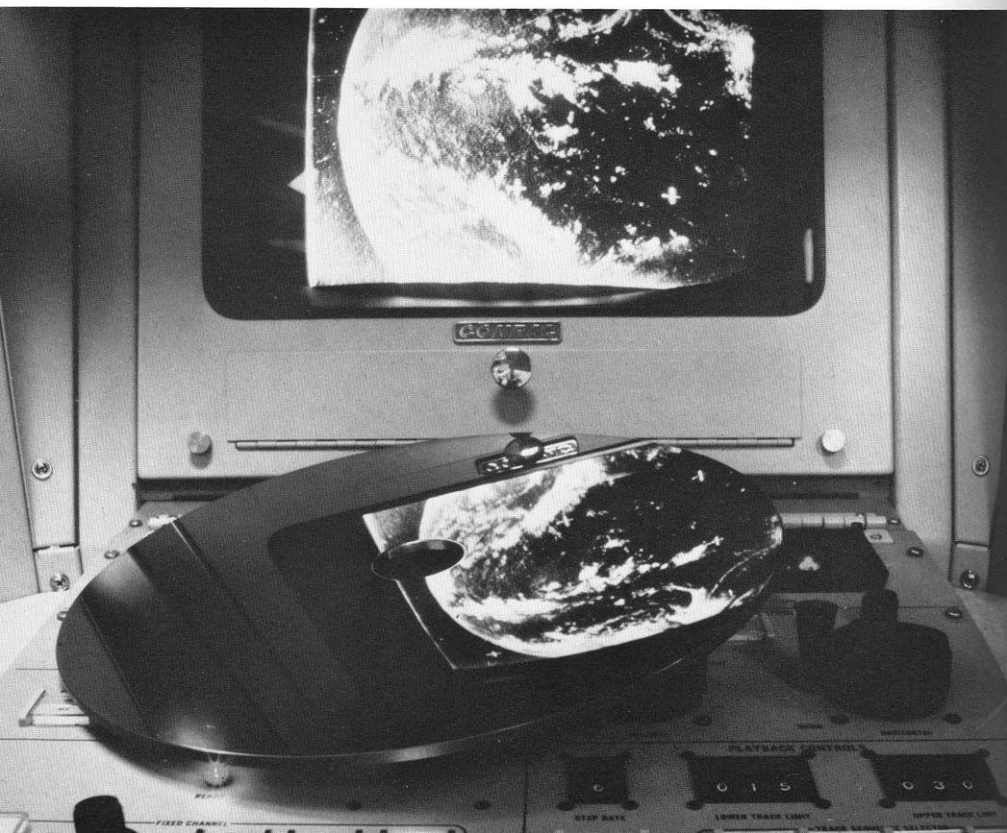
DR JEKYLL AND THE BRIDE OF FRANKENSTEIN SOCIO HISTORICAL ASPECTS OF MAN MACHINE INTERACTION

CBS Laboratories' ESSA Weather Survey System.



The evolutionary unity of *man plus* his extended amplifiers of organic capacities is not confined solely to the evolution of physical tools but includes also those "invisible" tools which have had as powerful an effect in transforming man's condition. Such invisible tools as language, number, symbol, and image systems are also extensions of human internal processing and have, through the larger conceptual systems—religion, philosophy, science, etc.—powerfully aided man's evolutionary survival. The growth of social institutions and organizational forms are also part of such "organic" extension. Almost every ordered aggregate of human actions whose effects modify man's world to his purposes is, a form of psycho-physical "technology." The application of the methodology of the physical sciences to the systematic scheduling of a series of operations, for example, in the systems approach, is often termed a "soft" technology. In the same regard, historically, so was a rain dance, or the ceremonies attending crop fertility or a ritual socio-religious drama—all systems for attaining greater understanding and extended control of the environ.

To underline the organic nature of man's technologies and systems in this fashion is not simply to pose some technological determinism as accounting for human development and change. Rather, the purpose is to emphasize the integral nature of all human processes—whether labelled technological, biological, economic, cultural or whatever. It is to emphasize also that, so far, much of our wider understanding of the larger patterns of human evolutionary transformation has been limited by our tendency to compartmentalize our knowledge into separate and unrelated views of the overall process. Our social, cultural, and educational institutions have reenforced this tendency by encouraging extreme specialization, by the limitation of social roles and the fragmentation of human functions within traditionally restricted bounds.

The gap between the *potential* of enormously enlarged human capabilities, and their *actual use* for positive human purposes raises many questions. One should underline, however, that the reduction of this gap lies more with clearer understanding and use of the intrinsic nature of technological development rather than its rejection as a means for human betterment.

The social institutions and directions that have been accorded prior academic interest and official support have been those identified with stability and integration rather than those associated with change and creative innovation.

In many important senses, those who provide the intellectual visions and socio-political models that guide and influence Western society have been unable to accommodate to changes in the forms of

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** This article consists of excerpts from a longer piece prepared by Dr. John McHale for the 138th meeting of the American Association for the Advancement of Science held on December 29, 1971 in Philadelphia.*

society induced by the growth of science and technology, which they could not wholly account for in terms of past traditions to which they belong by class, education, and professional commitment. Their acute awareness of the disruptive nature of accelerated change is not seemingly accompanied by any realization that such rates of change may be sustained and be flexibly accommodated within new social modes rather than through the return to some earlier, more stable form.

They have, in consequence, been more preoccupied with combating old specters than in confronting emergent realities, and are more easily recruited to maintenance of the status quo than in devising new ways through which society may circumvent its present problems.

In the nineteenth century, the fear and rejection of industrial "machine" society was largely confined to the intellectuals. The nineteenth-century middle class, though generally flirting with Romanticism as an alternative to other radical modes of change, subscribed to an optimistic view of the inevitability of material progress through science and technology embodied in the machine. The working class, apart from earlier groups such as the Luddite machine breakers, sought to improve their lot through direct political and economic action that would secure them a more equitable share of the products of their industrial labors.

As we approach our own period, we find that the distrust of, and estrangement from, industrial "machine-based" society has lingered most strongly in literary and humanist thought. The literary masterworks of the early twentieth century — *Ulysses, The Wasteland,* etc. — are sensitive testaments to the breakdown of values and the "chaos of the present." Whereas such works were insightful in recording the continuing disintegration of an old culture, now their attitudes rather than their creative spirit have been perpetuated and institutionalized within the traditional establishment to provide a set of stereotyped responses which continue to hamper the emergence of new cultural forms.

John Gardner underlines this, ironically, in his description of a visit with an academic scholar:

> *He sat in an air conditioned studio. Behind him was a high-fidelity phonograph and record library that brought him the choicest music of three centuries. On the desk before him was the microfilm of an ancient Egyptian papyrus that he had obtained by a routine request through his university library. He described a ten day trip he had just taken to London, Paris and Cairo to confer on recent archaeological discoveries. When I asked him what he was working on at the moment, the Professor said: 'An essay for a literary journal on the undiluted evils of modern technology.'*[1]

The Romantic love/hate attitude of the nineteenth century has evolved into many peculiarly contemporary and paradoxical forms. Thus the Romantic of today has often fallen in love with "the mechanical bride"

and her key-punched IBM progeny. The latent fear of individually fallible reason, per se, is displaced by an absolute trust in the security and "value neutrality" of instrumented processes and methodologies or in a systems mystique whose scientific laws are taken as both moral force and infallible truth.

In the past twenty years, information, or organized human knowledge, has become the key wealth generator in the overall system — *the new property* which we carry in our heads, or use to program the machines which create those goods and services which we require.

Information as a key machine related resource has several unique properties which older forms of resources do not have:

(i) All other resources and energies are ultimately dependent on "information" for their recognition, evaluation and utilization.

(ii) As resource in itself, it is not reduced or lessened by increased use or wider sharing — rather it tends to gain in the process.

With decreasing input of human and machine energies, physical products already have less and less intrinsic value in themselves — other than as gauged by their human use value. Where in pre-industrial periods, products and artifacts were considered as permanent forms of wealth — and the individual human was more transient and expendable — we now have a situation in which the pro-

Previous to today's electronic information network, Earth could be considered an open system as regards communication. The circuits weren't connected. Humanity had no way of coordinating its own ecological pattern behavior. But the global intermedia network has closed the system. We're seeing ourselves for the first time in history, and we're beginning to realize that our behavior is evolution itself in operation. We do not live of our own volition; we are lived by a force that we call evolution. The young of the world are demonstrating their Whole Earth Consciousness.

—Gene Youngblood

ducts and artifacts subtending survival are expendable, in which individual man may be viewed as unique and non-expendable. For the first time in history, man tends to outlive his artifacts and his machines!

The whole character of the survival game has been changed — it is now clearly a *non-zero sum* game. Success or gain may only be predicated on *all winning:* the new wealth generators of information, knowledge, organization do not lose in value by sharing — they can only gain!

The great central realization which springs from this understanding of the evolutionary relation of man to his machines and technologies is that man is now *potentially* free in the material sense for the first time in human history.

The chains which still bind his effective action in so many areas of societal dislocation and crisis are of his own historically conditioned making! Ways of living need no longer be constrained by strict economic and survival necessities. Available modes of earning a living are initially increased — the survival necessity of earning a living becomes progressively eroded.

The choice range, generally, of life styles and roles is enormously extended. Ways of life may be changed many times in one life time — and, even more characteristically, different but co-existent modes may be enjoyed, e.g. the labels used to partition these off — work, leisure, vacation, weekend, etc. — are no longer as meaningful and exclusive.

When society is no longer dependent on coercing and otherwise compelling the individual *to work,* work itself may take on the quality hitherto reserved for directly creative activity of the exercise of a vocation or a calling. Similarly, without the survival pressures which forced social cohesion on the basis of a collective uniformity of directions, many alternate modes of individual and group life styles become tolerable — deviance of certain kinds no longer threatening to the survival of society may become necessary components to ensure the range of ecological diversity.

In facing up to this evolutionary transformation of man via his "machines," many of our traditional "conventional" attitudes and values are demonstrably inadequate.

Faced with abundance, they are productive of unease and insecurity — confronted with freedom, they will often assume new forms of slavery.

It is worth emphasizing at this point that most of our pre-industrial value attitudes and institutions rested ultimately in final authorities external to individual man himself. In the arts, aesthetic values drew their strength from some set of eternally enduring canons of taste and verity; in the social and political sphere the authority and value and goal setting agency was the collectivity, the State or Society; in religion the gods or godhead was the ultimate value authority. It was assumed in this sense that human evolution was "other directed" and outside of direct human intervention and control.

This was understandable in the pre-industrial world in which individual life was fleeting and impermanent compared to the everriding requirements of group survival.

We may note, however, that this view of the subservience of human needs and desires to some externally validating agency still lingers on in many of our currently advanced notions of systems thinking — where infinitely variable individual human needs are compelled to conform to the requirements of the system — or the procedure — or the necessary scheme of priorities.

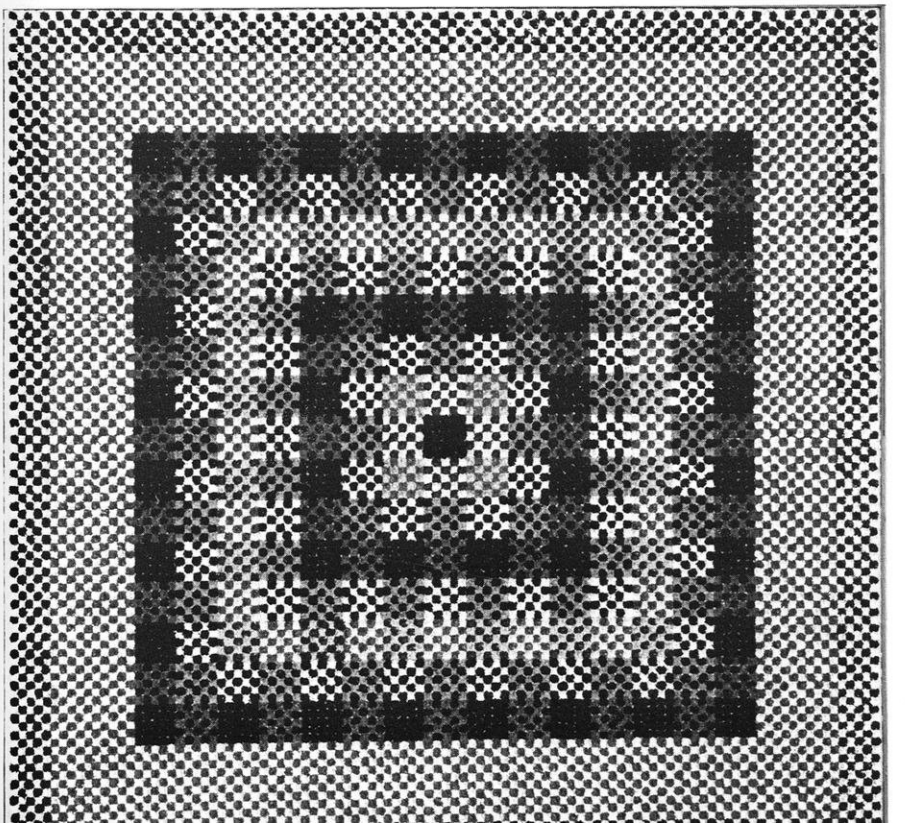
Technologies are viewed as *the* dominant and deterministic external forces. In the light of the inhumanity of early industrial conditions such a view is excusable but we should recall that:

> *. . . the human tolls of industrialization are not built into the process itself. They are the result of an image of man in social change which delineate him as a passive agent mechanically responding to immutable forces.*[2]

The questions we now need to ask about man's relations to his technologies cannot be phrased without the knowledge that man makes himself — or he is not made at all.

Man and his evolving needs are, in this sense, superogative to any system devised by man — but he is presently still shackled within sets

Alfred Jensen, MIXC-VIEJO, 1969. Courtesy: Pace Gallery.



of institutional arrangements which now threaten his survival.

To the extent to which we have now evolved our physical technologies — our more critical questions are now non-technological in the physical sense.

The future of human society is less centrally dependent on further technological elaboration — but rather more with socio-political and economic innovation.

The man-machine interaction still remains an important focus but its emphasis shifts from the dominance of a machine system which perpetuates an array of obsolete socio-economic and institutional forms to one in which human needs and desires becomes the dominant measure for the system, the institution, the organizaion or the society.

We may note, particularly, in our concern with the ecological de-

terioration caused by ill-used technologies and wholly economic measures of resource use and efficiency, that "technology," in itself, tends to be presented as the "scapegoat" evil. The real environmental crisis, however, is not a technological but an institutional and value crisis.

We are still attempting to run our societies — and our world — within sets of political, economic and institutional postures which belong to the pre-industrial period. Characteristically in such periods, individuals, institutions and communities were considered as relatively autonomous and self sufficient. Their survival was predicated on the freedom and ingenuity with which they modified and exploited the social and physical environment to their self-determined ends.

Ethical values in such societies tended to confirm the prevailing survival mode and to be constrained within its limited possibilities for choice and action.

Questions regarding the quality of human life, and of the environment, were relegated to individual concern, measured within the short range criteria of institutional and commercial needs, or subsumed under the prior requirements of local national security.

In the mid-twentieth century, the large scale development of scientific and technological means has changed almost all of the social, ethical and economic "ground rules" upon which human society has previously operated. The use of such means has not only created a new kind of reality, but permits the co-existence, and choice, of many different "realities."

Socio-ethical decisions regarding the human condition need no longer be phrased in terms of what we *can* do — but in terms of what we *choose* to do, both individually and collectively.

The unique character of our developed man-machine symbiosis is a natural and evolutionary one. Its clearer and more critical understanding and its more consciously controlled and positive re-direction lies ultimately with man himself.

The newly emergent magnitude of his technological undertakings now forces this knowledge more consciously upon him. He "knows" that he may, indeed, interfere with his socio-ecological environments, both external and internal environs, that it becomes his decision as to whether his planet and his societies remain livable or not.

The central realization for all human beings is that we are now, more than ever before, in charge of our own evolutionary destiny.

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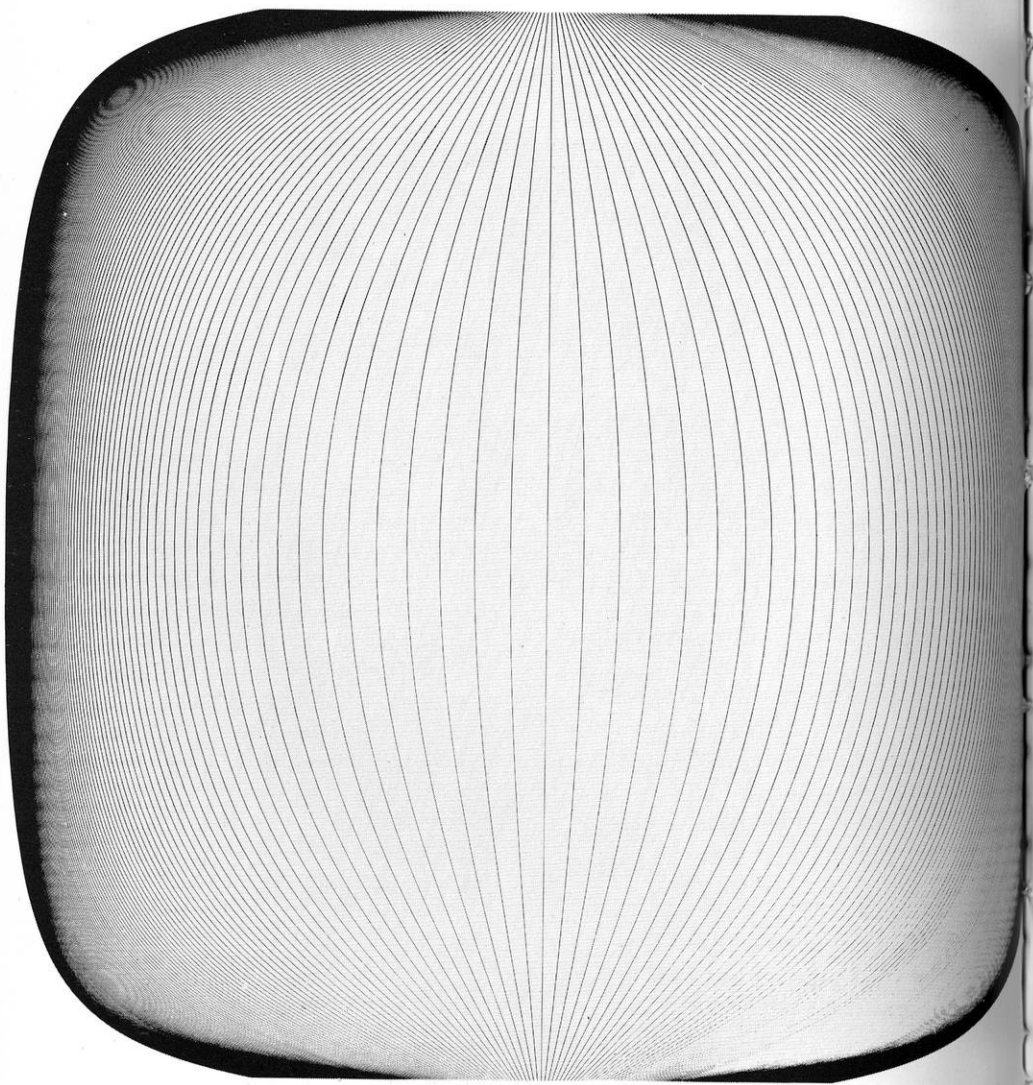
[1]*John W. Gardner,* Self Renewal, *New York: Harper & Row, 1964.*
[2]*Manning Nash,* Machine Age Maya: The Industrialization of a Guatemalan Community, *published by Free Press, New York, 1958, p. 116.*

Wen-Ying Tsai and Frank T. Turner, *Cybernetic Sculpture,* 1968, from "The Machine—As Seen at the End of the Mechanical Age," an exhibit held at The Museum of Modern Art, November 1968 - February 1969.



Computer art by William Fetter.

COMMUNICATION SCIENCES AND THE ARTS

J. R. Pierce
Professor of Engineering at the California Institute of Technology. He is the author of Science, Art and Communication.

I have thought long and hard about the interaction between the arts and communication as engineers and scientists view it. Unhappily, I am a listener, reader and thinker rather than a scholar. I do not have card catalogs or stacks of reprints to draw on. Thus, such references as I can cite are bound to be incomplete and to some degree ill-chosen. Still, they may give the reader clues if not expert help in pursuing further matters which I shall discuss in a general way.

Today, when we use the word *communication* in a scientific or technological sense we refer to a vast body of knowledge in a host of fields: solid state devices such as transistors, and other devices out of which transmission systems, switching systems and computers and data processing systems are constructed; a large body of mathematics, including communication theory, but including much else as well, which is associated with the behavior of communication devices and systems, and areas of science relevant to the operation of communication systems, including the experimental psychology of speech, hearing and vision, and areas of linguistics. This body of communication science and technology is overwhelming in size and complexity. It is natural to ask what part has or can be related to the arts.

Here we can distinguish two sorts of relation. One is a *technological* relation of providing materials, implements and processes for use in the arts. The other is an intel-

lectual interaction involving ideas and understanding.

Technological advance has long served and shaped the arts. Buildings express not only the culture and inspiration of designers and builders, but the properties and capabilities of materials. While vestiges of wooden structural devices survive in the marble temples of Greece, those temples are certainly different from preceding wooden structures in ways dictated by the nature of the material. The concrete dome of the Roman Pantheon expresses the capabilities of the material of which it is made. Brunel's cast iron railway bridges look different from his earlier wooden spans, not because of a change in aesthetics, but because of differing properties of materials. Today, some structures cleverly exploit new materials — prestressed concrete — or structures — the geodesic dome. In other cases, the wealth of engineering resources has led architects into the practice of exterior decoration, for the engineers can make anything bear the load and the facade.

Other arts have reflected technological resources as strikingly. An Egyptian granite statue seems bound to be different from a Greek statue of marble. Techniques of casting and welding and the advent of plastics made inevitable the production of objects which would have been unobvious, impractical and unrewarding in some earlier generation. Fresco, tempera, oils, etchings and lithography push the artist in certain directions, and photography, motion pictures and television have carried their exploiters in other directions. That the musical instruments of the nineteenth century sounded better and louder than those of the seventeenth and eighteenth centuries certainly influenced the sort of music that was written for them. The rock music of today would scarcely be possible except for electronic instruments, and without the microphone, the style of singing would be different.

In some societies the arts have resisted change. The literati of Byzantium rejected spoken Greek and wrote in a dead language. In our age, creators and audiences have accepted new technology, and especially the technology of communication, quickly and avidly toward ends implicit in the technology itself. The movies became mass entertainment, aimed at and accessible to everyman. Television has taken away this general audience, apparently from magazines as well as from the movies. Today, motion pictures give us what cannot be shown to everyone or what would not interest everyone. And, the audience of the *Saturday Evening Post* and the other great general magazines of the past has gone from the older print to the newer television. Today the magazines, and, indeed, the books that succeed best appeal to special interest groups, whether these be interested in science fiction, the occult, sports, diet or hobbies.

I think that we can expect a continuing facile adaptation of the arts to new communication technology. If cable TV overcomes regulatory barriers, it may carry low-cost programing aimed at special audiences — ethnic young or high brow —

groups, which are now served only by magazines, books, records and, to a limited extent, radio.

Technology has changed the arts. It is changing them. The change is irreversible for economic as well as for aesthetic reasons. Technology has increased the productivity of the worker engaged in manufacture and it has increased his salary. Technology has not increased the productivity of live performers, but their salaries have risen in accord with the increased productivity of workers in manufacture. In today's world, actors, musicians and singers, and especially large orchestras and opera and ballet companies simply cannot survive on the proceeds of live performances. We can afford them only through telecast and recording, audio or video. And, the second-rate artist cannot survive as a performer in a world in which high standards of performance are set by records and films. When inexpensive video recordings became available, this dominance of the recorded over the live, of competence over incompetence, and of variety over standard repertory, will become even more powerful.

What I have spoken of so far is the patent and powerful effect of new communication technology on all arts. Whether or not this effect is congenial to us, we cannot deny it. What of another sort of bridge between science and the arts, a bridge of insight and understanding?

In times past, the links between science and art have been strong. Geometric perspective was once both new in science and new in art. The illustrations in Renaissance books on anatomy were as close to art as the figures of contemporary artists were to new scientific insight. Rameau's theory of harmony, based on acoustic discoveries of a mathematician, Joseph Sauveur, was intended to be scientific and to a degree it was. Helmholtz had a profound knowledge of acoustics and a deep interest in music. One may perhaps challenge the relevance of his observations, but not their validity. Goethe pursued science as diligently as poetry, and his theory of color influenced Turner deeply.

In the twentieth century this close and informed interaction among scientific discoveries and artistic ideas and practices dwindled into a relationship of words only, and of misapplied words at that. A few years ago, a colleague and I were asked to write a chapter on acoustics for a book on contemporary music. We assembled what seemed to us pertinent current and unexploited information. The editor rejected the chapter on the grounds that we had not related the material to examples of contemporary music. The only response we could make was that no relation was possible. Contemporary music and psychacoustics had become completely disjoint fields.

I think that two attitudes have been responsible for the profound abyss between science and art.

One of these attitudes is a recently popular but now obsolete biological idea that when man is born his nervous system is almost completely unorganized, and that his later capabilities and deficiencies are due entirely to training and en-

vironment. Thus, man was assumed to be completely trainable.

The worst absurdities of psychologists and physiologists were carried to even more absurd extremes in aesthetics. Those who speculated about art no longer asked what the human senses and the human mind can grasp or differentiate, or, beyond that, what human beings will regard as similar or dissimilar. Rather, they assumed that our response to form, color and sound are entirely culturally determined, and that, with sufficient exposure or effort, men can distinguish and respond to arbitrary new organizations of form, color and sound as sharply and meaningfully as to those which they have effectively distinguished among and responded to in the past.

We now have increasing evidence that the human nervous system is highly organized at birth. It can distinguish some sorts of order and not others; its responses are in part trainable but in part built in and beyond the effect of training.

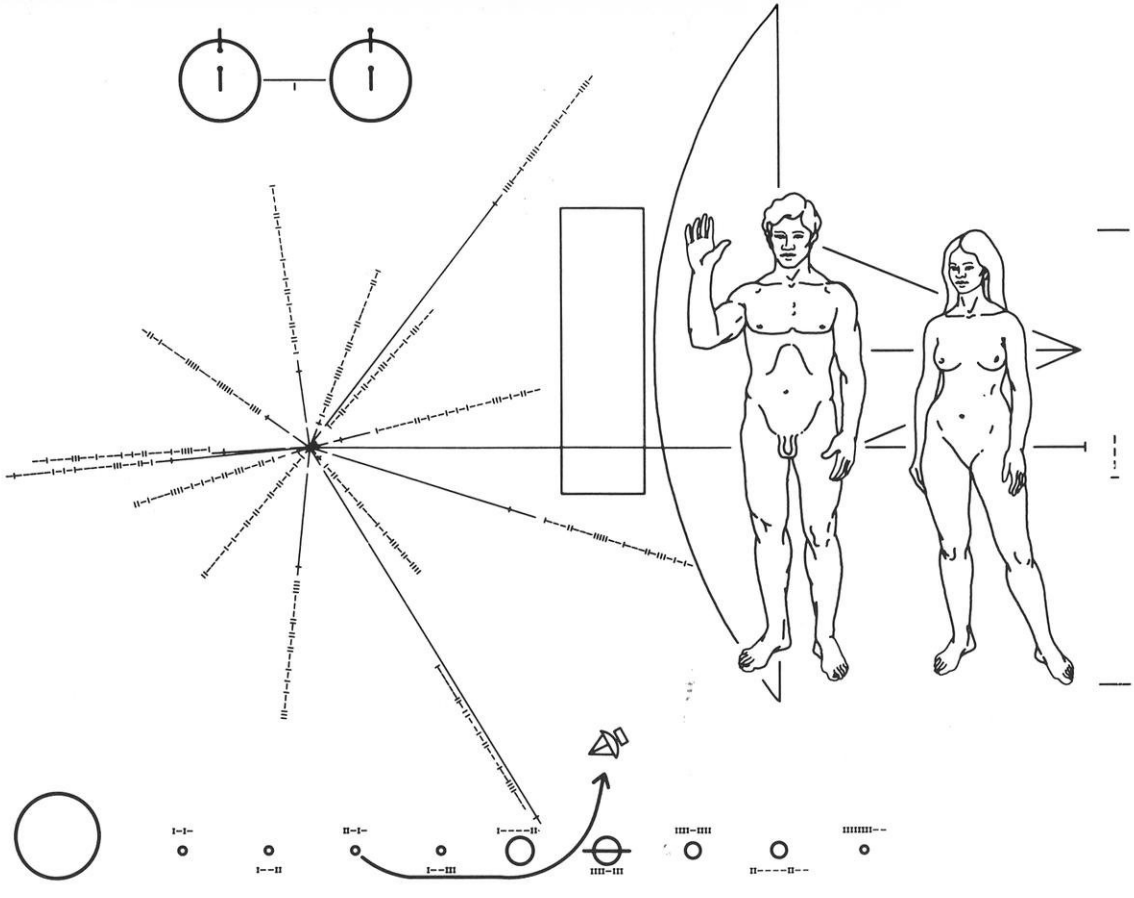
The other attitude which has been inimical to a meaningful relationship between science and art has been the artist's mistaking of mathematics for science. Mathematics is a powerful tool in codifying and manipulating our knowledge of the physical universe and of man and his behavior, which are a part of that universe. But, science is knowledge of the world and of man. Mathematics is merely a language by means of which we can express and use such knowledge.

It is true that if we sort aimlessly through the literature of mathematics we will come upon curves and surfaces which seem beautiful to us, but we will come upon others which do not seem beautiful. This is no more significant than the fact that some pebbles are more beautiful than others, or that some clouds are more beautiful than others. Beauty lies not in mathematics but in the eye of the beholder. If science is to relate fruitfully to art, it must be through the study of the eye, that is, of the capabilities and limitations of and the human responses in vision, rather than in the study of what is seen.

The words which are used in mathematics have sometimes mislead nonmathematicians. Information theory (or, as it is sometimes called, communication theory) was devised to help engineers in understanding electrical communication channels and their capability for transmitting messages generated by various message sources. Information theory gives us a measure (often impossible to apply) of the complexity or "amount of information" generated by a prescribed source, and a measure of the information capacity (often difficult to realize) of a communication channel. It poses and solves problems of efficiently encoding signals for near-errorless transmission over communication channels.

The words *information, redundancy* and, indeed, *equivocation* are used in information theory in very special senses. These are evocative words, and they can easily be used to suggest false links between information theory and quite unrelated aesthetic problems and considerations.

The tumult about information theory and the arts has to a degree sub-



Engraved plate affixed to Pioneer 10, the first exploratory spacecraft to leave the solar system. Should any other technologically advanced civilization in the Galaxy detect and retrieve the spacecraft it is hoped that this plate would indicate the locale, epoch and nature of its builders. The diagrams are as follows:

Top Left: schematic representation of the hyperfine transition of neutral atomic hydrogen.

Middle Left: schematic representation of 14 selected pulsars in relation to earth. Their period measurements are given in units of the hydrogen hyperfine transition. The long fifteenth line extending behind the figures represents the distance between the earth and the galactic center.

Bottom of Diagram: solar system with the trajectory of Pioneer 10.

Right: A man and woman drawn to scale before a schematic Pioneer 10 spacecraft. Dimensions are specified by comparison with those of the spacecraft and in units the wavelength of the hyperfine transition of hydrogen.

Courtesy of Carl Sagan, Laboratory for Planetary Studies, Cornell University.

sided. We are left with two matters directly relevant to information theory: man does not produce words or symbols at random, but in a manner which exhibits both randomness, that is, unpredictability, and probabilistic patterns or constraints, that is, predictability. In responding to words or symbols or patterns, man is limited in his capacity: in speed, in ability to remember and in ability to detect patterns which are objectively there and can be detected by suitable tests.

Besides this, work on information theory has inspired the production and study of mechanically generated "words," "sentences," sequences of sounds and patterns. Consideration of these has made us aware of certain conclusions, most of them not new.

Either complete randomness or endless repetition is boring. But, Schoenberg has quoted Beethoven as saying (I have been unable to trace this to its source) that everything in music should be at once surprising and expected. This is as wise a statement as we could have arrived at through information theory. Without surprise, we are bored. Without reasonable expectations, which are based both on past experience with other music and on what has gone before, we are lost and bored.

Another thing that we have learned is that one sort of freedom of choice may deprive us of another. As James C. Tenney has put it, you can't modulate if you aren't in a key.

We have also learned that mechanical processes can produce word sequences, music and patterns that will in some degree gratify the reader, hearer or beholder. This is nothing new. Mozart produced "dice music" and so have other composers, before and since. The kaleidoscope is a machine which produces pleasing patterns. The mechanical production of text was described by Swift in Gulliver's Travels; the perpetrators were the academicians of Lagoda.

What is new about machines and art is that the power and flexibility of the digital computer far transcend that of any earlier machine. Using the computer, a programmer with art in view can easily perform experiments, fruitful or not, that would otherwise have been impossible.

Further, while the computer has been used as a machine to generate art, it has been far more rewarding as a tool in the hands of the artist — as a device for producing, remembering, editing and manipulating sounds or patterns.

Information theory may have jolted artists and critics; the computer put an effective tool in their hands. Here, however, we are back to the effectiveness of technology in the hands of artists. The computer has been used effectively by tens if not hundreds of artists, scientists and engineers in producing and manipulating designs, still or animated, and in composing, playing and analyzing music. Here we should ask, however, what part of the *science* associated with communication has been or can be effectively used in art, with or without the use of the computer as a tool?

Here some artists are prone to go astray in various degrees. One serious degree we have already mentioned; that of mistaking mathematics for science. Iannis Xenakis composes excellent music, but when a scientist reads that: "It makes use of the theory of Sieves, which annexes the congruences modulo Z and which is the result of an axiomatic theory of the universal structure of music," he wonders whether the writer or Xenakis himself is trying to fool someone, or has fooled himself. Such Cabalistic nonsense is appropriate to witchcraft, not science.

If mathematics is but a tool of science, to what parts of science should we turn for the substance which can truly and usefully interact with art?

In the field of sound and music, a certain measure of classical physics is essential in understanding the vibrations of air in pipes, vocal tracts and rooms, and in understanding the vibrations of strings and sounding boards. Here the science is well understood in principle but imperfectly worked out in practice. Helmholtz made accessible a surprising amount with the publication of Sensation of Tone in 1862. But, he worked without the resources of microphones, amplifiers, or other electronic devices.

The inauguration and advancement of electronic communication afforded new tools and new impetus to the study of musical acoustics. Many workers have written on the physical properties of musical instruments and the sounds they make. Their work is scattered through the literature of acoustics; as far as I know, no really up-to-date and reliable book is available. And, much yet remains to be done.

Beyond the actual production and physical nature of sound there lies the human response to sounds. What is the ear's ability to detect sounds in the presence or absence of other sounds? What is the psychological scale of loudness? What changes in loudness and pitch can we detect? What pitch do we assign to a complex vibration? Here our knowledge ranges from good to scanty.

Still more complex are our reactions to the quality of sounds, including reverberation. What in the complexity of sound does the ear respond to, and what does it overlook? What are our short-term and long-term memories for sounds? How do we classify sounds? How much of our response to sounds is trainable and how much is not? Here certain knowledge is scarce and speculation various. But, electronics, the computer, and new tools of experimental psychology, including multidimensional scaling, give us hope that more can be learned.

Most remote from our understanding is the question of the organization of sounds, and, indeed, of symbols. Here, speculations ranging from science to nonsense have been inspired by information theory, new outlooks in linguistics and musical theories. When we ask what has been accomplished, we find chiefly specific examples, of which we make what we will, and unsubstantiated speculations.

In the field of graphic arts, the computer has allowed the explora-

tion and exploitation of mechanically produced randomness and order. In Op Art, artists have drawn upon and extended various visual effects long known to experimental psychology. I believe, however, that scientific insight and the practice of art are still far apart.

The extension and exploitation of electronic communication has given us many new techniques which the arts utilize freely. It has also led to new but limited scientific understanding in the fields of sound and sight, including the capabilities and limitations of human response. But, the exploitation of such resources by those interested primarily in science and by those interested primarily in art has been slow in coming.

We should not be pessimistic about this. There are accessible points of attack on both sides.

The computer-produced "poems" of Marie Boroff, a scholar and a poet, show how a judicious mixture of a little grammar, reasonable and simple order and a well-chosen vocabulary can produce striking and sometimes evocative effects. Here we encounter the too-little-studied human urge and ability to find meaning in patterns, whether or not it is there. This urge is at once annoying and confounding to linguists whose orientation is strongly syntactic.

The fascinating tesselations, false perspectives and ambiguous designs of Escher are in the spirit of scientific discovery if they are not science itself. A book such as Gombrich's *Art and Illusion* is scientific in approach, though it does not in itself make connections with current science. In color, we have on the one hand the startling if not new two-color phenomena displayed by Land, and on the other, pictures, old and new, which seem to display a range of intensity and saturation far beyond that which can possibly be present. This is particularly apparent in Andrew Wyeth's paintings which, against a dark background, appear to be far more saturated than they "are."

In the field of sound, it is a musician, John Chowning, who has really liberated sound from speakers and caused it to range freely through a room, swooping about in speed and position.

Scientists, too, have worked toward communication across the abyss. Jean Claude Risset, physicist and musician, has used the computer to create trumpet sounds almost indistinguishable from those produced by real instruments. In so doing, he has learned how to produce new sounds which are neither imitative of the old nor electronically dull. M. V. Mathews has analyzed the sounds of the violin and has produced kindred and perhaps improved sounds electronically.

R. Plomp has extended Helmholtz's basis of harmony in a way that should fascinate musicians but somehow fails to.

In the field of vision, Manuel V. Cerrillo studied the gradations of brightness in pictures by Rembrandt. By processing photographs so as to change the brightness scale, he was able to give them something of a Rembrandt effect.

In vision also, the experiments of Bela Julesz have distinguished among patterns which the eye can detect and patterns to which the eye is blind. He has shown the amazingly strong effect of symmetry and motion in giving otherwise random patterns coherence to the eye. He has been able to determine whether certain optical illusions are peripheral (produced in the retina) or central (produced in the brain).

In vision also, L. D. Harmon processed photographs of faces so as to reduce them to a rectangular array of, say fourteen by twenty squares of varying shades of gray. Seen at a distance, such pictures are recognizable. This confirms an old observation; getting things *right* is more important than fine detail.

By producing random drawings akin to a Mondrian, A. M. Noll has shown how easily viewers confuse extremes of machine-made and man-made drawings.

Despite these instances, one is often impatient for a revolutionary interaction between the scientific understanding that communication engenders and the art that man creates. So far, the truly revolutionary effects have in our age come indirectly, through that technology of communication which science has made possible. I think that we can only conclude that in all things, man is better at using and doing than at understanding. Understanding comes slowly and painfully. Once acquired, understanding is very powerful. We may yet see new scientific understanding which will have an effect on the arts as powerful as that of anatomy and perspective in Renaissance, or even as powerful as the invention of the arch was in an earlier age.

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TOWARD A DIFFERENT SPACE SPECTACULAR

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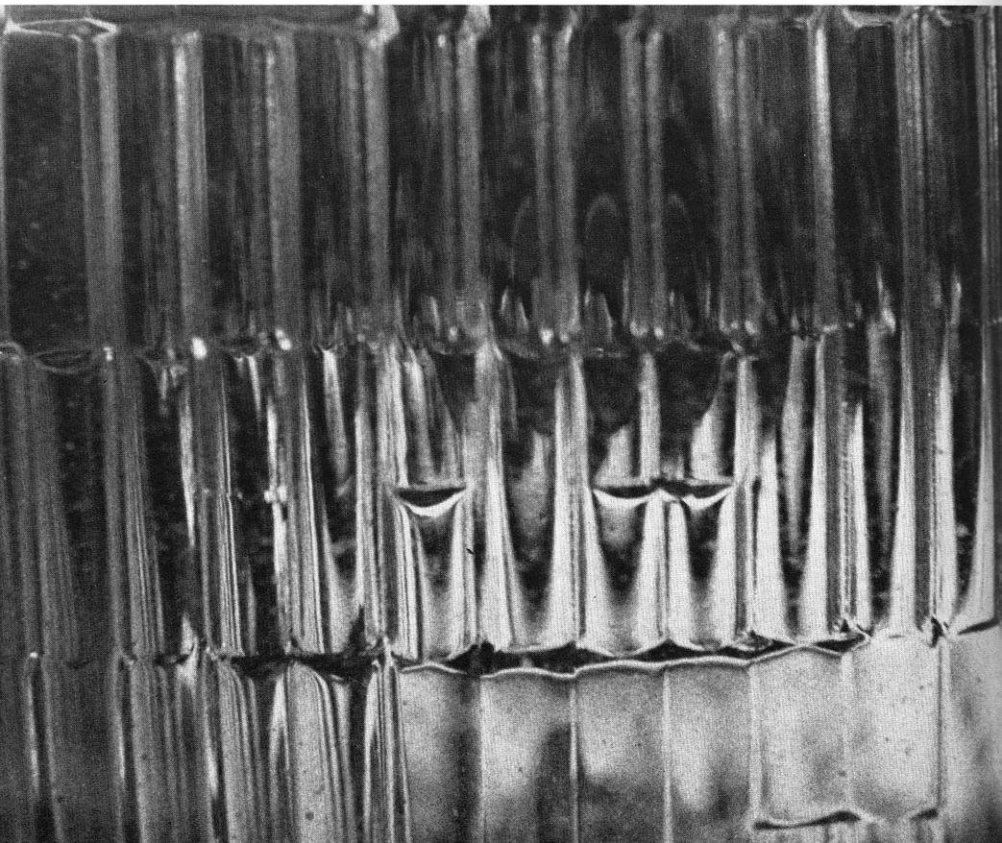
TOWARD A DIFFERENT SPACE SPECTACULAR



It can happen with mescaline. Front-and-center in a gray void, frameless, without curtain or proscenium arch, elegantly gradual in genesis, blooms a bright phosphene, a little like a flower, unearthly, in day-glo blue. It is joined by others in new colors, at various azimuths, altitudes, and distances, each in-the-round and softly curved as a Rodin marble. Sometimes there is the embellishment of a root system, filaments of gold gossamer, one or two approaching the propinquity of one's nose, the remainder receding without bound.

Pretty, but difficult to share. Hard, too, to argue why such a scene *should* be shared. But in these hues and shapes are bits of Bosch's garden, a hint, much amplified, of the color-splatterings of Pollock, and 3-D intricacies of arrangement fashioned by an astral David Smith.

Whatever their causal chemistry, such visions in the inner eye have prompted artists, working with what they took to be appropriate media, to *try* to share. Which may account for unphilistinish awe when a drug-freak confronts certain works of art. But, as he will be the first to tell you, even such works are pallid by comparison with the "original." Very so, it seems, in the 3-D department. *That,* traditional technology just can't hack.

Leonardo was not the last to explore and extend technological powers of unusual materials. Once I visited the Taos studio of a portraitist of the Pueblo Indians and was astonished to find a fully-equipped chemical laboratory and high-dispersion spectroscope. This painter made his pigments from New Mexican rocks and weeds. But no flat canvas or mural, even those with Escher-like tricks of perspective, can grab like genuine *stereo.* Hence the age-old enthrallment of sculpture, from the Ghiberti doors to Mt. Rushmore.

Plus a faintly-felt frustration and a nagging question: *Is this all there is?* A drug-bathed visual cortex trumpets that it is not. No mere construction of clay, concrete, wood, plastic, marble, or metal can escape restrictive parameters imposed by limited strengths of these materials. Architecture of Fuller-esque dimensions, geodesic domes, encapsulates huge hunks of space, but through the investment of mighty redundance in fine geometric details. Measured against the potential "alphabet" of visualizable space-cells, traditional sculpture encodes minuscule amounts of information. Visual channel-capacity lies fallow, wasting. Current constraints on 3-D art shout for an unshackling.

Respecting the ecology of mind, I hope to see this brought about by means less polluting than pill-popping, and in a penultimate paragraph I will point to one, born of communication engineering, that appears promising. But in almost everybody's great grandmother's parlor was a little light at the end of this tunnel: the stereoscope, an instrument crafted of wood and glass through which one viewed rotagravure-brown stereo-pairs, for hours often, until a headache pulled the curtain. Down the decades headaches and the cumbersomeness of stereoscopes have plagued 3-D. Its power was robbed

by first one and then another stringency of material or techinque.

In the middle 1920's good color photography was still a few years away, and anaglyphs were exploited. Children found cellophane spectacles in their cereal boxes, red for the left eye, green for the right, with muddy pictures produced by overprinting in red and green the members of a stereo-pair. These the magic spectacles made the jump into 3-D. For technical reasons your friendly neighborhood optometrist can explain, anaglyphs mean fewer headaches, but for some minutes after removing the spectacles one sees everything greenly with the left eye and redly with the right. In the 1930's, in a cinemanaglyph twenty minutes long, "Professor Pete Smith" rode roller-coasters and squirted seltzer, and for World War II's photointerpreters Polaroid made vectograms, unaccountably still in rotagravure-brown. But at about this time Charles Winnek invented a way of taking a stereoscope off the nose and putting it on a picture. One result is the 3-D color picture postcards in the corner drugstore. In these there are multiple stereo-pairs so that one can look slightly around the edges of foreground objects and (when it is designed) detect a modicum of movement as a correlate of one's own. The apotheosis and nearly fatal fall of stereoscopy arrived in the early 1950's: the feature-length full-color 3-D movie. Its ignominious failure braked the development of stereo-*sound!*

It is important to understand that 3-D motion pictures were not a passing fad and that Vincent Price was not responsible for their demise. What happened was headaches, in droves, and a "window" impression that made each spectator feel like a keyhole *voyeur.* The friendly neighborhood optometrist could have predicted all this, but nobody asked him. Unless one was free from pervasive eye "defects" (troublesome only with *that* technology of artifactual 3-D), kept his head up (many indulged in the quaint erotism of "necking"), and his Polaroid spectacles squarely on his nose, he would either fumble the full flowering of stereoscopy or court migraine.

So, with your sense of the climactic shaped and informed by recent newspaper headlines, you expect me, now, to tell you that Dennis Gabor's Nobel Prizewinning work in holography drops the chains from artifactual 3-D. Well, yes, at least many of the links from some of the chains. Fair holograms can be bought for $25 and up from scientific supply houses. Some reconstruct multicolored images in 3-D. Large and costly ones ameliorate the "window." Since they do not require straight-and-level viewing, they do not generate headaches or exacerbate cervical arthritis. For best results the rather expensive coherent light of a laser must be enlisted, but cheap effects can be had with less. Nor *need* the "window" be scored a minus. The day will come, I wager, when windows of crowded urban dwellers *consist* of 3-D color holograms, reconstructed views of Everest, the Grand Canyon, Niagara, Yosemite, etc. Not everyone is prompted to climb Everest "because it is there," and a heartening percentage of those who visit the Grand

Canyon are content with the view from the rim and do not make the trip to its deep interior. Several thousand people have lived in Chicago a dozen years without ever having seen Lake Michigan. As much of the agony of claustraphobia springs from what one sees or fails to see, the expense and hassle of transport may loom larger than the cost of window holograms.

But what I have in mind is not, primarily, wave-front *re*construction. Rather, wave-front *construction.* Music has analogs. Under certain conditions the human voice and traditional instruments are said to *produce* music. With Edison we began *re*producing music. And with Ampex a reproduction of Crosby crooning was indistinguishable from Crosby crooning. So, by application of a well-known principle by Leibnitz, it could be said that the Kraft Music Hall had the real crooning of Crosby at the same time that the real Crosby was golfing in Palm Springs. Soon, the electronic wizardy that made this possible became, itself, a source for the production of music, hence the synthesizers, the most famous the RCA and the Moog. Some would aver that the Carlos-Folkman productions of Bach *Brandenburg* concerti are in important ways superior to any previous reproduction thereof. Aficionados of *musique concrete* tolerate sound-reproduction as raw material, but they are ultimately content only after this is filtered, distorted, processed, and repackaged as a new production, ala Dockstadter, while the Babbitts of electronic music construct a literature "for oscillators only." Holography as wave-front *re*construction is a camera-free way of getting photographs of "real" objects, these photos having ancillarily exotic "side-effects." As wave-front *construction* it could not care less about "real" objects. It would zero-in on the "side-effects" and transmogrify *them* into new interferometric "realities." As Eddington once remarked, 'reality' means something like *loud cheers.*

The holographic analog of the Moog has not been made. The artist who tinkers up the first will have to know more physics than Leonardo or the painter of the Taos Pueblo Indians, but he will probably approach his task with the same zest for an encompassing control of materials. He may know Fourier-transforms and play with a panoply of lasers. But not all lasers drill diamonds. While the monster * under the Manzanos may aim at alien missiles, other lasers are gentler and may some day do the work of mescaline without its danger.

**The author alludes to a high-energy laser under development by the Air Force Weapons Laboratory at Kirtland Air Force Base and located in the Manzano Mountain foothills in New Mexico.*

REPEATING HISTORY

Martin Mayer
Author of the recently published book, About Television.
He has written a regular column on music and recording in Esquire *magazine since 1952.*

What the arts want from society is audience, money and the proper conditioning of the young, probably in that order. Nearly everyone agrees that telecommunications—especially television—should be able to deliver all three of these necessary conditions. In the United States, however, none of the promise has been fulfilled; and despite a good deal of sales talk from proprietors of cable and cassette technology (scandalously abetted by a number of not-very-bright people in the universities and the foundations), the influence of telecommunications in the arts looks to be even more negative in the future than it has been in the past.

The audience problem derives from the essentially democratic response of telecommunications in competitive situations. In general, the multiplication of media outlets tends to produce openings down to culturally less demanding material rather than openings up to the arts. A single-channel television service will usually offer more of serious interest than several competing channels combined—viz., the British experience after the ending of the BBC monopoly and the introduction of the competitive federal channel in Germany. Note also recent developments in the ever-expanding universe of American radio, now up to 7,000 stations but rapidly abandoning its role in the dissemination of serious music (and completely out of the business of serious theatre). Interestingly, on the other side, the members of the shrinking group of metropolitan

daily papers have been continually upgrading their offerings.

There is nothing paradoxical about these trends. Nearly twenty years have passed since Hilde Himmelweit complained that children who had watched educational and cultural features on BBC (and had liked them) would not watch such programs if there were cartoons on another channel; and adults, as has been observed, are merely children grown up. Administrators are better educated and intellectually more ambitious than their audiences. To the extent that audiences are guaranteed to them, they will tend to offer communications that they themselves believe worthy of sponsorship; to the extent that they must compete for audience, they tend with varying degrees of cynicism to deny the value of their own tastes and beliefs as guides to successful programming.

I feel that art has something to do with the achievement of stillness in the midst of chaos . . .

—Saul Bellow

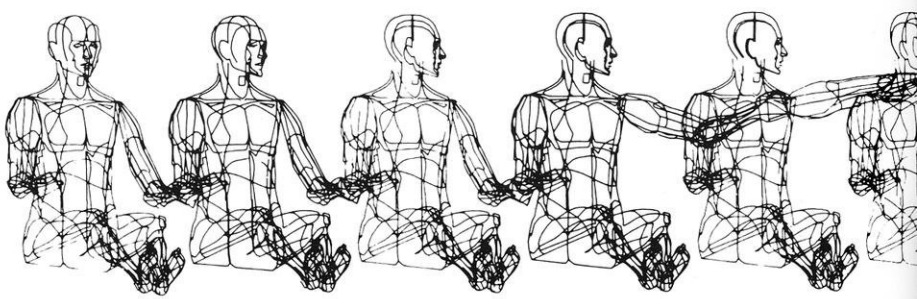
Telecommunications can scarcely be blamed for the financial problems of the arts, which are part of the inevitable malaise forecast in Baumol and Bowen's indispensable book *Performing Arts: The Economic Dilemma.* Wage rates are pegged to the productivity of manufacturing workers, and thus in all service trades, where productivity rises slowly if at all, the unit costs of delivered services must rise rapidly. This extra cost inflation affects education and medicine at least as severely as the arts.

It is not beyond the wit of man to control such trends, but any attempt to create self-reinforcing mechanisms for the purpose will run afoul of old and essentially irrelevant but still potent adjectives

(i.e., tax systems are judged as "progressive" or "retrogressive" rather than by the desirability of the activities they promote or inhibit). Nor can government decision-making successfully take over where mechanism fails: nothing in the artistic output of China or Cuba or the East European countries (except perhaps Poland) supports the once-popular belief that political control of artistic enterprise will nourish glowing efflorescence. Meanwhile, the increasing hermeticism and (within the hermeticism) faddishness of American art demonstrate the pernicious influence of university and foundation financing. But if telecommunications is to supply the money, the arts must draw an audience—which on the American scene means the development of anti-popular devices by which the commercial networks can be required to try a good deal harder than they do.

The conditioning of the young is a particularly sore subject, because all educators outside conservatories seem to believe that the sensitivity to art is inborn to the human animal and needs no training. Yet it is entirely obvious that without systematic training, capacities for pitch and color discrimination are hopelessly crippled, not to mention what happens to verbal acuity. Unfortunately, the greater gratifications from such training are usually delayed to later phases of the work (though resourceful entertainer-educators from Pestalozzi to Montessori to Joe Raposo of *Sesame Street* have shown how much pleasure can be built into the training process by people who know what they want to do). And in all these areas participation by the individual learner—difficult to achieve in the communal time-scale of a broadcast transmission—is next to indispensable if the desired skills are to be internalized and to become tools of perception.

Of course, all this comment rests on an unstated definition of art. If it is assumed that *Hee-Haw* is "as good as" *Fidelio,* then anything goes and nobody should care. An admiring article in a recent *Harper's* argued that Grand Funk Railroad was the best of the newer rock groups simply because its members had no talent at all—audiences could rejoice in the success of oafs exactly like themselves, only luckier. If one denies the importance of survival-value in an artifact, then the opinion of people trained in and sensitive to the art-

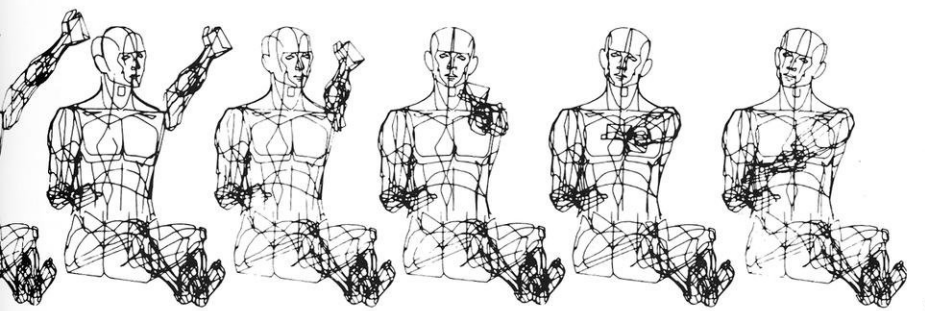


form need not be considered. We all wind up in the dust-bin of history eventually; why not now? Youth itself, we are told on high authority, is a stuff will not endure.

That democracy is better for some things than for others is a message that should scarcely need emphasis at a time when activists rely on the aristocratic courts as the engine for social change. On the national population scale, the audience that wants art on the tube or the loudspeaker is far too small to exert significant pressure. The fears of the professional performing artist—who has seen his chances for a livelihood eroded by technologies that make the national or international "best" available everywhere—propel union demands that raise costs for artistic production even more rapidly in telecommunications than in live performance. Meanwhile, the sheer convenience of television, and the safety of staying home, reduce the pull of live performance in what is to the audience a receding center city.

Without aggressive aristocratic intervention in radio and especially television programming—an insistence on criteria, on the opportunity for trained talent to do its best—the audience the arts might command will be increasingly lost to wholly evanescent entertainment. Additional channels are likely to make the results worse rather than better. I have no prejudice against entertainment, even the most vulgar and volatile; but there are other values, too. Not knowing enough about the past to recognize that the claims for tomorrow's "communications explosion" are virtually identical to those made by David Sarnoff for radio in the nineteen-tens and Pat Weaver for television in the nineteen-forties, today's enthusiasts are plunging down a well-marked path to deterioration if not disaster for the arts.

William Fetter, *Seven Systems Man.* These plots of a human figure were produced by computer. The intent of developing this capability is to provide a precise anthropometric tool for human factors engineers and others in the study of and design for man/machine interaction. Another intent is to simultaneously create images which have aesthetic merit in their own right. The work was conceived by William A. Fetter at the Boeing Company and developed under his direction. Currently he is adapting these aerospace developed tools to broader design purposes as Head of the Computer Graphics Laboratory, Department of Design, Southern Illinois University at Carbondale.



VISUAL ARTS IN THE AGE OF MASS COMMUNICATIONS

Robert Saudek
Visiting Lecturer in Visual Studies at Harvard University. He has produced Omnibus; *the television series* Profiles in Courage *based on the book by President John F. Kennedy;* Leonard Bernstein and the New York Philharmonic; *the world premiere of Lincoln Center and a number of educational films for schools and universities.*
He is president of Robert Saudek Associates.

VISUAL ARTS IN THE AGE OF MASS COMMUNICATIONS

Out of the silent caves of Dordogne, climbing up over the brow of the Athenian acropolis, running along the endless corridors of the Louvre Museum, round and round the walls of the cathedral at Bayeux, through the garden of New York's Museum of Modern Art run 30,000 years of cave-painting, architecture, drawing, engraving, tapestry and sculpture known collectively as the visual arts. These works stand or hang silent, motionless, self-sufficient and infinitely patient. Here they are called prehistoric; there, classical; somewhere else, beaux arts; again, art nouveau; then Bauhaus or impressionist: those eternally visual museum arts, each locked into its individual medium of stone, bronze, wood, precious metals, pigments.

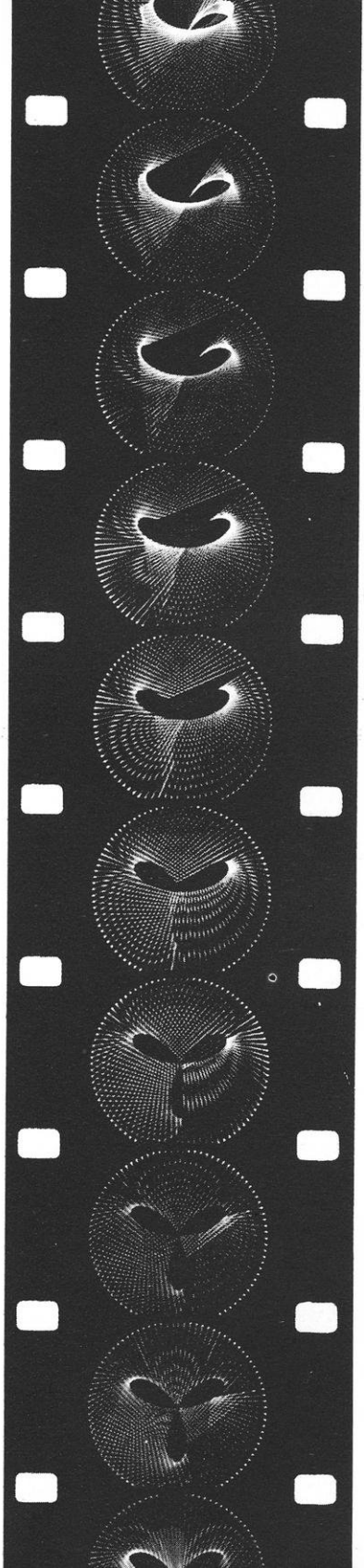
But one maverick medium, stained glass, shattered every convention in the frozen world of the visual arts, for whenever glass wanted to look beautiful it was not enough to be stained with pigments, it also had to be shot through with the fastest moving medium of all—light—which makes its refractive transit at the speed of 186,000 dazzling miles per second. Once light itself became one of the useable media of the world of beauty, the family tree of the visual arts began to grow and put out branches. Now the visual arts could move, as does light, and even speak, as does sound.

Then, nearly 150 years ago, photography—a second child of light—won its acceptance as one of the visual arts, and among the most fascinating of them. It actually

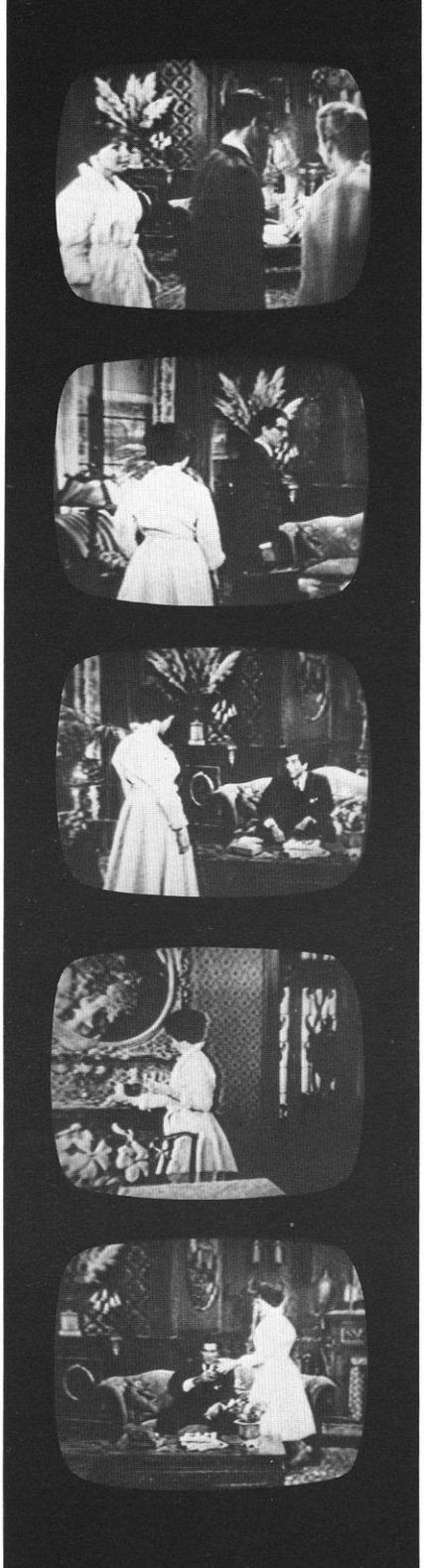
allowed men and women to become artists whose talents did not include the peculiar psycho-physical coordination characteristic of sculptors and graphic artists; and in that sense the visual arts could make a quantum leap; for the human eye and brain alone could now supply the necessary creative "input" (that loathsomely convenient word) without the frustrating inadequacy of not being able to draw a straight line, as it were.

What a breakthrough! The photographer—infinitely utilitarian as social documentarian, archaeological recorder, portraitist, explorer, journalist, geodetic surveyor, aerialist, naturalist—was now also an artist. Who would deny as visual art the work of Walker Evans in the south, Jacob Riis' New York of the eighteen-eighties, William H. Jackson's Hudson River Palisades and his Royal Gorge of the Colorado, Eliot Porter's *Summer Island,* William Brady's dead warriors, N.A.S.A.'s views of the earth from outer space, Ansel Adams' landscapes, Cartier-Bresson's people, the U.S. Air Force's studies from 40,000 feet, not to mention the luminous work of Steichen, Karsh, Caponigro and dozens of others?

By the turn of this century the twin phenomena of light and motion had not only invaded the heretofore silent and stationary arts, but now they made room for another breed of artists with the development of moving pictures. Surely Méliès and Muybridge paved the way for the special effects and process filming that expanded cinema's horizons as an art form, and they were followed by Griffith, Chaplin, Eisenstein, Murnau, John Ford and von Stroheim who made



Clip from a computer-generated film, *Experiment in Motion Graphics,* by John Whitney which was produced under a research grant from IBM.



the world of silent films an aesthetic world.

Finally, those two great lovers, *Son et Lumiere,* met, mated, and gave birth to a whole new generation of visual artists, bringing the evolutionary process almost up to the present era of sound-on-film and television; both media having the capability of color as well as the black and white picture.

Television and motion pictures turned out to be creative media in a double sense: not only were they pliable materials in the hands of artists, but also each contained the seeds of their own reproduction. The one through multiplication of release-prints for widespread exhibition; the other through intricate networks comprising coaxial cable, microwave relay, satellite relay and direct transmission: in short, they are capable of being encoded, stored, retrieved, transmitted and decoded.

At last, the visual arts had escaped from museums and temples of worship. Whereas precise reproduction of the older art forms—painting, sculpture, etc.—was not possible, these media constituted the twentieth century's forward-pass play, for reproduction and distribution are of their essence, which in itself would change the very character of the expression "visual arts." Now there were not only static design, mute representation, color, form, line and texture, but also movement, sound and the dimension we call time; hence the so-called "performing arts," dance, music, theater and cinema—heretofore house-bound by the four walls of an auditorium—have, through

the magical uses of electronic light and sound, joined the family of visual arts.

This synthesis of the museum arts and the auditorium arts is important for only one reason: that all art is not only in the mind of its creators, but also in the eyes and ears of its beholders. The phenomenon of mass communication can carry works of art to almost as many beholders as might conceivably be interested.

It is obvious that film and television as such are simply media, like marble. What do you do with them? What do you do with marble? Civilized people like to say they use these media to strive towards the highest forms of self-expression —that is, of art—that they are capable of. By that standard, one may ask, what ever has happened to television?

I suppose one answer is that, in addition to its aesthetic potentiality, it is the most eclectic of the media, capable of displaying Kenneth Clark's *Civilisation* series quite successfully, for example, in between all its other tasks of reporting the news, taking us out to the ball game and treating us to a mixed bag of everything from jewels to gimcracks.

Clearly, television as a medium has inherent limitations (as what medium does not?) Television is two-dimensional (unlike sculpture, for instance). Television offers a certain aspect-ratio, i.e., the ratio of the height of the screen to its width (so you cannot really turn it into a variety of shapes). The quality of color, definition and contrast is imperfect and, I fear, will not greatly improve in the years ahead. The scale of the picture is small; and while our eyes adjust quickly to observing the world's statesmen, artists and professional football monsters as though they were a race of Lilliputians, the television picture does not compare with the majestic images that dominate us in a movie-theater, or even with life-size stage performances.

Furthermore, it is undeniable that television as we and the British know it offers a rather frenetic setting for the thoughtful contemplation of a work of art, it being almost invariably surrounded by weather reports, scores, political confrontations and situation comedies. Unlike the gallery, museum, concert hall or library, television seems to be in a constant state of agitation over the world's trivia.

One must therefore ask the question, is television incompatible with the arts? Should it be left with its own surrealistic world? Before settling for these liabilities, it is only reasonable to examine television's assets as a medium of the arts.

Most tantalizing of all is its sheer size, its naked might, which alone makes it a huge magnifying glass. Any medium that can command the instant and almost ceaseless attention of about 100-million people in America must engage the interest and curiosity of thoughtful people.

Television offers form, movement, sound, light and—in this imperfect world—color of a sort.

Unlike museums, television is open at least twenty hours a day, seven

days a week. Unlike libraries, galleries, universities, auditoriums, and public parks, it is as close-by as the next room, no matter what the weather. Unlike the theater, opera or concert hall, the price of admission is modest.

Television attracts the attention of all ages from pre-school to pre-grave. Unlike virtually all other artistic media, it is not just an urban institution; in fact, one can scarcely imagine any valley or mountain-top, farm, forest wilderness or body of water in the land that is not penetrated by its insistent light-waves.

Fortunately, optimism about television as a serious carrier of the arts need no longer be based on the rather shaky ground of past performance, for the future holds both a wide variety of new concepts and the probability of a revolutionary restructuring of the television establishment itself, all the way from the government's licensing policy at one end to a pluralistic schedule of electronically-distributed events at the other. Cable television will clarify the picture you see and the sound you hear, and it will greatly multiply the number of services and styles you will be exposed to. Hallelujah!

Video cassettes, as they begin to take their place alongside the stereo outfit, will make every viewer his own curator, with lectures, paintings, favorite movies and symphony performances stored right in the closet.

Somewhat further off is laser, capable of transmitting an almost limitless number of strands of "information," artistic and otherwise, and giving a theoretical infinity of selection to us all.

Thus, it is becoming less easy to place with any certainty the significance of mass communications in the realm of the visual arts. One must keep reminding oneself that the focus of attention has already begun to shift from the clichés of commercial and even public television, with their straight-laced moralisms, BBC-borrowed culture and wildcat exploitation to a communications world filled with the promise of pluralism, individualism, room for broad experimentation, largely untried forms of computer-design, the death of waffle-iron program scheduling and the birth of free-form and two-way television.

The age of mass communications has not only not reached its full maturity; there are few who can even predict with any confidence what the full-grown medium will actually look like. Its influence on the visual arts, and theirs on it, are yet to be assessed.

A good starting place would be to consider the state of the printing press in 1472, when it—like films and television in 1972—was less than a century old. With imagination, hope and daring, the future of the visual arts may be even brighter than their lively past.

PERCEPTIONS OF SYNERGY

William Fetter
Head, Computer Graphics Laboratory, Department of Design, Southern Illinois University at Carbondale.

PERCEPTIONS OF SYNERGY

The Fauves were not instantly acceptable. Even Oldenberg took some time getting used to. And the current art/technology communications explosion in computing, video and other techniques again forces us to redefine art to encompass concepts and techniques not previously admitted to the term.

The work of the current wave of innovative artists/technologists creates a degree of cognitive dissonance by working in unfamiliar contexts. After-the-fact rationales will emerge, at times from the innovators themselves. Such writings have appeared in journals, news media or even court proceedings where creative innovations motivated the artist to assume roles not yet sanctioned by his contemporary society. The rate of proliferation of new art forms suggests that today new work will yield new grist faster than the verbal mills can turn to explain it.

The new definitions are urgent, however, for our true growth. In recent conferences on one aspect of the communications explosion, Computer Graphics, attempts at value judgments of the works prior to a new context of understanding proved unproductive. A short reflection on the growing number of workers in this new field, the variety of their background, amount, variety and type of computing equipment at their disposal and the embryonic nature of concepts in this field makes it too early if not unnecessarily difficult to develop valuable critical appraisals without new contexts. For example, my

work in Computer Graphics has sought to keep a close coupling between innovation and reduction to practice as well as fusion of aesthetics and function. In accounts of several European and American travelling exhibits which contain my work, this dual purpose is at times understood but usually the writers search in the distant past for concepts to deal with new forms. Future work in Computer Graphics centered systems aimed at graded interactive challenges to assist the participant's growth may require a further redefinition of art.

While I prefer innovation in Computer Graphics to writing, I am sufficiently fascinated by the degree of unity between art work and art criticism as a design problem in its own right to attempt to comment on it. In trying to come to terms with this matching process personally, I feel that systems theory suggests notions that yield satisfying and not necessarily mechanical insights about important aspects of defining art.

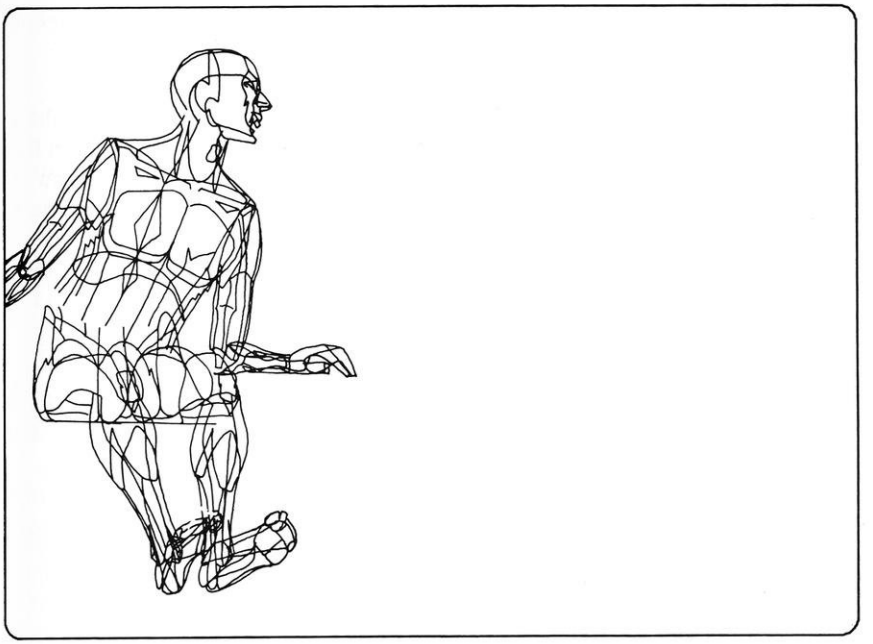
Synergy is the unexpected performance of a whole, not predictable by the sum of its parts.

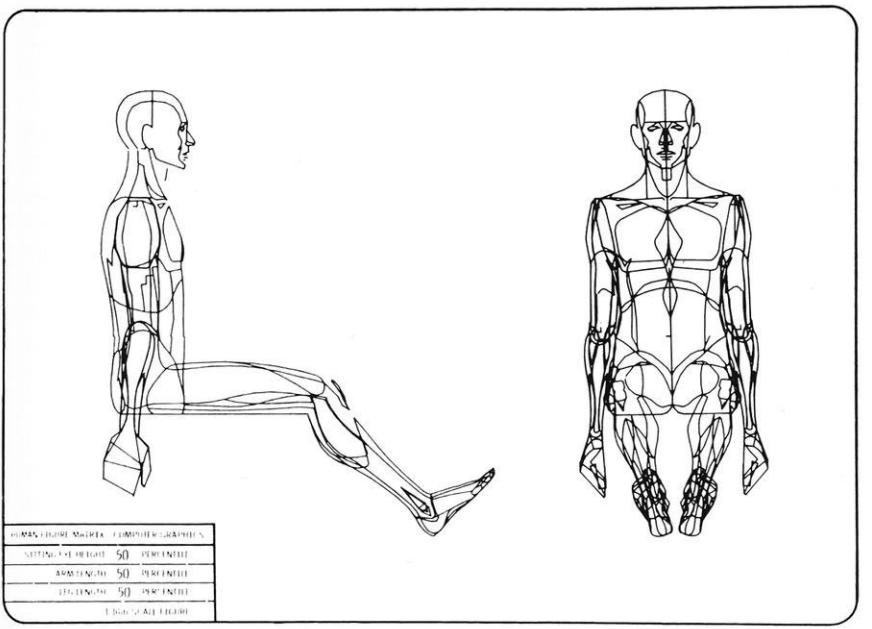
I believe beauty can be considered as perceived synergy, that art can be viewed as constructions toward that perception of synergy.

I believe Erwin Panovsky's assertion that anything can be perceived aesthetically is possible because synergy can occur at a given time among the levels between pure perceptions and pure stimulus material. At one end of this spectrum, operating in a relatively deprived stimulus environment, we call up prior stimulus material: the "man" who appeared for conversation after months at sea to the lone transatlantic small craft sailor, or the sounds that occur to the individual in an anechoic chamber. At the other end of the spectrum, stimulus material reaches us far more rapidly than we can assimilate it: the sudden bad news that causes unconsciousness, or the astronaut on the moon asking for "five minutes of nothing" after prolonged incoming radio communication. Deprived stimulus or overloaded stimulus can fall outside the range necessary for sufficient pattern, beauty and utility to exist between the stimulus and our consciousness for us to function. It seems our human system requires the continuing challenge of new forms of stimuli within a certain range for us to survive.

Already the new art with its constantly changing construction techniques and scope produces work outside the usual comfortable range between deprivation and overload. With such techniques, the artifacts become clearly less and less important than the perceptions formed. The artifacts gradually converge with the experiences of life itself.

The important experiences of choosing a mate in part involves what we describe as aesthetic considerations and has direct bearing on the way in which the species continues. I believe what we call beauty is the vital outward evidence of a healthy system with which the highest orders of synergy can occur. We apparently perceive a potential mate as beautiful when our senses detect a suitably balanced, healthy human being func-





William Fetter, *Seven Systems Man.* These plots of a human figure were produced by computer. The intent of developing this capability is to provide a precise anthropometric tool for human factors engineers and others in the study of and design for man/machine interaction. Another intent is to simultaneously create images which have aesthetic merit in their own right. The work was conceived by William A. Fetter at the Boeing Company and developed under his direction. Currently he is adapting these aerospace developed tools to broader design purposes as Head of the Computer Graphics Laboratory, Department of Design, Southern Illinois University at Carbondale.

tioning well on many levels. We can perceive a painting or photograph of a beautiful individual because a certain collection of sensory evidence of a viable system has been faithfully captured to synthesize synergy. When the artwork becomes more abstracted, then there is a transfer of the beauty of the system described to the synergy of the media's plastic elements themselves. Artistic construction then, at its best, creates the opportunity for perceptions of synergy as a selected mix between our perceptions, the media, and stimulus material. I believe that what we call art is not the pleasant icing on the cake of our existence but is an imperative to the development of our species.

A recent patent case before the Court of Customs and Patent Appeals dealt with the question of whether computer programming when stored in a computer technically reconfigured the computer apparatus. In my view, art helps to directly reconfigure the way in which our neurons function and, ultimately, we may find that our collected experiences more directly affect the expected perceptions within our offspring. "Art is life" may not be a complete statement but the two appear to be converging.

Significant new trends in art are often associated with a new generation. I believe such new contextual frameworks are exactly the kind of challenge needed for the entire culture's intellectual/aesthetic system. This is precisely why new forms are critical to us although they first appear ugly and fall outside the conventional wisdom as found in previously accepted definitions of art.

The hazards in the communications explosion have been present in the past. The proportion of hazards to opportunities remains approximately the same; they are simply both becoming more intense with the higher rates of change. Among the significant opportunities in the trend are the decentralization of communication system control and a consequent democratization of decision making.

Within the context of perceived synergy, I believe that the emerging technologies of computer systems, both analog and digital, video systems and other systems which yield quantum jumps in manipulation and ease of access offer the greatest hope for both creating and understanding information and art. This is so important that in the future we may see a time in which the tokens of exchange transfer from money to other forms. In the future the tokens may move from money to information, to a wholeness of information which we may by then call art, or ultimately to possessors of the most vital forms of information and art which we may by then call seeds.

We must pursue the integration of the elements of the communication explosion with the needs of individuals in society. Thus the opportunities for unexpected individual growth through graded challenges to each intellectual/aesthetic human system can yield an unexpected societal synergy until the highest form of art becomes literally the design of one's own life experience.

CABLE TELEVISION AS A TOOL FOR SOCIAL CHANGE

Alfred R. Stern
President, TeleVision Communications Corporation

CABLE TELEVISION AS A TOOL FOR SOCIAL CHANGE

Through the unique technology of cable television (CATV), with its vast channel capacity, it is now possible to serve not only the masses but also the special-interest groups and sub-cultures within the large cities who have long been denied adequate service by and access to the major media.

Advances in CATV technology now make it possible to build into a system a far greater channel capacity than is needed for standard commercial television fare. This leaves a more than sufficient number of channels which can be made available to segments of the public for their specialized needs. Whatever the organization, and whatever their cause or grievance, there is now a medium of communications which can accommodate them, can offer them exposure for their viewpoints, can enable them to speak directly to their neighbors about areas of mutual concern, and can provide them with opportunities for the all-important feedback.

Cable television systems can do all of this without any of the traditional economic drawbacks; no elaborate studio is required, no sponsored program must be pre-empted. The channel space is available and waiting to be used; and while more elaborate trappings will surely evolve, a participant who does little more than stand in front of a camera in a corner of a bare room would still be achieving a more potent expression of his viewpoint than is now possible in any other medium. In fact, it is the very simplicity of such CATV access that

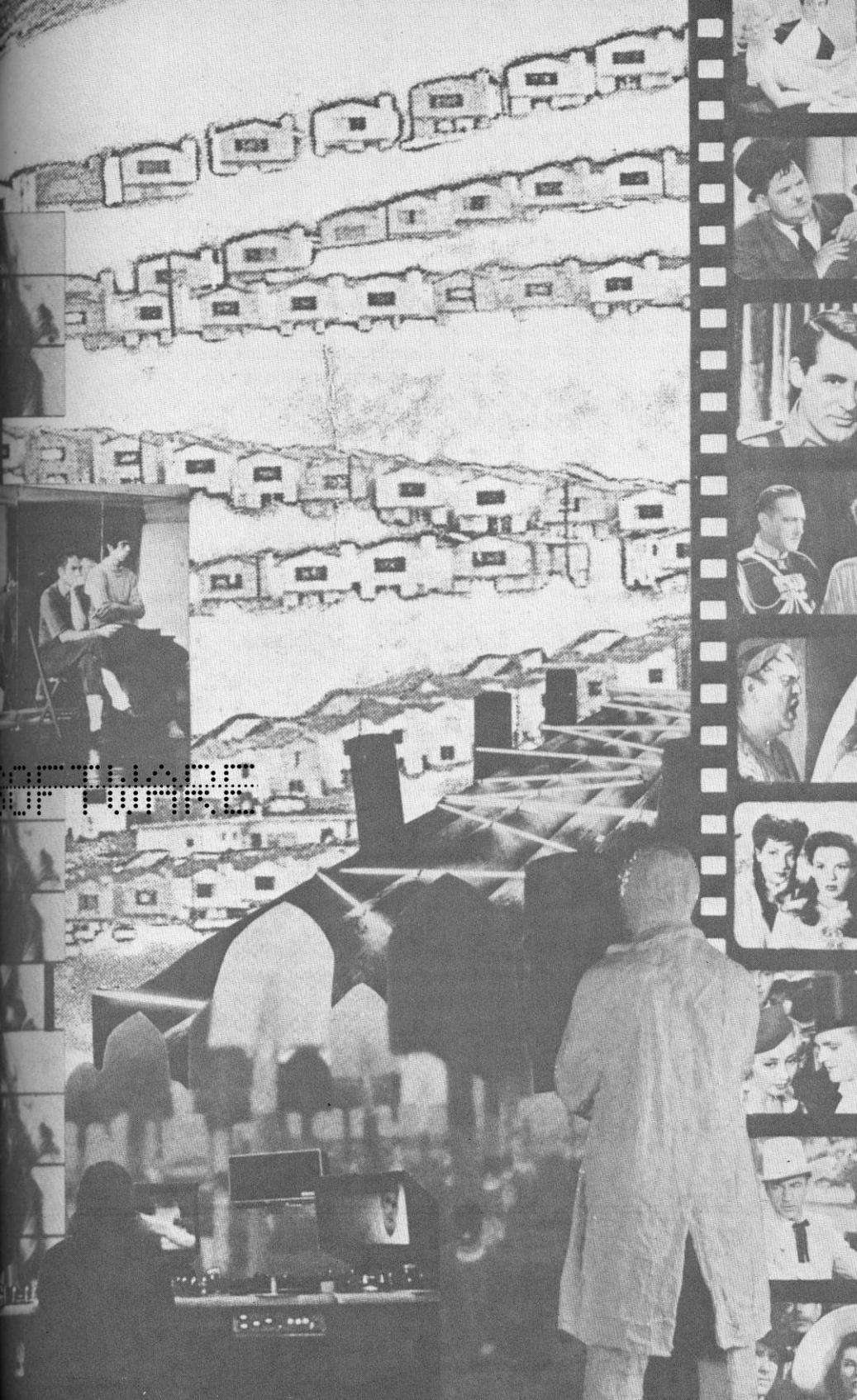
portends its potential power. For the first time, the medium of television becomes less than awesome, far from foreboding, and, stripped to its basics, serves as the voice of the people.

In addition to being easily available to the public, cable television has another significant feature which distinguishes it from other communications outlets. Because of the controlled delivery of the CATV signal, utilizing coaxial cables which link the studio with the home, a CATV system is technically able to define its audience for any locally originated program. This technical feat makes possible the delivery of highly specialized programs to only that portion of the community whose interests match the program content. A black organization campaigning for better day-care facilities could, for example, take its message directly to working mothers in an urban ghetto. Similarly, should these newly informed working mothers now want to respond to this program and seek wider support for their cause, they could then utilize a CATV channel to cablecast their message to the entire community, rather than a limited, pinpointed audience.

It is this combination of public access and the ability to serve a specialized audience which makes cable television a potentially powerful new tool for social change.

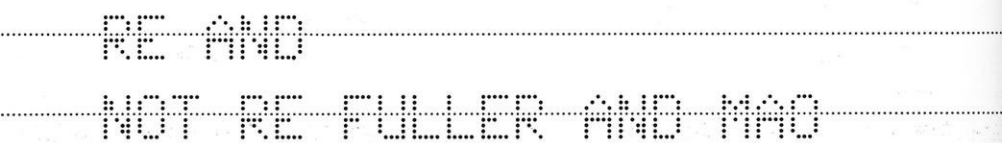
The impact of this new technology could be two-fold. We may create a less volatile, less frustrated urban society as the result of new-found outlets for expression; and we may develop better informed urban citizens prepared to act upon this new information being fed to them by their own neighbors on more intimate, more personal CATV channels. Out of this could surely come a greater sense of participation in local issues, a stronger leadership structure among minority and special-interest groups, and more persuasive social pressure leading to positive change.

So dramatic are the latest advances in the state-of-the-art that the introduction of CATV into our urban centers could someday be likened to the coming of electric power at the turn of the century—the impact of which served to draw people together and stimulate the cultural and economic life of the community. Given the opportunity to serve the public with its unique technology, cable television could conceivably achieve similar goals on the social scale.



RE AND NOT RE FULLER AND MAO

John Cage
Composer, writer, author of Silence and A Year from Monday.
He is known as a leader of the avant-garde in music.



(Quotations from R. Buckminster Fuller are in italics to the left of center, those from Mao Tse-Tung to the right.)

Rush hour: no rush. Trucks, buses, cars
(Sheridan Square NYC), complete stop. 45
minutes. Now and then someone moved an inch or two.
Details changed. Congestion continued. Black truck
driver studied situation, found a solution,
cheerfully gave directions. People
clapped their hands, blew their horns.

Everyone knows that, in doing a thing, if one does not understand its circumstances, its characteristics and its relations to other things, then one cannot know . . . how to do it, and cannot do it well.

County in Florida. Law was passed prohibiting the sale
of detergents. Housewives travelled to other
counties to purchase their detergents. "We know
we're breaking the law but we want to get
our clothes white."

Huge 747 practically empty. Boarding pass lacked seat-assignment. Hostess dropped plan to send me back to the counter to get one. I'd said: There's plenty of room, don't you think?

Alternatives to art.

Revolution in China implemented in part by Big Character Posters. People, walking in the streets, receive instructions. In industrialized West, people sit at home glued to the TV. Instead of commercials, broadcast suggestions for useful activity on the part of every man, woman, and child. Repeat every 15 minutes.

Brown: Work. (The Earth. The Seasons.)

We coined the slogan that "Soil is as precious as pearls and water as precious as oil." In 1959 we developed the program of "splitting the mountain, creating the soil" so as to alter its face into fertile land. (Valley of Stones Brigade of Yueh Kechuang Commune.)

More with less.

National Wildlife Refuges: museumization of wilderness. Following American practice of separating this from that (mad from sane; soldiers, students, criminals, aged from members of society), preserved, Nature becomes too beautiful for words. Birds in great concentrations. Permits to kill them.

Russia, USA: allies in twentieth-century war against ecosphere. World environment may collapse within thirty years. Combustion, detergents, atomic energy, pesticides. Etc. Substances proper to earth are now in the water. Ellul and Commoner. Live at your own risk.

Imitation of nature in her manner of operation, traditionally the artist's function, is now what everyone has to do. Begin by complicating your garden, so it's surprising like uncultivated land.

1949. Shambles: China had been wracked by civil war, foreign invasion, flood, famine. Industry

and commerce were almost at a standstill.
Irrigation systems in disrepair. Railroad
lines cut. Inflation. Population was
disorganized, half-starved, exhausted.
(*Chinese Road to Socialism,* Wheelwright and McFarlane.)

Suzuki told us how Zen developed in
China. Indian words for concepts had
no Chinese counterparts. To translate Buddhist
texts, Chinese words had to be invented. Fixity
became mountain-mountain. Flexibility became
springweather-springweather. Where is mountain that's
without springweather?

Most importantly we have learned that from here on it is success for all or for none. "Unity is plural and at minimum two." You and I are inherently different and complementary. Together we average as zero, that is, as eternity.

Our point of departure is to serve the people wholeheartedly, to proceed in all cases from the interests of the people and not from one's self-interest or from the interests of a small group.

Lost overnight. I happened to be alone. Saskatchewan.

Common denominator: Environment.

Situation: world. World divided between haves and
have-nots. Problem: success. Make
Mankind-Nature a 100% success. Solution:
comprehensive design science. (Fuller.)

Art is not necessary for
self-expression. Selves express themselves. An artist
changes himself by what he makes, leaves what he
knew, becomes what isn't known. What
necessary mystery can many people working together
make? Effective revolution. Norman O. Brown: What we
finally seek to do is to create an
environment that works so well we can run wild in it.

I now ask cosmic questions. "Is man needed in the universe?" "Does he have a universal function?" "If he is essential what needs to be in-

vented to improve his functioning?" "What are the largest overall trends of human evolution that need accommodations?"

Moved to the country for city reasons: to start summer theatre; set up electronic music studio. Instead I took to walking in the woods.

Reform Environment. Don't reform man. Adequately organized environment will permit humanity's innate capabilities to become successful. Politics and education have sought erroneously to reform humanity. I find that there are two ways in which the environment may be altered—i.e., one may decrease the degrees of freedom of humanity negatively by prisons, traps, and straitjackets and positively by inventing better shoes for men's feet.

Let's retire. (Not stop.) Get loose from institutions. (Deschool society: Ivan Illich.) Then we'll be able when the berries get ripe to drop everything and devote ourselves to picking them.

Schlossberg: Fear produces non-comprehensive design science. Commoner's proposal to send sewage to the land via pipeline system is an example. What's needed are toilets automatically productive of properly treated and packaged dry fertilizers.

destruction. Destruction means criticism and repudiation; it means revolution. It involves reasoning things out, which is construction. Put destruction first, and in the process you have construction.

Sinocize non-Chinese languages (Art work to be done).

Observe and help. We must firmly believe that the great majority of the masses are good and that bad elements only make up a very small fraction.

Whole Earth. Industrialization is a self-regenerative evolutionary phenomenon which started in China at least four thousand years ago. It travelled westward, and has reached China again in vastly advanced effectiveness.

The barbershop is like a community. Once you get into it you don't want to leave. It's for men, women, and children. There are potted plants and flowers and two large tortoises. Brightly colored robes to choose from. Antenna Enterprises.

Edwin Schlossberg: Gather information without bias. Define problems. Include their ramifications. Find solutions using energy sources going with nature, not against nature (sun, wind, tides, not fossilized fuels). Initiate action alone and with others without waiting to be told what to do.

Thanks to the following for permission to reprint:

Simon and Schuster for an excerpt from *Operating Manual for Spaceship Earth* by Buckminster Fuller. A Clarion book.

International Publishers Co., Inc. an excerpt from *Selected Works of Mao Tse-Tung.*

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IN THE FOURTH YEAR OF NIXON

No
I am not
threatened by a computer or by Rod McKuen
communications *remember Salinger*
Love Story
The Prophet
in any bookstore
No I cannot believe
in the statistics
of popularity *I cannot believe*
let me tell you
in the National Debt

The amount of the GNP is outside my vocabulary
Society could not have condemned a better man
outside prison

These popularities misprision
in the society of

Bob Hope Billy Graham the gaol directed
presidential protectorate of Mr. Hoover
the right public enemies get gunned down

No I'm not threatened by Rod McKuen
statistics *computer art*
communications
But can you blame a kid
in a free country when
suddenly digit in eye
VIETNAM NEEDS YOU
really *bugs you*
that's when the statistics *and you wonder*
! BOMBS !
?
about the plastic aerosol spray over everything
Look me up at Retail Credit

VESPERS

VESPERS

AN INTERVIEW WITH ALVIN LUCIER

Illustration by Masami Miyamoto.
Courtesy: Kaiser NEWS (c) 1971.

VESPERS: AN INTERVIEW WITH ALVIN LUCIER

Alvin Lucier
Composer. He is establishing a studio for environment sound at Wesleyan University.

John Douglas Simon
Graduate student in the World Music Program at Wesleyan

If we were placed underwater and looked at one another by means of sonar, (like dolphins do) what would each of us look like to the other? Sound waves in water penetrate a body without much external reflections or absorptions. Skin, muscle, and fat are essentially transparent to the sound waves coming through the water. The internal reflections are from air-containing cavities and from bones. Thus we see a fuzzy outline of the whole body plus the bone and teeth fairly clearly delineated; the most sharply delineated objects are any gas-containing cavities. We have a good view of portions of the gut tract, the air sinuses, the head, the mouth cavity, the larynx, the trachea, the bronchi, the bronchioles, the lungs and any air trapped in or around the body and the clothing. You can imagine again the conventional person's unease at being able to see inside another person's stomach and lungs.

John C. Lilly
The Mind of the Dolphin,
1967

This is a piece for any number of players who would like to pay their respects to all living creatures who

inhabit dark places and who, over the years, have developed acuity in the art of echolocation, that is the use of sounds as messengers, which when sent out into the environment return as echoes carrying information about the shape, size and substance of that environment and the objects in it.

Play in dark places indoors, outdoors or underwater; in dimly lit spaces wear dark glasses and in lighted spaces wear blindfolds. In empty spaces objects such as stacked chairs, large plants or human beings may be deployed.

Equip yourself with Sondols (*son*ar-*dol*phin), hand-held echolocation devices which emit fast, sharp, narrow-beamed clicks whose repetition rate can be varied manually.

Accept and perform the task of acoustic orientation by scanning the environment and monitoring the changing relationships between the outgoing and returning clicks. By changing the repetition rate of the outgoing clicks, using as a reference point a speed at which the returning clicks are halfway between the outgoing clicks, distances can be measured, surfaces can be made to sound and clear signatures of the environment can be made. By changing the angle of reflection of the outgoing clicks against surfaces, multiple echoes of different pitches can be produced and moved to different geographical locations in the space. Scanning patterns should be slow, continuous and non-repetitive.

Move as non-human migrators, artificial gatherers of information or slow ceremonial dancers. Discover routes to goals, find clear pathways to center points or outer limits and avoid obstacles.

Decisions as to speed and direction of outgoing clicks must be made only on the basis of usefulness in the process of echolocating. Any situations that arise from personal preferences based on ideas of texture, density, improvisation or composition that do not directly serve to articulate the sound personality of the environment should be considered deviations from the task of echolocation.

Silences may occur when echolocation is made impossible by the masking effect on the players' returning echoes due to the saturation of the space by both the outgoing and returning clicks, by interferences due to audience participation or by unexpected ambient sound events. Players should stop and wait for clear situations or stop to make clear situations for other players.

Endings may occur when goals are reached, patterns traced or further movement made impossible.

For performances in which Sondols are not available, develop natural means of echolocation such as tongue-clicks, finger-snaps or footsteps or obtain other man-made devices such as hand-held foghorns, toy crickets, portable generators of pulsed sounds, thermal noise or 10,000 cps pure tones.

Dive with whales, fly with certain nocturnal birds or bats (particularly the common bat of Europe and

North America of the family Vespertilionidae) or seek the help of other experts in the art of echolocation.

Activities such as billiards, squash and water-skimming may be considered kindred performances of this work.

Thanks to Donald R. Griffin.

Alvin Lucier

JOHN DOUGLAS SIMON: When was *Vespers* written?

ALVIN LUCIER: I think I got the idea for it in 1967 or 1968. Like a lot of pieces I've done, I thought about it for quite a long time before I actually made the final realization. The funny thing is that I thought it was final; but the other day in the gym—I was tired and so I sat in the middle of the gym and paid attention to this one runner who was running around. I started focusing on the echoes that his footsteps were making as he ran. At one point you would hear just a single echo, but as he circled around and got in a different place, the echo would begin to multiply or add so that at one point you would hear three echoes for every step. This made me think that perhaps I should keep the piece open. Conceivably we could make a tape like a track team running around the same place at different speeds, so that the echo situation would become very much more complicated. In the original piece—with the Sondols—I don't care about the speed at which the players play the Sondols, I don't want to pay any attention to what goes out; I'm more interested in what comes back. But if I ever made a tape using the runners I would want to program them to run at different speeds. For example, I'd use a long distance runner who would probably run at a slower speed than a sprinter. I would use runners of different styles and speeds. Whereas the players I tend to use in the Sondol version of the piece are people who I find and teach how to use the Sondols. They don't have any specialty. I'm beginning to feel that I ought to utilize the specialties that people have.

SIMON: I know your only instruction in playing the Sondols was not to change the way you play too quickly.

LUCIER: Right! The reason I do that is so that the players are not self-conscious about trying to make the outgoing pulses interesting. Usually I have problems with good performers or good instrumental players who do the piece; who think that they have to somehow improvise or to make interesting rhythmic figures. Often I find that people who have never played a musical instrument before do the best job on it because they don't have any preconceived ideas about how to make something interesting. I want to make the space the interesting thing and not the personalities of either myself or the people who play the piece. I always tell the players that if I wanted to make interesting rhythmic figures, I could,

since I have written a lot of music that I did control the rhythmic aspects of, but it's the space itself that should be interesting. Therefore what goes out into the space has to be very neutral.

SIMON: It's a curious performance piece, though, because the point of the piece seems to be the way environment responds to the ticks from the sound guns, and yet the sound guns themselves are such an unusual product.

LUCIER: Yes . . . I never wrote a score because I wouldn't enjoy saying in the score that one has to buy four Sondols . . . I'd like to leave that open. They're very expensive anyway. I've always done the piece with only four people because I have four Sondols. But if I had to make a score, I would enjoy thinking up a way to make other sound sources accessible to people. The good thing about the Sondols is that they were made by a very expert electronic firm—and they worked very hard to find out what the optimum sound source would be so that the pulses that get generated are very sharp and very fast. They do the optimum job. Several times I've used little toy tin devices that you buy for five cents —"crickets."

SIMON: "Crickets?"

LUCIER: Yes—they're named after the insect . . . I did a performance of this at a girls' school and I bought a hundred and seventy-five of these things and I instructed four girls to play the Sondols. Before they played the Sondols I passed out all the "crickets" with instructions about the piece. At a certain point, I said it was all right for the girls themselves to start joining in the performance, and they all played these little tin devices, so that there was a transformation which took place in the piece from the very sharp optimum pulses of the Sondols to a general toy sound of "crickets." This changed the texture of the piece—from one where you could hear isolated echoes to one where you just heard the whole room begin to ring or to sing.
I did the piece in Helsinki too. While my four players were working the Sondols, I passed out "crickets" to the members of the audience who began to play them. The performance wasn't very beautiful because, while many people understood the piece, some students from the Conservatory were there and they started to make banal rhythmic figures instead of trying to hear the room . . . which is rather sad if that is the most interesting thing they could do with them. But what was very beautiful was that after the program was over we went out into the town. It was early spring in Helsinki and it was that period of time when the sun starts to come out after a long period of no sun. It was two or three hours after the concert and I could hear isolated individuals in the city playing. As you'd walk down the street in Helsinki you could listen to people alone, or in groups of two or three, playing these little devices. Perhaps they got the point of the piece more after the concert than they did during it.

SIMON: The piece brings to mind all sorts of animals, like bats. It's whimsical to use cricket toys because the things actually sound like crickets. How formed were the

ideas? Did you have the animal ideas before you found out about the sound guns or vice-versa?

LUCIER: My wife was trying to find a studio where she could work on her sculpture. And she put an ad in one of the local underground newspapers saying she wanted to form a communal studio. And she got an answer from a guy who had a job at the electronics company, where, finally, I found these Sondols. We both went to see him because he had a garage where he was making a studio. We got to talking and he mentioned that the company where he worked did this kind of sound exploration. Actually they were doing work deciphering dolphin speech. He told me about devices they were developing, for echolocation, and that they were going to develop underwater Sondols also. Actually the word Sondol means "sonar-dolphin." After I found out about these devices I started to think about a piece. Close to that time I had started to read a very excellent book by Professor Donald R. Griffin who has done fine work on echolocation, and how animals employ it for acoustic orientation. The book gave me the technical end of the situation; for instance, how an animal is able to judge how far away an obstacle is by figuring out how long it takes a pulse to bounce off an object and return. It also told about the quality of sounds that animals employ. For example, if you have a very high-frequency sound, the wave length is very small; therefore you can identify small objects. If you send out a pulse, a sound that has low frequency, you can identify big objects because the wave length is bigger. Actually, animals that have perfected this fantastic audio sending and receiving apparatus can discriminate between the sounds that go out and those that come back, and the ones that come back carry information about the environment that they're in. In fact, the title of the piece *Vespers* comes from the name of the North-American bat family *vespertilionidae,* which means *"vesper"* or "evening." With this piece, I would like to pay my respects to these creatures of the evening who over a tremendously long period of time developed a very special facility. I want to get in on something that's taken so much time. This facility is one of the few things that they have developed. They haven't learned to think in the way that human beings have, but they developed an extraordinary audio facility. As a composer, I felt I should take part in that.

SIMON: If your purpose is sound; if you're a composer who is mostly concerned with sound, a bat is a useful creature to imitate because his purpose is entirely useful—he wants to play his environment so that he can move around in it.

LUCIER: Yes, I was thinking about bionics and I got the idea that bionics is a science where you take a natural system and apply it to an artificial system. For instance, they learned that by imitating the skin of certain fish and applying it to the outside layer of a submarine, it could go through the water at a greater speed. It's not out of our environment, now, to go under the ocean, or into outer space where we could find ourselves without information coming into our eyes.

We might have to rely on our ears, something we haven't done very well up to now. The piece, I suppose, is, in part, an educational piece: I want to open up the players' and the audience's ears. You'd be surprised at how many people don't know that the piece is about echoes. Some very fine musicians and composers have been at performances of this piece and they think it's a piece about phase relationships. They just don't hear the echoes . . . and I want people to hear those echoes.

SIMON: The echoes themselves don't sound like what you usually think of as echoes. The emphasis seems to be on the changing timbre of the click from the gun. I was conscious of the fact that what one does hear seems to change as you move the Sondol to different areas in the room.

LUCIER: I know that if you have four people playing these devices in the same space, the echo situation is so complex that each player is unable to read his own echo. I force the players into a task, and, if they perform the task correctly, then the piece will be played to my satisfaction. What I'm saying is that if they're all playing at the same time they're not able to hear their own echo; therefore, they have to stop. In order to orient themselves in the space, the players have to stop their playing because there are too many sounds going on. The task I set them is to orient themselves in space and to move from one place to another. This regulates the texture of the particular piece. You see, I don't have to compose that. I can say they have to go from one place to another, and the only way they can do that is to rely on their own echo. If they can't hear their own echo they have to stop. The performance of the piece is regulated in that particular way.

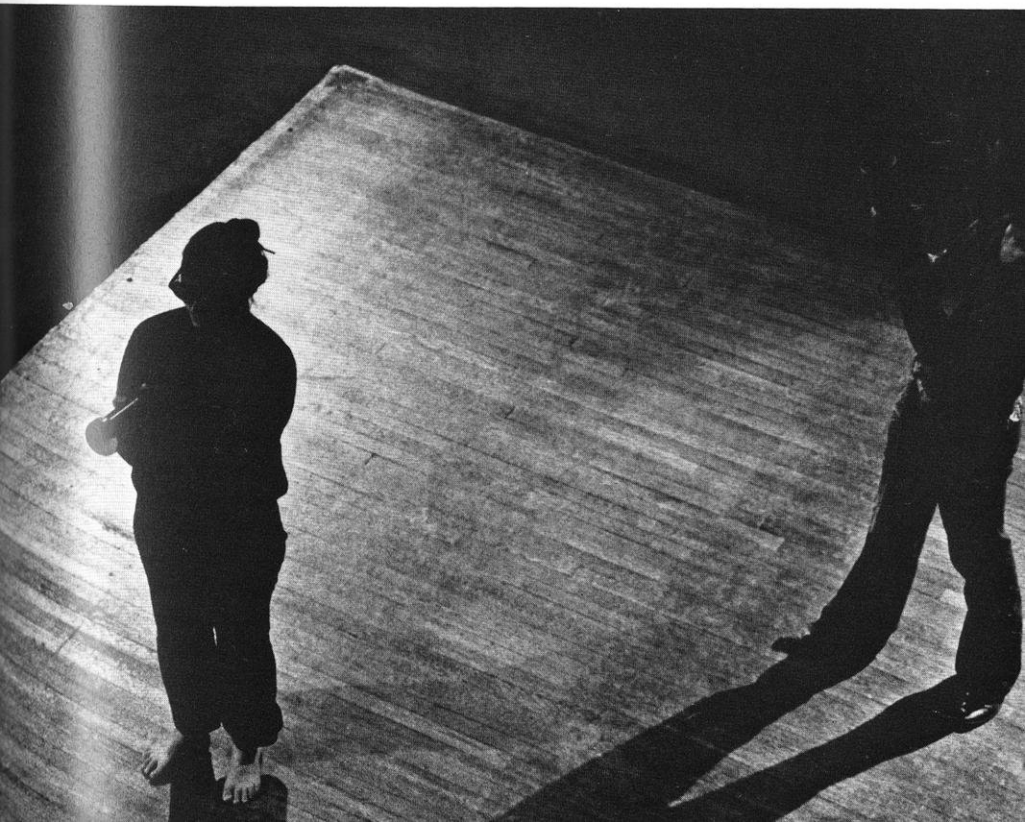
SIMON: On several levels it imitates the usefulness of a bat's equipment —when you can't accomplish what you're trying to do, you don't do it.

LUCIER: Right. I can just imagine that when other people get the idea of this piece there will be pieces that use echolocation devices, but players will probably be programmed—in other words, the piece will be really "composed." Whereas I am satisfied with letting the space and the situation take over, I don't intrude my personality on a space . . . I just bring a very simple idea about a task that players can do, and let the space push the players around. In that way, I always find something out and I never forget a space that I've done that piece in. It's as if we take very slow audio photographs of that space.

SIMON: In the versions of the piece where you handed out the little toy clickers, what relationship do the clickers have to the people playing? Are they sort of a responsorial chorus from the environment?

LUCIER: Let me recall two memories for you. Last September, my wife and I drove down from Ann Arbor, and while we were going through the state of Kentucky, we stopped at a gas station, and there was a whole field filled with cicadas. That's one. The second is that I remember at Brandeis there was a particular bush that I passed by,

Photos of *Vespers* production by Mary Lucier.



and there was an insect in it—maybe it was an aughst or even a cicada. He was alone, and he was producing a tremendous amount of sound which echoed within the bush and off a cement wall. At that point, I couldn't help but superimpose my idea that he must have heard the echo that came back. Maybe he didn't—maybe his sound was for another use; but I, with my understanding of echolocation thought that he probably heard that echo. Putting the two memories together, I thought that if I had a hundred and seventy-five people doing that, playing with these things, I would relieve the anxiety or the tension that is built up during the performance when I only use four Sondol performers. And while they didn't actually have individual experiences in echolocation, the room did begin really to buzz and ring, in the same way that the field in Kentucky seemed to ring.

SIMON: Would you agree that the bias of most people who are familiar with music toward expecting instruments probably hides the point of the piece—because they expect the sound guns themselves to be of interest—when what you are trying to do is just take advantage of the place where all the people are?

LUCIER: Right. After performances people come up and play with the Sondols—a situation that I like very much. But one of the first things they do is put their hands over the speaker as if they're playing a trombone or something. They make a "wah-wah" sound or they try to speed up (or slow down the) pulses and produce a rhythmic effect. So, yes they do distort: they try to do old things with new means, which is, of course, not what I'm trying to do. Of course, in a way, with an electronic device, I'm tuning in to a very prehistoric phenomena. In a very strange way, I'm more old-fashioned than anybody.

SIMON: It seems a very social idea to have the audience do something too— and a friendly idea at that. Do you think there will ever be a time when you can give a concert and the audience won't be anxious; that it will be clear that the point of the concert is to take advantage of the social situation of being together?

LUCIER: I think so. It seems to work pretty well when I explain the piece before the performance. But in the situation where we have four blindfolded performers, there's always anxiety about the possibility of having a performer bump into something. I had one performance where one of the players got completely disoriented and ended up in a corner. Even if the audience understands the point of the piece they *should* feel concern about whether the player is going to fall down or bump into something or not. I'd like to keep that in.

SIMON: I know when we performed the piece we wore sunglasses in a very dark room. It became a very theatrical picture, having four people using those guns. Our motions might have appeared artistic, even though the point was not to make changes too swiftly. You also mentioned at the time that we shouldn't make conscious choices about the movement of our bodies —that we should choose a path for our arms to follow and then follow

it without making any changes.

LUCIER: Yes, I did that to keep your personality out of it because in this piece I'm really not interested in the players' personalities, or my own personality. I'm interested in the space's personality.

SIMON: Do you think audiences get uncomfortable because they feel they're not getting any information from the music? That all they're getting is the fact that they're there together?

LUCIER: They don't hear the echoes terribly much. They think it's a piece that involves rhythmic out-of-phaseness. Sometimes audiences get annoyed and sort of rowdy. I recently did the piece in Cambridge for a Harvard School of Education program and they started to disturb the performance. But, for the first time, an audience who felt like participating didn't make banal rhythmic patterns. Individuals in the audience made single vocal "clicks," so that, I almost feel that they did realize that echoes were being produced.

SIMON: You mentioned that you wanted as neutral a sound as possible. What do you think about the idea of music as sending messages? In this case, it doesn't seem to be sending a message—and yet, paradoxically, in a way, you get maximum knowledge about your environment.

LUCIER: Well you know the old theory about art as communication . . . (laugh).

SIMON: What do you think about that theory?

LUCIER: Well . . . (laugh) . . . we composers have always denied it. I don't know: if you're able to make available a picture, in sound, about the space you're in, you're telling people something. Each of the four performers spread out in the space can, in a way, tell the others where he is and what the echo situation in that geographical position is. The players can often send information to one another. The audience receives the same information. So that I suppose you have to say that this piece is a communication piece.

SIMON: It's a curious thing that by giving up your perogatives, as a composer, of sending information, you've allowed the environment to reveal itself. By having minimal content in your end of the thing you've performed a service for the audience.

LUCIER: Right, that's what I try to do.

SIMON: And what's also strange is that the audiences who aren't satisfied with that state of affairs feel cheated because you're not giving them information.

LUCIER: Yes . . . they would say I'm not communicating.

SIMON: When, in point of fact, there's all the communication you could ever hope for right there.

LUCIER: Maybe I'm not communicating, but the particular room they are in is communicating. And I think people should find out about that.

A NEW SOCIAL ROLE FOR DOCUMENTARY FILM*

Richard Dyer MacCann
Editor, Cinema Journal *and*
Professor of Film at the
University of Iowa.

A NEW SOCIAL ROLE FOR DOCUMENTARY FILM

Democratic government assumes that new ideas must come up from the people as well as filtering down from the apparatus of government itself. There are certain problems, and intensities of feeling about them, which only the people themselves can adequately understand or tell about. And so in years to come, the documentary film may well find itself playing a new role in democratic life. Already the Canadian National Film Board has shown how to do this, and the Office of Economic Opportunity, for a short time, had a similar project in this country. This new thing is called a "community action film," and it reverses the old pattern of documentary as handed down from on high.

In the older tradition, documentary serves as description of community experience — a description or enactment which can be passed on to other communities as example and inspiration. A film would be made, for instance, about the building of a bridge or a school, and the film then becomes a pattern of suggestions for other towns that may need to develop cooperative action to build bridges or schools. The community action film is something else. It sets up a new cross-current of communication by asking the people themselves to speak. The film becomes a tool of direct dialogue among groups within the

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**This piece is an extract from a talk given by the author on the Voice of America series, "The Documentary Film in the U. S. Government." It appears by permission of the author.*

community, a substitute for the tension of physical confrontation. It suggests that communication, like government, can be of the people and by the people, as well as *for* the people.

The technique is simple — so simple that it requires a new kind of self-effacement for camera operators, editors, and directors. Men and women representing various points of view are photographed as they express their opinions and feelings about their own life and work. Each one is entitled to see the film and make changes before it is shown to anyone else. Then the film interaction begins: the worker sees the film of the mayor, the mayor sees the film of the worker. On Fogo Island in Canada, merchants, teachers, fishermen, and cabinet ministers were interviewed singly and in groups. Julian Biggs, Canadian National Film Board director who supervised the project, reveals the heart of the process:

> *Now if you take fishermen to the Cabinet, they won't talk about the problems of their lives the way they will among other fishermen. But if you let the government people look at films of the fishermen talking together, the message comes across.*
>
> *And if you in turn let the fishermen see films of the government people discussing the same problems, you have established a new communication with each group remaining in its own context.*

When this new communication happens, it is profoundly different from merely seeing a problem and

Communication in a creative society must be more than a flow of messages — it must be a means of conflict resolution, a means of cutting through the rigidities that divide and paralyze a community.

—John Gardner

then its solution. What is going on is actual participation, and after that, a ripening acquaintanceship with "the other side"—or some other side—of the social and political framework. It provides a cushion of understanding against violence and distrust because it is truthful and imperfect and deeply observed. It goes far beyond the embarrassment of a real encounter, because the interviewer and the film have come between the participants to encourage personal expression without interruption.

Of course movies in community action can only be one step in the democratic process—and that process can only be as good as the people who take part in it. Some talkers will always be slicker—and therefore more self-defeating—than others. Excess of communication, too, may be self-defeating: too much talk can lead to strife, and it is possible to know one's opponents too well. The effectiveness of any direct dialogue depends on a combination of honesty and diplomacy —a readiness to speak freely and a willingness to stop at the right time.

Then there is the question of the film making process. The art of directing a community action film is not just the art of recording something. It is not random or blankly "objective" but based on a knowledge of human nature and society. The director must know how to select representative subjects. He must be deeply involved and aware of the meaning and value of every gesture and word. Such cameramen-directors are hard to find.

Still, the community action film offers special promise as a healing experience in an alienated time, an instrument of change that carries with it some of the built-in patience of the town meeting. Such films need not be expensive. The emergence of new reusable videotape techniques, as well as super-8-millimeter film (with sound) make the cost of materials reasonable. Local camera operators and editors can be trained on a budget any community can afford.

Can this sort of thing be done, though, at the national level? In this day of high powered public relations and political image-making on TV, can a dialogue be achieved simply by offering it, by bringing the people to the camera and microphone? Do we not recall that one President chose to watch a TV football game rather than listen to a protest against a war?

Essentially what we are asking is whether democracy can manage to retain any of its directness, its feeling of face-to-face honesty, in an increasingly technological age. The answer, of course, cannot depend on technology itself, but on the motives and the persistent effort of those who care about the democratic process.

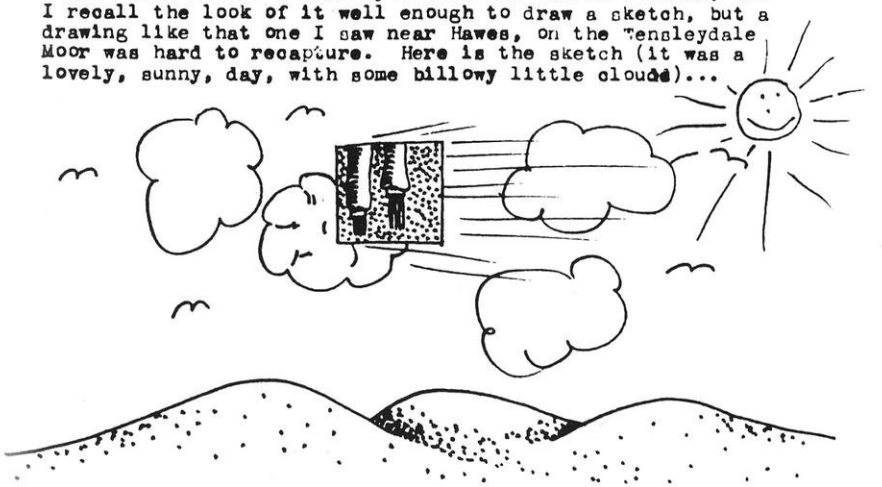
The only way democracy has ever worked is by enlisting mutual interest in the happiness of others—by what William Hazlitt once called "the power of sympathetic identification." It is an inventive and creative process, this renewing of the sense of sympathy for others, and it puts a heavy burden on the artists and reporters of any age. But the documentary film can do that kind of work, and it therefore has a natural place at the heart of public communication in a democracy.

Lowell Darling
FAT AIR SOCIETY (A branch of
Fat City Art Works)
27 Holly Park Road
London, N. 11

Royal Aeronautical Society
4 Hamilton Place
London SW. 1.

Dear Sirs:

Recently I was on holiday in Yorkshire, where I saw the most incredible thing in all my air-watching days. I have heard about them, but I didn't think they existed before now... That is correct - Unidentified Flying Drawings, or UFD's! I fear that I didn't have my Konica Air Camera with me, but I recall the look of it well enough to draw a sketch, but a drawing like that one I saw near Hawes, on the Wensleydale Moor was hard to recapture. Here is the sketch (it was a lovely, sunny, day, with some billowy little clouds)...



Sirs, I would be glad (I will be glad) to give this document to you, because I know that you have one of the finest collections in the world of historic aeronautical information. I am proud to make this small contribution. Thank you.
Also, any comments about this flying art matter will be most appreciated. You don't suppose Planets from outer space are going to try to take over our airways and art galleries? ...

Sincerely yours,

Lowell D. Darling
(for more "art in the air")

Lowell Darling is an artist who resides at the Art Center of the World, Davis, California.

The Royal Aeronautical Society
4, Hamilton Place, London, W.1. 01-499 3515

LIB/AWLN/CAM/586F 23rd November, 1970

Lowell D. Darling, Esq.
FAT AIR SOCIETY
27 Holly Park Road
London, N. 11.

Dear Mr. Darling,

Thank you for your recent letter, (undated).

Unfortunately, you have omitted various details in your sketch and I would be glad if you would clarify the colour, approximate size, speed, height above ground, together with the length of time that the art work was visible.

Yours sincerely,

A. W. L. Nayler,
Librarian/ Information Officer

Received Nov 25, 1970 L Darling
ARTIST'S PROOF

THE FAT AIR SOCIETY
27 H'lly P'rk Rd.N11

mailed

ART/GASP/ARG(((9G 28November, 1970

A.W.L. Nayler, Esq.
The Royal Aeronautical Society
4, Hamilton Place, London, W11

Dear Mr. Nayler,

Thank you for your recent letter, dated 23rd November, 1970.

In regard to your questions in regard to the matters regarding colour, approximate size, speed, height above ground, together with the length of time that the art work (unidentified) was visible: black and white, 8"X12", pretty swift, 12', off and on for a few seconds, several times over a period of several hours.

This information should be of some value to you. Perhaps this Unidentified Flying Drawing is what people sighted over London a few nights ago, and I think that the Tate Gallery should be notified (whatever it is, it may eat art). Or do you think this would simply spread a general panic amongst art dealers, etc.?

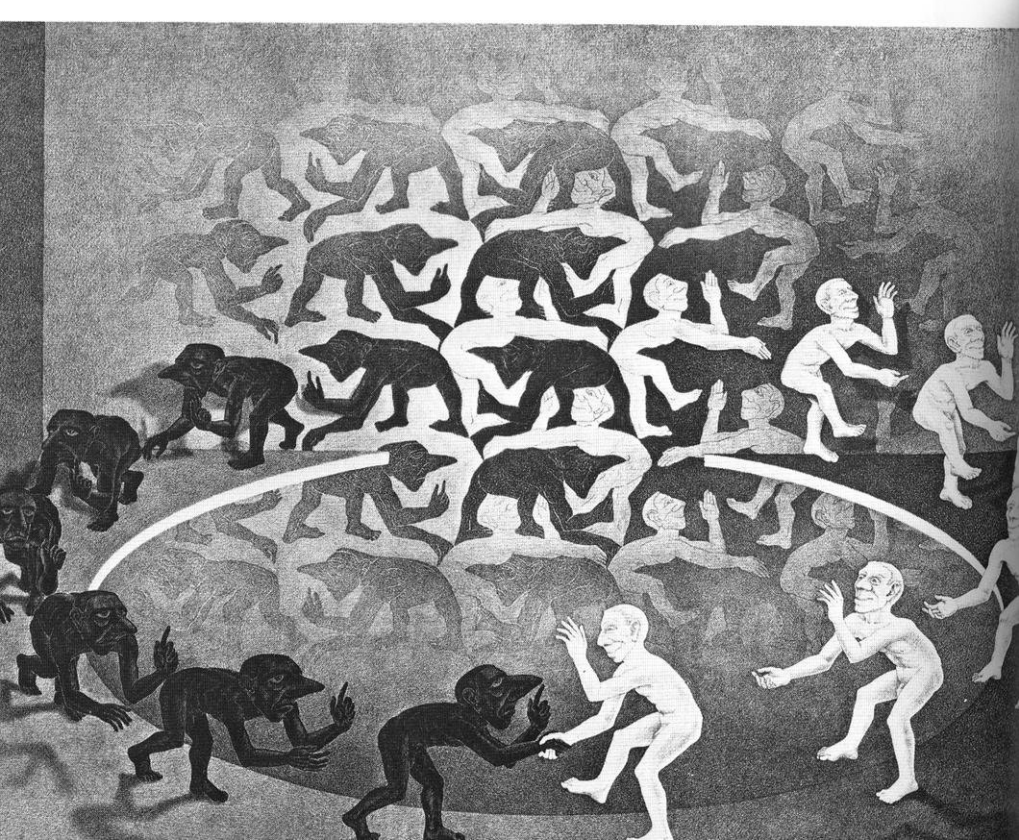
Yours sincerely,

Lowell D. Darling
Fat Air Society
27 Holly Park Road
London N11.

COMMUNICATIONS THEORY AND THE WRITER

Loring Mandel
Writer for television, motion pictures and the stage.

COMMUNICATIONS THEORY AND THE WRITER



The point in time from which I can now look both backward and forward in my life as a writer is perhaps — if I'm lucky — half way through the course. The reason I accepted the offer of space for my thoughts is simply that in using *Arts in Society* as a spur, I can put some things down on paper that I had not intended to compose. And since writing, in one way or another, is always self-analysis, I will be contributing to my own mental and emotional health, if not to yours.

There is the problem of The Lag. Half a century ago, The Lag was made up of the distance between Then and Now, perceived by the Communicator (writer, painter, musician, etc.) to be a simultaneity. The Communicator had his vision distorted into viewing Then and Now as simultaneous because of two factors (primarily): his own age beyond the point when his views were formed, and his education, influenced by The Lags of earlier Communicators. But today, our mass media are almost instantaneous, and as their speed has multiplied, their effect upon The Lag is disastrous. The speed at which things change has increased, but the same old Lag in the mind of the Communicator is still operating at human time. This growing incompatibility between the machines of dissemination and the generators of the communicative process has led us to a world where information bombards us, yet where the most common quality of the media is entropy. We are doing more, of less value: The Lag is indeed greater. I think I'm getting somewhere with this speculation, but you can't see it yet, you'll have to bear with me.

Another way of saying the same thing is to postulate that human time, as opposed to atomic or sidereal time, is a process built upon the speed of human interaction. Information, being an essential ingredient in that process, has now been made available so quickly that events are avalanching. But the man or woman, operating on the relatively Konstant time of the synaptic click or the muscular contraction, can't speed himself up. And so, in relative terms, he's become slower and slower. What is the meaning of all this wise nonsense? It means that while the Communicator — any artist — is faced with the same basic problems and the same tools for dealing with them, his opportunities to provide input to the system are of shorter duration. The reward for achieving a state of Input is, however, wider effect. So the Communicator says to himself, "How can I increase my ability to achieve Input in the small aperture that flashes by?" Or "My God, it's Balzac's Pretty Maid of Portillon all over again," which would be entertaining to say, but not constructive.

The First Answer is to deal with the human being, to maximize his ability to dart the silken thread through the needle's eye. It is to understand that the mind is a muscle, just as muscle has a mind. It is that the mind grows strong with the steady rhythm of use, just as the sensitively tuned muscle can remember. It is that as age tires

M. C. Escher, *Encounter,* lithograph. From the collection of C. V. S. Roosevelt, Washington, D.C.

What we have hyah is a failyuh to commun'cate!

—Cool Hand Luke

us, our rhythm falters and the flexibility of the mind grows less, just as the resiliency of our muscles slackens. One begins to go under in a sea of information, years-tired of staying afloat, we slip under. What are the exercises that can keep us from growing rigid, over-committed, unable to see any longer the difference between What We've Learned and What We Can't See Beyond? All the paths to Satori, from Zen to Encounter to Baconian Math to Alpha-Wave Generation move us, I think, out of the friction of pain from which life is melted into art. There has to be another honing process, toning process, some force to keep testing the mind against to keep it lithe and living. I don't know what it is. I don't have the First Answer.

The Second Answer is to deal with the process of communication. I know many writers who work professionally in television, in films, for the stage. I've never spoken to one who took communication theory seriously. Perhaps because the syntax is too difficult. Perhaps because those that construct theories are not full of the instincts that theories describe, and those with the instincts have little need of the theories. Perhaps because the commercial needs, the money things, make interchangeability of ideas necessary, even though understanding of media discourages the concept that an idea in any form is just as effective. Perhaps because the intricacies of linear versus aural versus deep perspective versus tactile information by electron, ink, paint, projection, in color or black and white, half-tone or full, natural, real, symbolic, romantic, formal, abstract,

neoclassic, tragical-comical, historical-pastoral, serial, five-tone, twelve-tone, hard rock . . . they're all too much to deal with when you have to earn a buck. Or even when you don't.

What I suppose I'm asking for is a simplified and comprehensive communication theory that can establish its value in the commercial world. It isn't enough to be correct, or even to be widely disseminated in the academic and avant-garde communities. It has to become as much a part of technology as the computerized program-evaluator and audience-response predictor, it has to become a basic tool of the For-Money Art Establishment. Buckminster Fuller spends half his life traveling the world to show power people how the World Game makes sense for them . . . he's a salesman of an idea. Fuller, of course, was one of the fathers of communications theory, but it's not one of his favored children. McLuhan has popularized theory, but rendered it incomprehensible. All it takes is for someone to show the payers-out that to know is to save. Intelligent courses of study for the writer have not yet, to my knowledge, been devised. Where the Communicator stands in relation to the Communicatee has not yet, to my knowledge, been adequately explored. The study of the afferent process between them has not yet produced, as far as I know, useful axioms for the artist who is, still, a human caught in the trap between Readout and Input with no new tools refined enough to help him.

These speculations move in and out of my field of vision, in the process of threading my way toward both artistic and commercial goals. I think it may have some place in this journal because it is, in essence, an appeal to the theoreticians of art to make their point, make it hard, and for God's sake, make it quickly. The Lag is upon us worse than ever. The old Arno cartoon of the derelict sitting on the sidewalk with his hat inverted to catch coins and a sign around his neck reading "Maladjusted" comes to mind. The sign now reads "Irrelevant." More of The Lag's ugly handiwork, Tonto. So big you can't get under it, so big, you can't get over it, so big you can't get around it . . . help!

TECHNOLOGY AND THE PLAYMAKERS

John Beaufort
New York Drama Critic,
The Christian Science Monitor

TECHNOLOGY AND THE PLAYMAKERS

What to say about "the range of possibilities (and hazards) for the arts opened up by the new media, resources, materials and techniques"? Man, it's like a theme for a book. So I'm going to confine my observations to the New York theatrical scene because that is the area of the performing arts with which I am most familiar. The hazards and possibilities presented by technology will inevitably be bound up with an even greater unknown: the kind of theater that is going to emerge from this uncertain transitional period. The prospects are that, for the foreseeable future, the popular theater will continue to survive in variants of the current condition: the feast or famine of Broadway (and off-Broadway); the off-off-Broadway sprawl (some of it experimental); a remnant of the commercial "road"; the growth of regional professional theaters of a nonprofit type and frequently with academic connections. The health of institutional theater will increasingly depend on foundation grants and public subsidy.

What about the role of new techniques and technologies? My expectation is that the theater will borrow from them, adapt them to its uses, but will not be dominated by them. For it remains axiomatic that in the *live* theater, the human element is the distinguishing and vital factor. Up to now, the theater of mixed means has been only one (and by no means the most prominent) of the assorted new concepts, styles, and developments which have included the theater of cruelty, the theater of the absurd,

the theater of chance (happenings etc.), the committed theater of the Becks, the experiments of Peter Brook. Exponents of the new, twentieth-century drama — Artaud, Brecht, Beckett, Ionesco, Pinter et al — have certainly shaken up our concepts of what a stage work should be. Yet such playwrights as Miller, Bolt, Albee, Stoppard, and Storey (to pick four at random) either adhere to traditional ways and means or at least mingle the old with the new. Is the theater of the word really dying? Is it clinging tenaciously to life? Or is it perhaps entering a kind of renaissance? So audacious an innovator as Joseph Papp — whose New York Shakespeare Festival/Public Theater firsts have ranged from Charles Gordone's Pulitzer Prize *No Place to Be Somebody* and the striking plays of David Rabe to *Hair,* the rock *Two Gentlemen of Verona* and the very rock *Iphigenia* — repeatedly insists that the playwright is the American theater's greatest natural resource.

In his comprehensive and provocative book, *The Theater of Mixed Means* (Dial Press, 1968), Richard Kostelanetz wrote: "When Robert Whitman's *Prune. Flat.,* one of the most admired and most discussed pieces, had a commercial run for several weeks off-Broadway in New York City, it played only weekends to audiences which were usually far less than capacity and invariably less than enthusiastic. . . . As I write these words on a Saturday afternoon in mid-winter, there are no mixed-means performances playing in New York this evening."

As I write these words on a Saturday afternoon in mid-February, there are several entertainments

Just as cinema had imitated theater for seventy years, television has imitated cinema imitating theater for twenty years. But the new generation with its transnational interplanetary video consciousness will not tolerate the miniaturized vaudeville that is television as presently employed.

—Gene Youngblood

which employ some mix of the mixed-means techniques. Conspicuous among them are the Guggenheim Museum's hit, *The James Joyce Memorial Liquid Theater,* the Brooklyn Chelsea Theater Center's *Kaddish* (from Allen Ginsberg's memorial poem to his mother), the Lafayette Theater of Harlem's *The Psychic Pretenders,* and the ETC. Company/La Mama's musical-play repertory. Each of these productions illustrates the possibilities as well as the limitations — and certain of the hazards — posed by and for the theater of the new techniques.

Liquid Theater has enjoyed enormous popular and critical success. But even many of its most enthusiastic partisans concur that the California-grown diversion is more of a group-encounter (and grope-encounter) experience than a theatrical performance. Wilford Leach and John Braswell of the ETC. Company employ familiar mixed-media elements (electronic scoring, films, mikes, echo mikes, etc.) to create a contemporary kind of lyric theater. They make heavy demands on both their actors and their muscians. *The Psychic Pretenders* mingles, in a fascinating ritual, legendary African themes with lighting, scenic, aromatic, and sound effects plus a score that is both intricately modern and evocatively ethnic in feeling. Of these four samples, *Kaddish* is perhaps the most complicated — a mixture of live performance, video projection (on a triptych screen), recorded sound, music, and voices — all arduously coordinated. Perhaps appropriately, I came away with mixed feelings.

If such productions do not extend the range possibilities opened up by the new techniques, they at least illustrate ways in which such techniques are being grasped by certain directors, craftsmen, and performing groups. Of all the technological developments, none has had a more conspicuous effect than the electronics of rock music. (The effect would probably have been greater, were it not for the fact Broadway musicals are concocted in the main for middle-aged audiences.) Yet rock and its amplified influence has been felt in entertainments ranging from *Your Own Thing* to *Hair* and from *The Last Sweet Days of Isaac* to *Godpsell, Touch,* and the rock-pop *Jesus Christ Superstar.*

Clearly the revolution in techniques and technologies has yet to metamorphose the commercial or even the nonprofit theater. This is due to various causes, including the fact that the theater is always 25 to 50 years behind the times. (At this writing, Broadway is about to get its first new theaters in more than 30 years and its first fully automated theater ever.) What we have today is a theater of fragmentation or, to put it more positively, a theater where many flowers bloom. A theater of uncertainty, a multi-directional theater, a theater of mixed ends as well as mixed means. Whether boldly or cautiously, the living-theater artist has up to now used the media rather than the other way round. And that is as it should be.

From the Milwaukee Repertory Theatre's production of *The Prince of Peasantmania* by Frank Gagliano. Photo by Jack Hamilton.

WORDS, WORDS, WORDS

Dan Lacy
Senior Vice President,
McGraw-Hill Book Company.

Our culture has been built on words, on written words. Until our own generation the only cultural record we could reproduce and disseminate was words. We have been able to record them for thousands of years and for centuries to multiply them by print. The special characteristics of European and North American culture have been intimately intertwined with the universality of print and literacy, as distinguished from the predominantly oral cultures of most of Asia and Africa and pre-Columbian America.

With this century came the possibility of recording speech and music and motion in their living performance, and in our own generation the possibility of flooding the airwaves with sound and vision.

And at the same time, the electronic revolution has produced another new form of communication: the computer linked with terminals that can store, rearrange, and transmit data with most miraculous organ. These alternative modes of electronic communication have been thought likely to supersede print as the characteristic linkage of our culture: the television screen, the film, the stereo becoming the source of inspiration, of recreation, of mental and emotional reaching out; the computer becoming the bearer of knowledge. And indeed in part they have done so.

But the change is more than adoption of a more modern technology to achieve the same purpose, like taking a jet instead of a train or a DC-3 to get from New York to

Chicago. As Marshall McLuhan has said, in a somewhat different context, the medium is the message. Words, written words, relate us to life in ways quite different from the flow of sound and image or from the austere numerics of the computer. They are not different ways of doing the same thing: they are ways of doing different things.

The uniqueness of words is that they are all abstractions, and yet all are metaphors. No word, no flow of words, embodies life whole. Each reaches into the swirl of life and extracts some one characteristic to name. To say that a man is "tall" or "blond" or "generous" or "cowardly" is to say one thing of an infinity that might be said. Whatever we say of the simplest event is only the tiniest part of the whole truth and is stained with the falsity of incompleteness. Abstractness is doubly the character of written words. Spoken words are themselves a part of the event; they act as well as describe. But the written word pulls its little fragment of meaning from the flowing whole of the universe and removes it in space and time, remote from the reality to which it relates. The words with which we write of any part of human experience omit most of the reality and separate us from the little they single out.

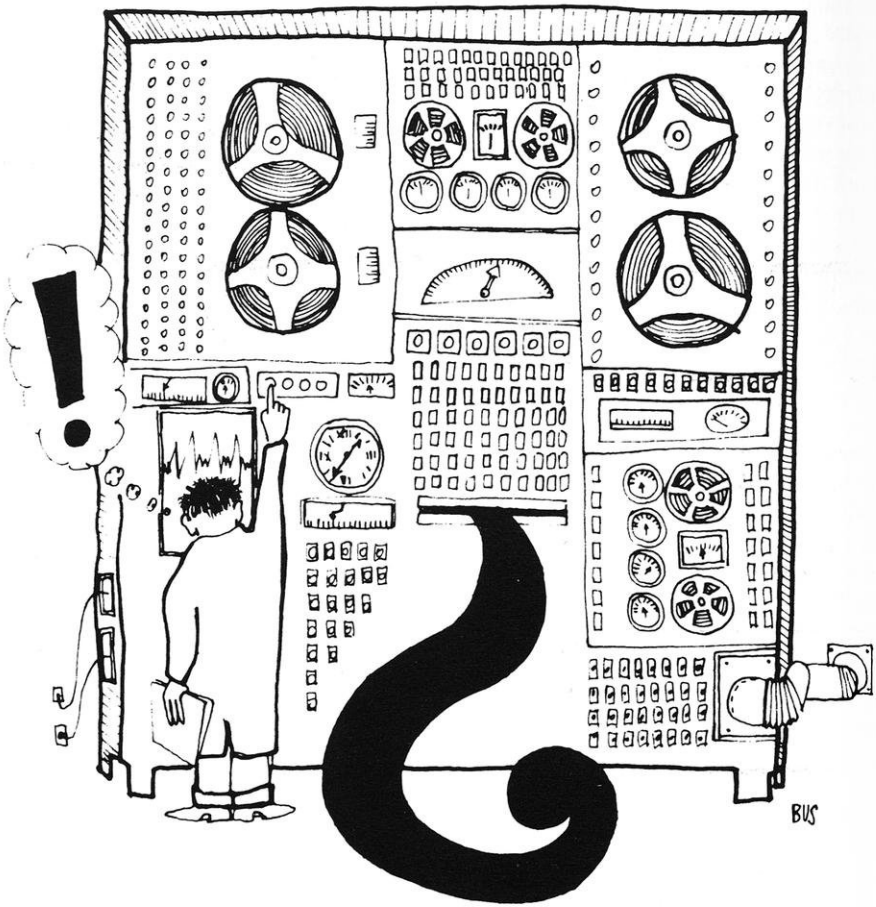
And it is this abstractness, this remoteness cutting us off from life, that makes the printed word unsatisfying to those who seek an immediacy with the whole of life. Film and television and stereo sets and transistor radio provide a flow of communication that can be sensed directly, without the intervention of comment or description — in a wordless, quite literally an ineffable, communion. Passively to experience this flow of sensation, perhaps with drug-heightened awareness, is the preoccupation of a large element of society: many of the young, but not them alone, for the endless flow of television past the eyes and ears of the middle-aged and elderly whose drug is alcohol is not at bottom a different phenomenon. Wordless both: the stammering "like's" and "you know's" of the unspeaking young and the monosyllables of their elders alike reluctant to stretch their thoughts on the patterns of formal speech.

But it is this very abstractedness and remoteness that make words the instruments of power. Bathed in life, one can only feel it, not understand or master it. Only with the word-given power of abstraction does it become possible to perceive the twoness of all pairs, the blueness of all blue things, the coldness of all cold. Words are like the tongs by which a scientist safely beyond lead walls reaches into the fatal radiance of an atomic pile, pulls out what he wants for examination, manipulates it, lays it side by side with another bit.

It is a magical power. Words not only bear meaning: they create it. Truth itself is a kind of relation between words and reality, a relation that did not exist before words. All science, all mathematics, all technology above the primitive, all philosophy, are the product of words. They are the instruments to master the ambient universe, whether in the simplest sense of technology, or in the higher sense of comprehension. They are the

instruments of transcendence of time and place, the means of forming universalities stretching through time and across space.

But words are not only abstractions that single out specific qualities and remove them from the wordless whole of life. They are also metaphors that, in the very act of naming, thrust every named quality back into a totality. When one says that eyes are blue, he singles out one quality of many, but he links it with all blueness, with skies and morning glories and seas and bluebirds. Every word bears a freight of meanings. One cannot say "yellow," without buttercups and gold and cowardice haunting the sentence. Or name a man without calling into the mind not only the now living person who may be applying for a job or a loan or being married or elected, without remembering all the facets of the life subsumed in that name — the boy long ago, the lover, the husband, the son, the father, the hundred personae who have dwelt in that



 Cartoon by Franco Giacomini, Torino, Italy.

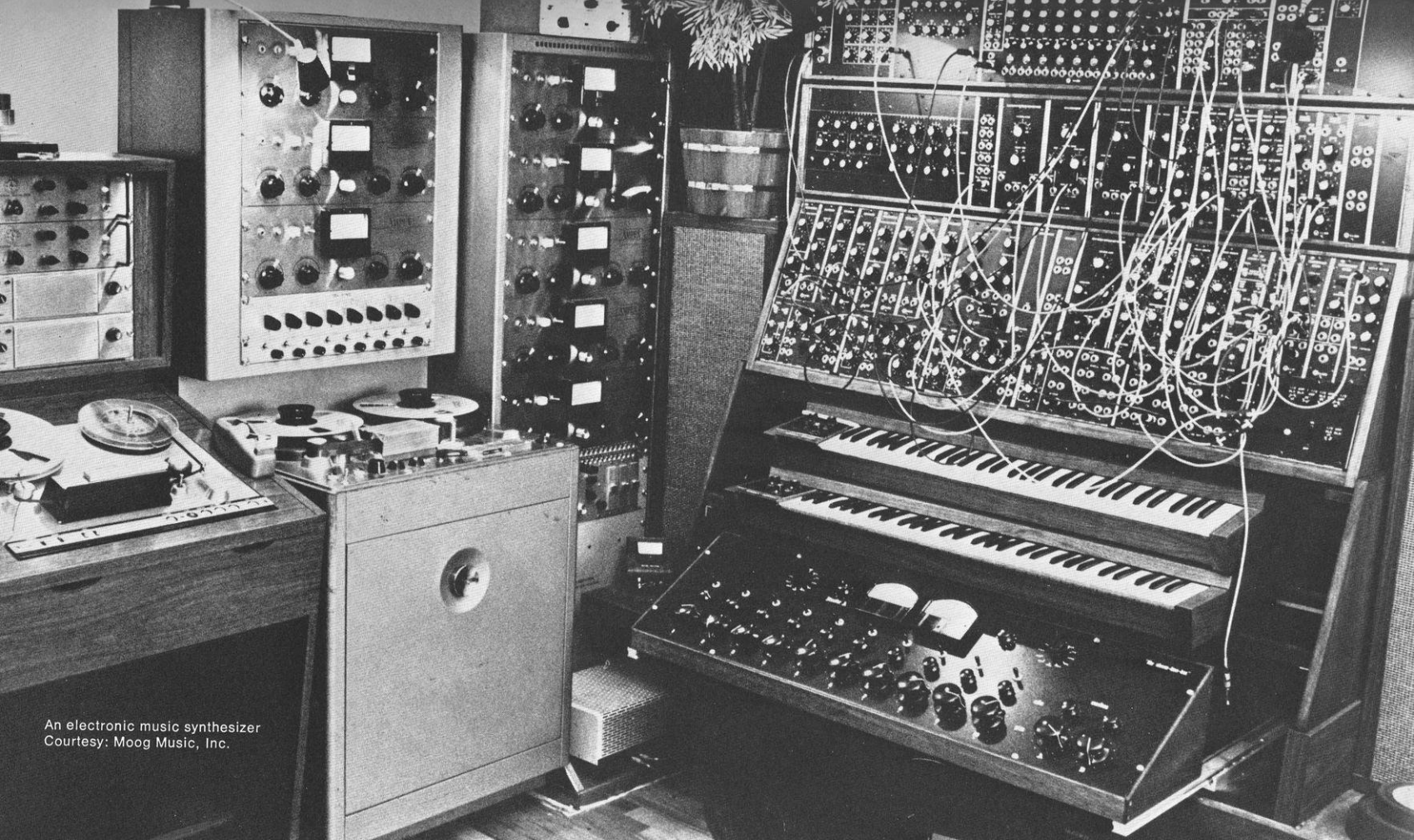
body and been named by that name. One cannot say he loves without joining himself with all lovers, or that he fears without joining himself to all fear.

This inescapably metaphorical nature of human language has made it unsatisfactory to another whole life style. There are those who seek pure meaning — symbols clean of all connotative aura, symbols that have one sharp meaning and one meaning only. The sciences have long used a special vocabulary to escape the metaphorical range of common speech. The computer has gone farther and substituted numbers for words, for its austere modes of thought are baffled by words and fumble before the simplest tasks of translation. ("Time flies" one says to the computer programmed to translate to another tongue, and the computer is mutely puzzled, not knowing whether time flies as an arrow or a bird flies, or whether it has been told to time flies as one might time a racer.) Even proper names are insufficiently specific for the computer monitoring a bank account. There are too many John Does, and even if there were only one, his name would embrace all his personae, and the computer wants to know him only as 099-26-184, not as a man but as an account.

And so words pursue a middle course, between the passive experience, the seen flow of motion, the heard beat of sound that can only be felt on the one hand, and on the other the computer's ceaseless clicking of binary numbers that can only manipulate insensately. The very use of words imposes the user's mind on the flow of life, abstracting from it, grouping like experiences, ordering perceptions in meaningful patterns, understanding. But also the use of words in itself links the user emotionally to the experience he perceives, each word bearing its web of metaphor binding present happenings to all the emotionally resonant experience of the past.

The new electronic media have important roles to play. We need intervals of passive and undefined reception of life, and we need the pure manipulative processes of the computer. But the essentially *human* relation to life — the relation that defines the individuality of every man as both the independent creator of his own meaningful image of life and the reacher-out across space and time to participate in all life — is expressed in, indeed is created by, words.

They will remain the human medium.



An electronic music synthesizer
Courtesy: Moog Music, Inc.

MUSIC AND THE NEW TECHNOLOGY

Otto W. Henry
Composer who has specialized in electronic music. He is on the faculty of East Carolina University, where he presides over a Moog Synthesizer and related activities.

MUSIC AND THE NEW TECHNOLOGY

The communications explosion has produced an immediate and obvious effect upon the creation, transmission, reception and interpretation of the aesthetic experience. The relationship between technology and music is so close today that any advance in technological design or instrumentation results in a corresponding expansion of concepts and resources in music. However, music is also a product of the society in which it exists, and the changes wrought by technology upon modern society will also effectively determine the course and expressive content of the music. I would like to relate some recent developments in society and music to the expansion of communication and technology in this country.

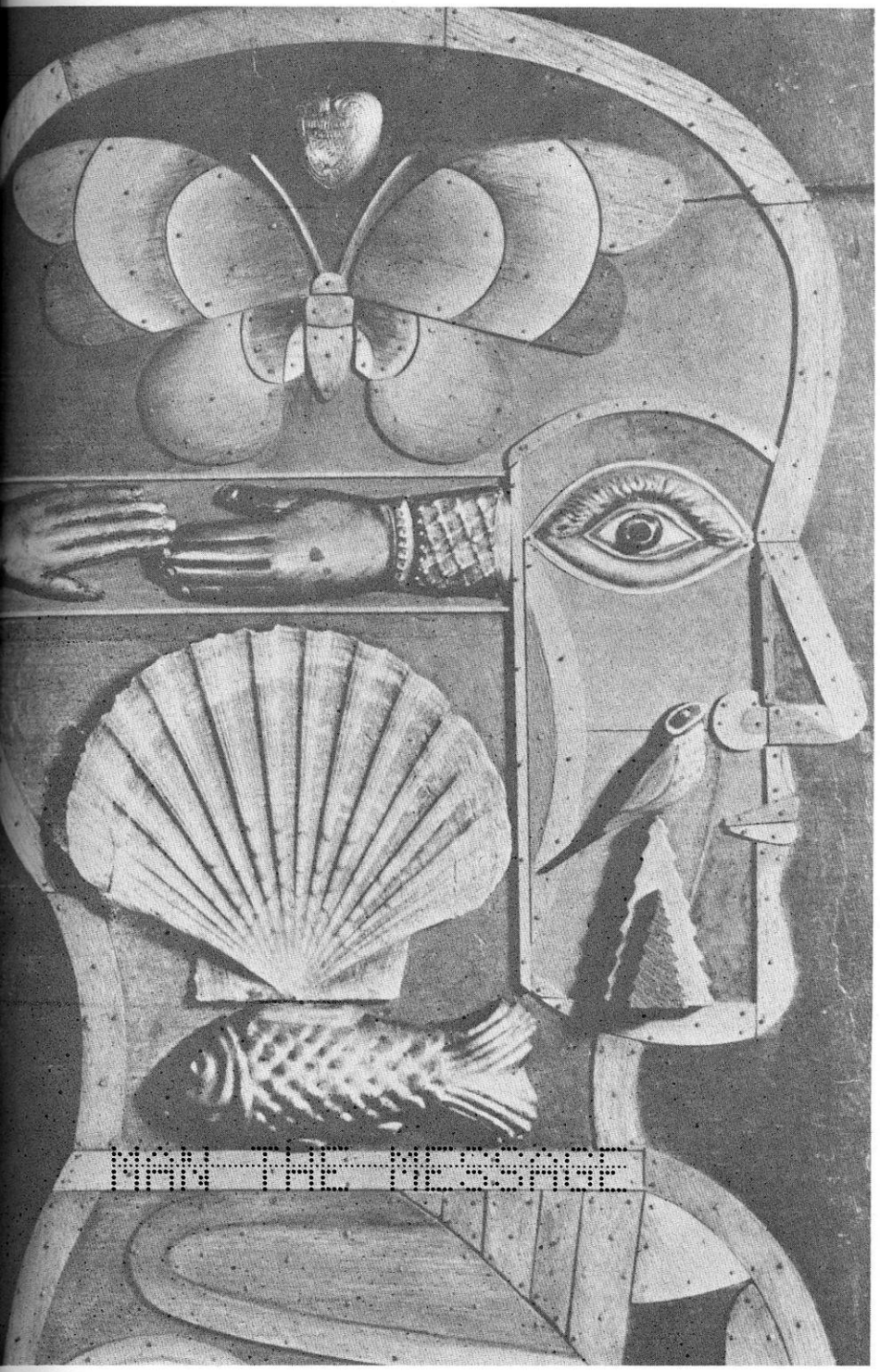
For all practical purposes, culture in America has been dominated by urban monopolies which perpetuate a basically European concept of social hierarchies, each with its special category of music, such as "classic," "popular" or "folk." The expansion of communication, transportation and mass production and a growing dissatisfaction with urban values have begun to work towards a decentralization of commercial and cultural monopolies and towards a dissolution of conventional urban-rural relationships, now that the necessity of living or working in or near a large city has been eliminated. Traditional European concepts of urban and rural society are undergoing a process of re-evaluation and a new ethnic consciousness, distinctly American and uniquely

fitted to our own traditions and goals, can be seen arising from the turmoil of the past decade. The technological explosion, by its variety and sheer quantity, has provided the means by which the arts can escape the consequences of urban monopolies and outmoded European concepts of culture. New regional and local opportunities have been created by the proliferation of independent radio and TV stations, by the increase of local sound recording studios with their own labels and systems of distribution, and by the ubiquitous electronic music studio with its new potential for massed electronic sound and live performance.

United by the common element of electronic technology and a mutual desire to escape from conventional European molds and categories, popular and "serious" composers and performers are coming closer together than ever before. The recording and broadcasting monopolies and the closed, impenetrable concert halls which encouraged and upheld the distinctions between types of music can now be bypassed. In essence, half a century of trying to extend European concepts of music by counting pitches or by going back to Bach, or by squeezing American music into the conventions of European harmony and rhythm in a vain effort to gain admission to the urban studio and concert halls, has now come to an end. Contemporary musicians are finding it more necessary, convenient and meaningful to create their own media from the available technological resources and to mold their own expression according to newer, more relevant values.

As the distinctions between different categories of music diminish, the European conventions which assign different roles to composers, arrangers and performers also come into question, for these specialties were based on separate abilities to write and interpret symbols for sound drawn on paper. Paper is not very useful anymore. The ability of magnetic tape to store and transmit sound and the the propensity of aleatoric and electronic music for textures and sonorities that defy description have practically eliminated the usefulness of music notation and have made it necessary for the composer to become his own performer and the performer his own composer. Thus a new oral tradition, living and alive, is being fashioned by electronic technology and its effects on society.

In short, the expansion of technology has brought about a new freedom and a new independence for the expression and communication of music. It remains to point out that a new responsibility is also called for, a responsibility to be shared by both the communications media and the musician. By responsibility, I do not mean slipping Beethoven's *Ninth* or *Switched-on Bach* in between the top forty. Responsibility means to be aware of one's contemporaries, to open up to Rock and Bluegrass, to electronic and aleatoric music, to let us all in together, while there is room and opportunity.



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ADOLF WÖLFLI ST. ADOLF II AND THE ART OF TRANSFORMATION

Adolph Wolfli, *Horse-Egg of Santander.*

ADOLF WÖLFLI, ST. ADOLF II AND THE ART OF TRANSFORMATION

José A. Argüelles
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For all that we know, or more precisely, for all of the information which we possess, which has been processed from the endless reels of magnetic tape which can be called the sum residue of human experience, the simplest things have remained the most difficult to understand, and more than ever we are struck by our inadequacies in handling the most basic propositions of existence. Because we have been so fragmented by our information, Mircea Eliade is able to write, "For primitive ideology present day *mystical experience* is inferior to the sensory experience of primordial man,"[1] Overwhelmed by the sheer physical proportions and density of what is commonly called our technological achievement, the exploration of the inner dimension—inner space, as it has come to be known—becomes ever more imperative. This is so in order that we may achieve a renewed equilibrium with that Nature from which we have managed—in the West at least—to disassociate ourselves for the last several centuries. In so doing, new models must be discovered (or created) by means of which our behavior may be more harmoniously regulated, and the state of profound disassociation which collectively afflicts the inhabitants of an externally technological civilization be more readily transcended. And in looking for a model of auto-regulation or renewed transcendence, what better place to find it than in one who has suffered extreme disassociation—schizophrenia, paranoid delusions, depression, violent out-

bursts, uncontrollable sexuality—and transcended it?

Such is the example of Adolf Wölfli, or St. Adolf II as he later preferred to call himself, who, by the utter *extremity* of his situation and actions, stands apart. The questions raised by the existence of St. Adolf II are those raised by all seeming anomalies or exceptions—and yet our history is full of such "anomalies" whether they are called Jesus Christ or Adolf Hitler. The most "extreme" exceptions may easily pass unnoticed because by "normal" standards such cases occur in the realm of the unthinkable. Yet, nothing goes by unrecorded. Thus, in the "Age of the Digest," to use the terms of Herman Hesse's fictitious scholars in their Bead Game description of the twentieth century, the coding of information as well as its transmission and consequent decoding are increasingly accelerated and proliferated. All of yesterday's anomalies, "bizarries," and exceptions enter the open market, and today pass quickly into the consciousness of the race. And so the Masks of the Hero are kept ever changing.

Thus, in 1921 there appeared a Swiss monograph by a certain Dr. Morgenthaler entitled *Ein Geisteskranker als Künstler* (A Madman Artist). This little known work was translated into French and published in Paris in 1964 by Henri-Pol Bouché who also contributed an introductory essay, "Nomenclatures insurrectionnels," as the second volume of a series of publications of the Compagnie de l'art brut, *L'Art brut.* This particular French journal was founded by the contemporary painter, Jean Dubuffet, with the aim of freely extending the limits of all that is contained in the idea of *art,* or rather, to abolish the strictly intellectual elitist interpretation attending to this word in recent times. Since World War II Dubuffet searched consciously for "art" that was done by people scarcely conscious of creating "art." A notable American example of *art brut* are the so-called Watts Towers, of Simon Rodia in Los Angeles. Like the Watts Towers, the work of Wölfli seriously calls into question nearly all of the accepted (thus traditional) canons of art as well as the rules and regulations of the art game as it has developed in the twentieth century. However, such ideas were scarcely conceivable to Dr. Morgenthaler when his monograph was originally published in 1921, nor were they necessarily his intention, not that he was unaware of the highly unorthodox nature of Wölfli's work. But despite all this, the life and work of Adolf Wölfli are virtually unknown. Thus, in the interest of presenting a contemporary model of self-transcendence as well as what appears to us as an anomaly whose mere existence raises questions, and more important, indicates some solutions, we shall unfold the basic facts of Wölfli's life and the reflections to which it has led us.

Born February 29, 1864, in Bern, Switzerland (the 1964 re-edition of Morgenthaler's work can be taken as a centennial memorial to Wölfli), the very date of birth marks Adolf's life with a sense of the exceptional: what more auspicious date for the arrival of one destined to become St. Adolf II? And yet, as is common among the visionaries of the race, Adolf's beginnings are, with the

exception of the date of birth, initially without incident. At the age of eight, however, trauma occurred: Adolf's mother died (the father, a drunken stone-breaker, seems to have played a negligible, or at least far less important role than the mother in Wölfli's development). In his later "autobiography" Wölfli remarks, "It is following a grave illness contracted when I was eight years old—precisely that moment on—that I have directly and radically forgotten EVERYTHING." A sublime observation that should not be taken too lightly considering the later development of Wölfli's "personality," for only by forgetting everything was Wölfli able to remember *who he was to become.* "Freed from the sentimental affectations of reconstructing his own memories," as Henri-Pol Bouché puts it, Wölfli was thereby able to go directly to the source of creation, beneath or beyond the arbitrary push and pull of the transient vagaries of the ever changing components of the individual personality. Such indeed is the privilege of magicians, visionaries and saints. Yet the road to such liberty was to be most difficult for St. Adolf II.

From the age of eight to sixteen, Wölfli's life was a series of abandonments and frustrations as abject and miserable as anything described by Dickens, and in this respect Adolf is typical of the uprooted children of the nineteenth century. Rimbaud and Van Gogh, visionaries contemporary to Wölfli, were no less tormented. Of this period Wölfli writes, "Often on Sundays I would cry in a corner for hours thinking of my dead mother." In and out of orphanages and forced out of school at the age of fourteen, Adolf had already had a good amount of occupational experience. As early as 1875 he had been employed as a farm laborer, Wölfli's general job category until his final incarceration at the Waldau Insane Asylum in 1895; in fact, from 1880 to 1889, Wölfli was itinerately employed in this manner.

Early in this period—1880-1882—Wölfli fell in love with a woman, who, most likely by virtue of class distinction, was unobtainable to him. Such was to be the pattern of affairs: years of sexual frustration, no doubt related to unresolved feelings over the death of the mother, followed by a few years—1889-95—marked by various acts of sexual violence and prison internments. Here again Wölfli recalls the sexual melodrama of Vincent Van Gogh. Like Vincent, Adolf found occasional "release" in the Bible, but to no avail. After being forbidden to see the young lady with whom he had fallen in love in 1880-82, Wölfli later wrote, "I became sad and even melancholy; I did not know what to do. That very evening I rolled myself in the snow, prey to a burning passion of love, crying that I might be torn into bits and pieces." After this episode Wölfli became steadily more sensitive and itinerate. Unlike Van Gogh, however, Adolf did not reach a level of consciousness at which creativity was possible until *after* he had gone over the brink. A love affair with a prostitute in the late 1880's resulting in venereal disease did not keep Wölfli from speaking of the great beauty of this woman, and, indeed, a marriage had even been planned. Here one recalls the trials which Baudelaire put himself through in his obsessed affair with

the mulatto prostitute, Jeanne Duval, before whom the poet knelt, like Dante before some malignant Beatrice.

The degradations of Adolf Wölfli became acute in 1890 with the attempted rape of a fourteen year old girl in a park near Bern. From here on the spiral of degradation is accelerated. Only by giving a false identity was he able to save himself after this first episode. Then in 1891 he attacked a five-year old girl which resulted in two years imprisonment—1891-93—the very same years that mark Paul Gauguin's first visionary flight to Tahiti in search of that sensory experience of the primitive which Eliade indicates is unequalled by any contemporary mystical experience. Wölfli's Tahiti was a prison. Late in 1891 occurred Adolf's first visionary experience: the sudden appearance in a prison labor field of the Holy Ghost, whom Wölfli initially took to be the surprise apparition of his "little Dearie."(!) From 1893 to 1895 Wölfli continued as an itinerate laborer in and around Bern; he seems to have been quite unstable at this time, interspersing biblical declarations with paranoid delusions of being hunted down. In the spring of 1895 Wölfli concluded his appearance as Wölfli the sex-fiend by committing an attack on a three-and-a-half year old girl. It should also be said that prior to this last attack that Wölfli did attempt to regulate himself by giving up drinking, a habit he had acquired, and taking up instead the sewing of rugs, a curious first sign of "creativity" on his part. In court, Wölfli was described as hard working and extremely energetic and powerful; this coupled with his violent temper and sexual disposition spelled the end of worldly life for Adolf, who by now, appeared incorrigible. In the autumn of 1895 Adolf was pronounced insane and sentenced for the rest of his life, or until deemed socially responsible, to Waldau Asylum.

The years from 1895 to 1899 were most chaotic: sexual fantasies and obsessions, hysterical outbursts, months-long periods of near catatonic depressions and isolation, followed by violent attacks on guards and inmates alike, and, above all, hallucinations. Then, in 1899, a general calm begins to prevail; like a man coming back from the dead, Wölfli experienced something of a rebirth. Indeed, in 1897 Wölfli's voices spoke to him of his imminent *death,* and in a very real way, the ordeal that Adolf Wölfli underwent —the various sexual attacks followed by life imprisonment—was the veritable death of Adolf Wölfli, itinerate farm laborer, abandoned at the age of eight to a world of miserable caprice, and upon whose head society's final judgment had been pronounced: hopeless insanity. It was Wölfli's turn to play the role of ultimate outcast. And yet, who is to say that it was not in Adolf's psychic make-up to do exactly as he did? The mechanisms of nature as well as those of mind operate always to fulfill some need, and in the most direct manner possible. Within the total structure of Wölfli's consciousness the sexual attacks were mechanisms necessary to achieve the ultimate goal of releasing the phenomenal potential of energy which was at its disposal, buried, as it were, beneath the psychic and sentimental debris of an orphaned and itinerate laborer.

His ordeal was harrowing to say the least, but structurally no different than the ordeal of the Eskimo shaman who, to prove himself, must go to the "bottom of the sea," which in many cases literally means being plunged under the ice.[4] And in view of Wölfli's experience, the comment of one ethnologist on the shaman type is most pertinent: "Crimes and sudden acts of brutality are not infrequent among these people."[5] There are rites and rituals that are imperative for the acquisition of any new powers of knowledge, rituals which, by their very nature, by their innate processes, impart that knowledge in a way that no conceptual logic can ever realize. All new knowledge and all new being comes in the nature of a ritual initiation; thus the consciousness of Adolf Wölfli passed beyond the threshold of its own self-definition and created, or, perhaps more appropriately, discovered the character and role of St. Adolf II. The following description by Eliade states clearly the process undergone by St. Adolf II:

> *The total crisis of the future shaman, sometimes leading to complete disintengration of the personality and to madness, can be valuated not only as an initiatory death but also as a symbolic return to the precosmogenic Chaos, to the amorphous and indescribable state that precedes any cosmogeny. Now, as we know, for archaic and traditional cultures, a symbolic return to Chaos is equivalent to preparing a new Creation. It follows that we may interpret the psychic Chaos of the future shaman as a sign that the profane man is being 'dissolved' and a new personality being prepared for birth.*

Yet having embarked on the career of St. Adolf II did not diminish the facts of the situation: Waldau Insane Asylum. Towards 1900, Adolf suddenly became intensely creative—the turning point had been reached: painting, writing (the cosmically endless "autobiography") and composing music which Adolf sang, danced to and played on paper trumpets of his own making, became the chief "activity" of St. Adolf II. On the other hand, there is good indication that afraid of being freed, Adolf consciously resorted to periodic attacks of violence in order to insure his measure of psychic freedom; indeed, he seems to have looked forward to and preferred the isolation that was generally the result of his acts of violence, most likely because of the time afforded him to go on his "trips," the hallucinatory voyages that were the essence and mainstay of St. Adolf's existence. Only after 1917 did Adolf calm down enough to the extent that he became inordinately tender and gentle, in one instance acting like a mother to two idiot boys; from this time to his death in 1930, Adolf was quite calm and extremely productive. It is during this last period that the works executed by Wölfli most consistently bear the signature of St. Adolf or St. Adolf II; up to this time the signatures of St. Adolf and variants of Adolf Wölfli were alternately used. Thus, the sexually unrestrained and creatively undistinguished Adolf Wölfli was finally metamorphosed—shamanized—into the exuberantly creative,

ultimately gentle and monastic St. Adolf II, enamoured, we are told, of the X-ray table on which he died.

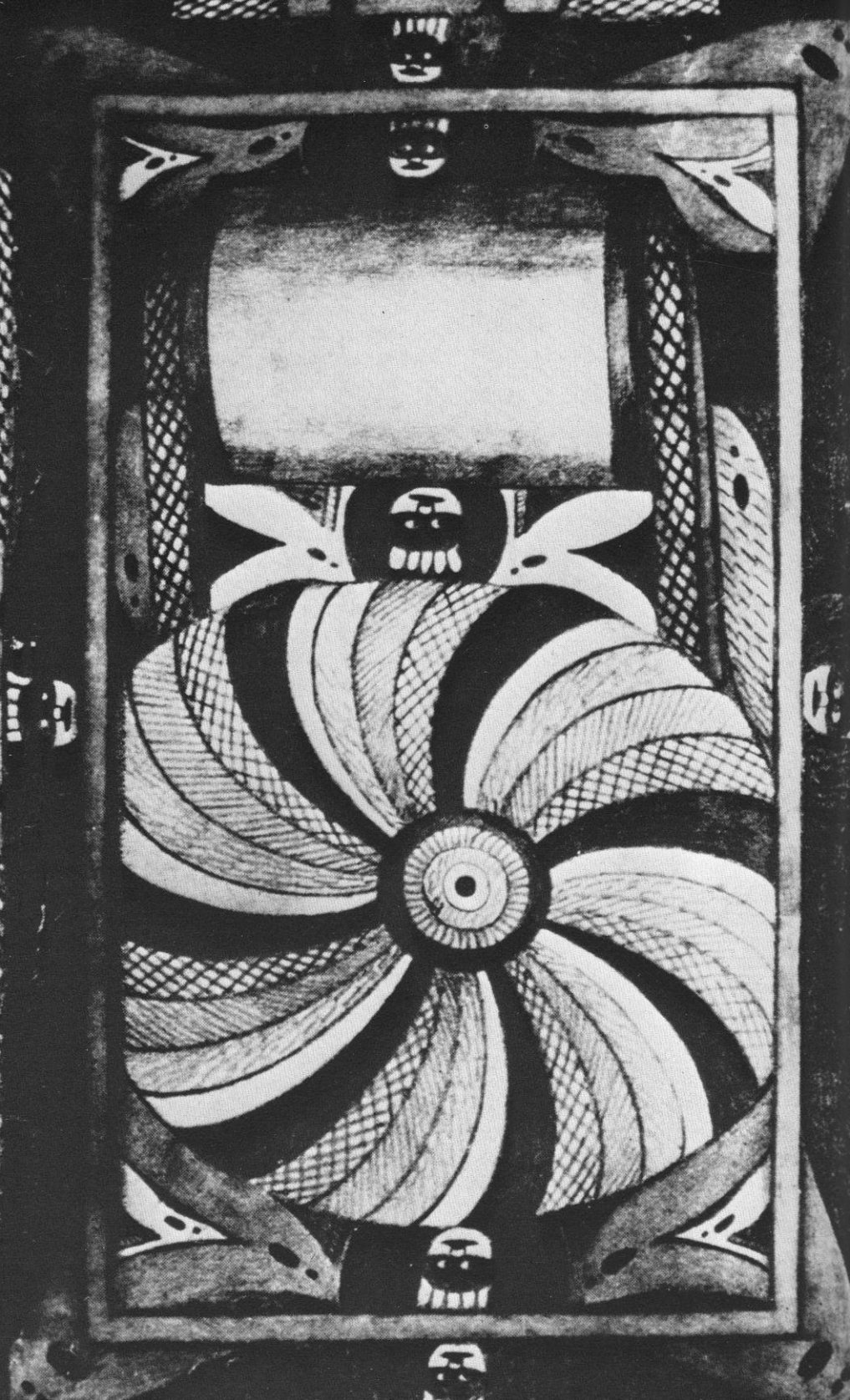
WÖLFLI'S WORK

Dr. Morgenthaler's monograph on Wölfli bears the title, *A Madman Artist.* The only other work written about Wölfli is that of another Swiss psychiatrist, Dr. Julius von Ries, bearing the title, *Sexual and Demonic Aspects and Origin of the Ornamental Art of the Madman Adolf Wölfli* (Bern, 1946). This second work is much more restrictive than Morgenthaler's and traces Wölfli's art to two sources: sexual aberrations and Swiss folk art. Morgenthaler is more penetrating and in speaking of the sources of Wölfli's vision writes that "he passed beyond the limits of his own childhood: he crossed over, so to speak in Jung's terms, from the personal realm to the suprapersonal, the absolute unconscious; thus, he returned to the 'original affective thought', to the 'primary representations', to the 'most ancient, most general and most profound thoughts of humanity.' "[8] As madman, Wölfli achieved in the West what perhaps no other "artist" since William Blake had been able to attain: the creation of a complete and integral psychocosmogeny.

Wölfli's achievement is all the more striking when one considers, however briefly, the fragmented vision of what has come to be called "modern art." Of the artists of his own generation only Wassily Kandinsky and Paul Klee begin to approximate the ideal which Wölfli's work epitomizes. Yet there is one crucial difference between St. Adolf and Kandinsky and Klee: the latter two are *artists,* a conscious, intellectual role-decision, and to achieve their ends both had to intellectually de-civilize their techniques in order to try to arrive at the universal ground of experience—all of this within a conceptual game structure which, however misunderstood, was and is socially acceptable. With Wölfli, on the other hand, there is no conscious role-decision to become an *artist* and hence no necessity to consume energy struggling with the definition of art, the burden of the question of which is at the structure of every professional Western artist's self-definition today. Because the question never comes up with Wölfli, of what art is or isn't, and, consequently, of what an artist is or isn't —for this finally is the essence of the game of art as it has developed in the twentieth century—St. Adolf II is free to go directly to the source of creativity unhampered by any preconceptualization. And because of this, Wölfli's art has an integral universality unique in "modern art." In this brief consideration lies an insight into the role which the twentieth century artist plays: he is not expected to create art (or beauty), but merely to struggle with its definition; thus, the "art" of the twentieth century tends to be more and more involutedly self-interpretive in nature, a series of ever more self-involved exercises in self-definition, while often the simple truth of creation is obscured. The example of St. Adolf II reminds us that the creation of beauty, like any other act of conviction, proceeds directly from integral self-realization; and without this integral self-realization, whatever one does remains caught in the surface play of games and forces beyond our control.

Yet, we must also keep in mind that

Spiral Dynamo Boat.



the function of the *artist* in a technological society has never been clear, a situation most acute for the most sensitive. Thus, for most of the classic nineteenth century visionaries the way was not at all easy: madness, disease and despair were the birthright of Holderin, Baudelaire, Rimbaud, Van Gogh and Gauguin, all men who more or less consciously chose their respective paths which brought them into some sort of social conflict. Only Blake seems to have escaped the psychotic afflictions of the Industrial Age visionaries, and it is in Blake where one finds the visionary temperament most closely akin to St. Adolf's. Like the self-isolated Blake, Wölfli's visionary voyage began much more deeply in the unconscious than did the voyages of Gauguin or even Rimbaud, for instance. Indeed, so deeply rooted is Wölfli's experience, that it is fair to say that prior to the brutal shock of incarceration, that he had but little inkling of the marvelous adventures that were to become his measure of existence. In this respect the case of St. Adolf II is unique beyond almost all conception of creative behavior: even more than William Blake does Wölfli's experience and art transcend the realm of the personal and enter the great realms of the archetypes. In this sense, Wölfli's art and techniques are productive of effects much more related to the art of magicians, yogis and shamans. In this connection lies some of the greatest significance of the case of St. Adolf II, particularly as a present day model of the creative man as *interior technologist.* Yet none of this must diminish the first lesson to be learned from Wölfli's life experience, and that is the fact, that with the exception of newspapers available to him, Wölfli/St. Adolf II was literally dead to Western civilization from 1895 to his death in 1930. For Wölfli in the space capsule of his cell in Waldau Insane Asylum, unexcelled creativity could be had only at the expense (if one so wishes to view it that way) of civilization.

Thus, not unexpectedly, the work of St. Adolf II—the paintings and drawings—have few counterparts in contemporary Western art, save perhaps some of the efforts of the Psychedelic artists, and this too is of significance. Rather, the work of St. Adolf II, in its color, design and symmetrical formalism is most reminiscent of the art of the Medieval period in Europe, and of certain works from India and Tibet. This relationship to works of "high" religious motivations is most significant. The connection is all the more striking in view of the appearance of the Mandala and its centralizing effect in the work of St. Adolf II. The Mandala (which literally means "circle") is an ideal *tool* and shows up in the work of Wölfli for several reasons. First of all, the Mandala is perhaps the only logically visual absolute in art, for its origin is in the biological structure of the eye, and its appeal is immediate to the psychophysiology of vision; because its origin and nature are in the structure and function of the organ of vision itself, the Mandala is a "natural" form often reproduced spontaneously in situations when the restrictive flow of consciousness does not impede the workings of the unconscious. Secondly, as has been amply indicated, the Mandala is a prime tool for self-integration; the creation of a Mandala can be taken as a symbo-

lification of the reorganization of the various components of consciousness in such a way that a new level of personal stability is achieved.

It is therefore not surprising that Adolf Wölfli, having suffered extreme disintegration of his personality, should, in his efforts at putting himself back together, have "discovered" in his own way the age-old tool of the Mandala. With this in mind, one realizes a further value to the art of St. Adolf II: art as a tool for self-transformation. Here again, with the possible exception of the Surrealist technique of "pure psychic automism" and of certain aspects of so-called Psychedelic art, this function for art is virtually unknown in the twentieth century technological civilization. This function and value for art—recognized and practiced by Australian aborigine and Tantric yogi alike—cannot be dismissed as a merely outdated viewpoint or archaic technique, for, as in the case of Wölfli, there is a sublime utiliy to it whose beauty is simply this: art is a psychic tool; it is a tool for expressing, experiencing and transforming the contents of deepest consciousness.

In consequence of this, the work of St. Adolf II is replete with psychocosmic imagery. The chief character, of course, is St. Adolf in his multifarious guises—"the Hero with a thousand faces"—a black-masked Ulysses freely charting the farthest reaches of consciousness. The imagery of the paintings and the written accounts are the descriptions of St. Adolf's various voyages, trips that take him to all the fabled and marvelous lands of the universe. What Dr. Julius von Ries called the ornamental character of the

Explorations: St. Ignatius and Zen for a spectrum of Method; paintings for radial clues, motifs to spring out of. Nabokov recalls the convex mirrors of a Van Eyck or Peter Christus which gave an interiorized magic to the milieu of the domestic Madonnas.

—Herbert Blau

art of Wölfli, and this is true of both the painted and the written work, is the same sense of symmetrical unfolding—infinite mirror play—which characterizes the art of schizophrenics, primitives and much mystical and religious art. Indeed the characteristic of an infinitely unfolding symmetrical mirror field can be taken as a prime characterisic of all psychic art; i.e., that art whose origin is in the unfolding of consciousness and whose very nature and end can be said to be the further provocation of the unfolding of Mind. The relationship between schizophrenia and mysticism—altered or higher psychic states—has received a good deal of attention recently,[10] and with the ideal case of Wölfli/St. Adolf II in mind, the following comment by Dr. Roland Fischer is most illuminating:

> *Normal, creative, schizophrenic and mystical-ecstatic states are conceived in a continuum of increasingly higher central nervous system arousal. These levels are experienced in terms of increasing data content and increasing rate of data-processing, which may result in a* creative, hallucinatory, artistic or religious state. *Eventually, however, the rate of processing cannot keep step with the ever-increasing data-content—the torrential flood of inner sensation—and results in the* schizophrenic *'jammed computer' state. At the peak of ecstatic states, interpretive activity ceases, or in cybernetic terminology, there is no data content from without, and, therefore no rate of data processing from within, the only content of the experience at the height of rapture being the reflection of the mystic in his own program. Creative experiences are basically hallucinatory in nature and can be regarded as symbolic interpretations of one's own central nervous system activity. These experiences can be characterized in terms of: (1) increasing sensory to motor rates which imply a gradual blocking of the individual to verify his intense sensory experience through voluntary motor performance: (2) by a transition from Aristotelian to multivalued logic; and (3) by an increasingly geometric-ornamental or mannerist style which corresponds with the nonconventional representation which is found in much schizophrenic art.*[11]

This description does more than a little to shed light on the transformation of the schizophrenic Adolf Wölfli into the mystical St. Adolf II, consummate creator and voyager extraordinaire. Thus, on Dr. Fischer's continuum, the experience of the schizophrenic can often be a prelude to a mystical-ecstatic state. "Where in my head could I have found that?" St. Adolf would remark when asked by Dr. Morgenthaler where the visionary forms in his paintings came from. Dr. Morgenthaler writes that, "He (St. Adolf) pretends to have designed and drawn everything on divine orders received in his travels across the world: "Do you think I could have found that in my head?"[12] Indeed, the source of Wölfli's imagery was in the information and experience gathered on the many hallucinatory trips taken within his cell: but what really constituted these trips which were the chief adventure of St. Adolf's solitary existence?

For Adolf in his most *normal* state, the bottom of Fischer's continuum of consciousness, the trips were most certainly out of his head. Though not discounting the possibility of out-of-the-body experiences, we contend that in actuality these trips were explorations, via the central nervous system, of the microcosm of the inner sensory realm. In this regard, the words of the Buddha are not merely metaphoric: "In this very body, six feet in length, with its sense impressions and its thoughts and ideas, are the world, the origin of the world, the ceasing of the world and likewise the way that leads to the ceasing thereof." The visions of St. Adolf II, like those of all visionaries and prophets, are the symbolic representations of the various neural patterns and genetic configurations in which are coded the evolutionary "plan" of the species. True vision —clairvoyance and revelation—are to humanity what instinctual knowledge is to the lower animals and plants: a direct index of communication between sensory input and the situational necessity of the organism. The prophet is he, who by his receptivity, *sees* and *reads* the immediate evolutionary direction from and within the components of his own psychogenetic constitution. St. Adolf's paintings and mythic tales are projections of the direct experience of his own psycho-genetic patterning. It should also be noted, however, that for St. Adolf primary significance was given to the actual experience of the *trips,* whereas the paintings, writings and musical compositions were "merely pastimes executed in my cell of the insane asylum." This draws attention to the fact that for St. Adolf, as for other "mystics," *work* is the residual but necessary furtherance of the *messages* received at the height of the mystical program. In this respect, the work of St. Adolf II must be considered as some of the most direct and spontaneous reflections of that altered state of consciousness generally attributed to mystics.[13] As an example of St. Adolf's experience, we offer the following translation of a description of one of Adolf's hallucinatory trips, St. Adolf in the midst of his own programming:[14]

And now: and now: here commences Our Voyage, O hunters and naturalists of indefatigable ardor, our retinue of twelve horses leading us from the West to the East in the southern part of Heaven, occasionally traversing most-respectable villages, plains and localities of a suprayme elegance, cities of different sizes and even extraordinarily large or gigantic in certain places, now and then coming across different cult-tours, flowers and magejestic vegetations of a suprayme elegance; and then, from time to time, traversing mossy fields, prairies and gigantic Virgin forests, even travelling along little lakes and these much larger or gigantic seas as well; travelling along cliffs plunging from highest peak to abyss from 100 to 500 leagues, and also through places of much lower mountainous outcroppings and hills, until finally, after so much fatiguing sport, numerous dangerous tourments and cata-strophes, we arrive at the very edge of the

Sea-of-the-Southern-Heavenly-Reaches, and depart as always in the direction of the East, then of the North along the Sea-of-the-Eastern-Heavenly-Reaches and Sea-of-the-Northern-Heavenly-Reaches, going obliquely once again towards the West so that we may attain to cliffs 350 leagues high, 25,000 leagues long and 900,000 leagues broad (at certain places); then continuing, going beyond, through Virgin forests, Alpagaen realms, glaciers, boulders, valleys and abysses, and then some towns, some large and gigantic cities, further cult-tours and more regions of floral growth and vegetation right up to the foot of the Giant-Glacier-of-the-Heavenly-Aastral-Reaches-of-God-the-Father, in the very bosom of which is a cave 24,000,000 leagues in length, 250,000 in height, and 500,000 leagues broad; and finally up to the luxuriant and magejestic Great-Throne-of-God-the-Father-All Powerful, hierachically divided into a number of administrative districts representing the Public Powers, little and great, Kingdom, Empire etzeterra . . . And then, taking count, we amassed on route a gigantic booty, which added to the little we own in total property on the earth, comes to: totall, exactic, around, justly = Pong!: 117,993,025,028,-775,875,000,000,000,000,000 Francs. Then led by not less than 350 gigantic silver chariots with heavily charged steel hubs, a great many of which are harnessed to anywhere from twenty to thirty-six horses, and a dozen gigantic Celestial-Transports-of-God-the-Father and Giant-Transport-Birds each carrying a load of several thousand tons, and numerous little vessel-moths-of-the-isles heavily weighted, we arrive thereby at the Harbor-of-the-North-of-the-Celestial-Aastral-Body-of-God-the-Father (Giant City of more than 800,000,-000,000 souls) in good form, gay and of good humor, continually sustained by our excellent Orchestra and our Chorale. The numerous and diverse manifestations of sympathy coming from the innerhabitants of these regions knows no limits. The innumerable and excellent orchestras and ditto the chorales, the gigantic military parades in complete formation: the thunder of the cannon and the guns of war: the luxuriant festivals of night with their Bengal fires blazing on the sea and on the earth and even in the harbors: Ynaventura! Great Empress of Bengala of the twenty-eight celestial lights! And then, the gigantic and immense swimming festivals, gymnastics, dance and other arts of so suprayme and elegant a grace, representations of spiritism, etzettera, all of which made us so enthusiastic and so transported us for three days and three nights duration, yes, which gave us so much admiration and stupification, that we cried out, Me, and those others if my own Voice: Yes, the All-Powerful, the Wisdom, the Grace and the Justice of God have no limits. And everywhere: in all the creation

*of which God-the-Father-All-Powerful let us visit, everywhere, my own well-beloved Mother purchased directly the innumerable and gigantic administrative district representing the Public Powers (the little as well as the big) and paying them, be it in hard cash or in Bank Notes, she waits until she receives from them in part, at least, a gift, or even one of the devastating wars, and in the gigantic battles, receiving even the general-in-chief under the orders of God-the-Father-All-Powerful in whom she has regularly conquered in all honor, so even to the end of this chapter, carried by a solid conviction, I can cry out: I am the Master of Oberon!. however, above me, there is God: and if He were to disappear today, I would return there, Hott! I would climb towards the Throne of God: Him, he will quickly see fit to arrange it: St. Anne has the most beautiful Throne: Good-bye my dear, Lott. And if you have not flown away, Ha!Ha! Finally: it was me who said that which my Mother said. For it was God-the-Father-All-Powerful who gave the most beautiful Throne of the Goddess to my well-beloved Mother, in his gigantic, magejestic Giant-Cave-of-the-Celestial-Aastral-Body-of-God-the-Father.**

In this hypnotic, inward journey full of repetition, immensity, number and infinity, we have a perfect description of God as total immersion in one's own program, and in its sense of rapture within the presence and Being of God, we have a classic description of the ecstatic mystical experience. Given all the "fantastic" components of this voyage, we understand better that the transformation of Adolf Wölfli into St. Adolf II is the transformation from the imagistic overload of schizophrenic disassociation to the sublime order of mystic non-(or pan-) identity, from chaotic disfunction to cosmic realization.

Indeed, how much difference is there between the often willed isolation of St. Adolf in his cell at Waldau and that of the famed Tibetan mystic and saint, Milarepa, who underwent so much in his cave in the stony fastness of the Himalayas?[15] In terms of the visionary—direct communication with inner patterning—content which the experiences of St. Adolf and someone like Milarepa produced, there is little difference. Seen in the spaceship of his cell, St. Adolf II is a twentieth century model of the psycho-cosmic voyager, exploring realms of consciousness beyond the normal, automatic state of consciousness which is the very standard of what has come to be called civilization.

The obverse of this, however, is that St. Adolf II chose to eject from this civilization, knowing full well, certainly, that the experiences he was *free* to enter into within the confines of his cell in Waldau Asylum would never be condoned or permitted beyond the confines of that cell. We often forget that in the past, our own culture has had a higher toleration for God-mad men

**The reader should note that the misspellings and odd word forms in this quotation are deliberate, and are intended in this translation to convey the idiosyncratic nature of Wölfli's language.* The Editor

such as St. Adolf II, and at one time even granted a great social esteem to those ways and institutions in which these men could pursue their vision. Although we have in mind here the monastic orders of the Medieval period, we are in no way advocating their re-institution, but rather, the *re-cognition* of the necessity and the human importance and significance of the kind of exploration done by St. Adolf II and others like him, whatever their respective ways may be. Certainly in terms of the twentieth century experience of "leaders" such as Adolf Hitler who attempt to institutionalize permanently one state of consciousness, St. Adolf's option of staying out to pursue the *varieties* of his own consciousness is most understandable. Also, the direction of thought of numerous psychologists, intellectuals, artists, etc., following the advent of the widespread use of psychedelics in the past decade further favors a turn to adapting models of behavior which emphasize the utilization and expansion of those areas of consciousness which have tended to be undervalued and purposefully neglected by the development of the present technological civilization. Thus, St. Adolf II, an individual reject and later auto-eject of this civilization tends to become vindicated as the exigencies of our situation—the global situation—and the guide-lines for transcending this situation become collectively ever more clear: whatever else "happens" in the near future, it must be accompanied by willed exploration of our own inner space —this is the evolutionary imperative glimpsed by Adolf Wölfli in choosing to remain in the precincts of Waldau Asylum, thus insuring the productive well-being of St. Adolf II. For in the end, St. Adolf II is one of those men, in the words of Hermann Hesse, "who are beyond all originalities and peculiarities and who have succeeded in achieving the most perfect possible self-identification with the general, and in rendering the most perfect possible service to the supra-personal."[16] Equally *a propos,* another recent saint, Ramana Maharshi wrote: "One should abide in the Self without the sense of being the doer, even when engaged in work born of destiny, like a madman. Have not many devotees achieved much with a detached attitude and firm devotion of this nature?"[17]

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[1]*Mircea Eliade,* Myths, Dreams, and Mysteries, *New York, 1967, p. 97*

[2]*There was indeed a St. Adolf I (d. 1224) whose day is celebrated February 11, who, as Bishop of Osnabruck in Westphalia, had a reputation of great piety and a special predilection for aiding lepers, an attribute that is echoed in the later life of St. Adolf II when he took to caring for idiots and those less fortunate than he. Since there is no Saint who is celebrated on February 29, we propose St. Adolf II. See Omer Englebert, The* Lives of the Saints, *New York, 1964, pp. 78-79.*

[3]*From about 1899 to 1930, Wölfli wrote voluminously, apparently beginning in an autobiographical manner, but extending his range fantastically as he developed. Often the paintings themselves became*

covered with writing in Adolf's own peculiar script and language. Our information is derived, of course, from the text by Morgenthaler/Bouché. Morgenthaler, who first encountered Wölfli in 1908, saw to it that a museum was organized at Waldau where Wölfli's work was to be stored and displayed. Presumably it is still there.

[4]See Mircea Eliade, Shamanism, New York, 1964, pp. 112-113. Andreas Lommel, Shamanism: The Beginnings of Art, New York, 1967, also has similar initiation tales.

[5]S. M. Schirokogorow, Versuch einer Erforschung der Grundlagen des Schamanismus bei dem Zungusen, quoted in Lommel, op. cit., p. 37

[6]Mircea Eliade, Rites and Symbols of Initiation, New York, 1965, p. 89.

[7]Original title, Ueber das Dämonish-Sinnliche und den Ursprung der ornamentalen Kunst des Geisteskranken Adolf Wölfli (Bern, 1946)

[8]Morgenthaler, Bouché, "Adolf Wölfli," L'Art brut 2, Paris, 1964 p. 123. Morgenthaler's essay, originally published in 1921, is quick to acknowledge the influence of C. G. Jung's Psychology of the Unconscious, first published in 1917.

[9]For literature on the Mandala, we refer the reader to the following: Giuseppe Tucci, The Theory and Practice of the Mandala, London, 1939. C. G. Jung and Richard Wilhelm, Secret of the Golden Flower, London, 1931. Mircea Eliade, Yoga: Immortality and Freedom, New York, 1958, especially pp. 217ff. Ralph Metzner and Timothy Leary, "On Programming the Psychedelic Experience," Psychedelic Review, no. 9, 1967, pp. 5-20.

[10]See, for instance, Bernard Aaronson, "Mystic and Schizophreniform States and the Experience of Depth," Journal for the Scientific Study of Religion, Vol. VI, 2, 1967, pp. 246-252; or Arthur J. Deikman, "Deautomatization and the Mystic Experience," in Charles T. Tart, Altered States of Consciousness, New York 1969, pp. 23-43.

[11]Roland Fischer, from a description in the catalogue, Esalen Programs, Summer, 1969, for a seminar entitled, "Creative, Psychotic and Ecstatic States," p. 10.

[12]Morgenthaler/Bouché, op. cit., p. 44

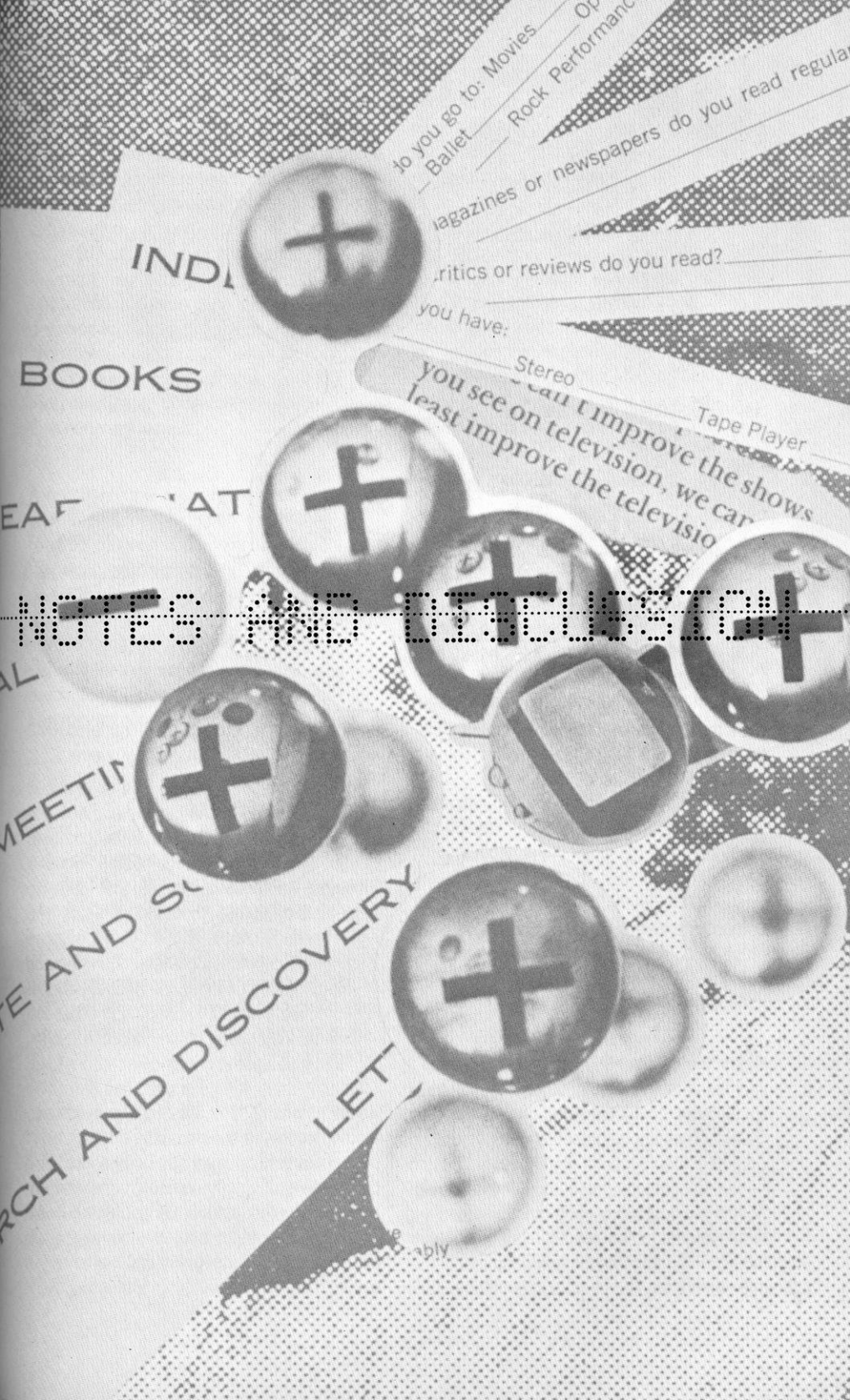
[13]Arthur J. Deikman (see above, note 10) outlines the chief characteristics of this experience rather neatly, and it is well to keep in mind these criteria when considering the case of Wölfli.

[14]My translation of a translation is taken from Morgenthaler/Bouché, op. cit., pp. 56-59. Wölfli's language and manner are most idiosyncratic, often relying on subtle associations, puns, etc., not unlike the technique of James Joyce in Finnegan's Wake; therefore, this translation is not totally exact since puns do not easily lend themselves to translation, and what I have done is freely attempt to give the sense of St. Adolf's prose.

[15]See W. Y. Evans-Wentz, Tibet's Great Yogi Milarepa, London, 1951 for extensive and detailed accounts of this extraordinary mystic.

[16]Hermann Hesse, Magister Ludi, New York, 1949, pp. 14-15.

[17]Ramana Maharshi, The Collected Works, London, 1969, p. 32.


NOTES AND DISCUSSION

IMPRESSIONS WORKSHOP

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IMPRESSIONS WORKSHOP

A three day combined workshop* in art and music for school children of the Enfield Public Schools in Enfield, Connecticut, was held during 1971 at the Wadsworth Atheneum, an art museum in Hartford, Connecticut. Participating were thirty-four art and music high school students. I was the Workshop Director, and three teachers assisted with equipment coordination.

Workshop, Three Days:

First Day: the first day was "Silent Day." The students spent an entire day at the Wadsworth Atheneum absorbing the mood, feeling, and spirit of the museum. They were attempting to fathom the soul of the museum.

Pause: the first day was spaced one week prior to the second two days so thoughts could be gathered and intention and direction established. After the "Silent Day" the students concluded that words lose meaning and spent one week pursuing further the "language without words."

Second and Third Days: the second and third days made up the experience which was recorded and packaged in audio-visual form. A bus filled with students, musical instruments, tape recorders, cameras and a colored light show arrived at the museum. The stu-

**This workshop experience was recorded on tape and slides and is now packaged as an audio-visual presentation.*

dents assembled in the areas in which they planned to work, and immediately the art students enmeshed themselves in creative photographic studies working on angles for emphasis, foreshortened views, and attempting to feel the art work through their photography. Meanwhile, during these creative encounters the music students were composing spontaneous, expressive, live music which was being evoked by the mood and feeling of the paintings, sculpture, and the environmental art.

A multi-media experience striving to foster creativity can yield the root to personal understanding through freeing and nurturing the need inherent in every individual to channel his feelings into a form of self expression, and this need is salient in the creative experience, each experience leading to better self-understandings.

Museums and schools have been too long isolated from each other in their roles and the results have bred pernicious conformity of opinion in regard to "what to think" and how to learn and digest the aesthetic values of society. Museums which exist solely to be beautiful and to communicate the creators' purpose, do provide physical comfort in their quietness, but fail to reflect a greater degree of communication by inhibiting total experiences of interpretation. The Wadsworth Atheneum, a leader in educational exploration, is the first museum in the country to seek to become a unifier of the living-developing arts and recognized-great arts in such a multi-media workshop.

Removal of the students from the limited and cradled confines of a learning situation in a school building unfolds in them a freshness of motivation and a special freedom of individuality. Reactions to the workshop experience were positive and growth was felt and evident. "I never knew I had such power to relate my feelings to someone." Another student thought aloud, "We could communicate and that is really great!" A student reflectively added "We would have used a smell machine if there was such a thing." For one girl the most important experience she gained from Impressions Workshop was a "feeling of creation, you weren't just giving back what a teacher wants to hear." One student felt "When we first went there, it seemed still and quiet, but when we came back, the museum became alive, a living museum." The stillness and quiet beauty of Avery Court had a mood of solemness. The statues became "people" to the students, the architecture and the fountain absorbed their feelings. "EAT," not a restaurant, but a corridor with a red fluorescent light ceiling spelling the word was in total contrast with Avery Court. The mood was of an exciting nature and hard rock sound and intense angles and contrasts in photographic studies were the results of what the students felt.

Language of Sight-Sound Communication: A language of communication was necessary to close the gap between art and music in order to foster empathy through self-discovery. This was accomplished by building a log of experience during in-school preparation sessions from which the students could later draw in order to create.

The growth factor of self-discovery was the resulting experience:

Step One: The art students created black and white designs, the essence of which was spot and line. The very simple designs communicated visual feelings of heavy, slow, ponderous, light staccato, and concepts both even and uneven through symmetrical and asymmetrical studies. At first the art and music students interpreted the designs verbally, but then they sought to empathize and not to intellectualize, and subsequently ensued the identification of the mood and feeling of the lines and shapes with sounds representing rhythm and mood. We contrasted mood through dark and light sounds, and changed designs rapidly evoking interpretations of art and music.

Step Two: The students then advanced to color and environmental studies using original student art, slides, films and posters of castles, boulders, alleys, hills, mountains, seas and abstract color studies. The musical expression was growing and the artistic involvement deepening. Communication was strengthening, but not through words.

Step Three: Finally, we felt communication lines were established between art and music as the language of musical expression and the feeling of mood interpretation was strong. We advanced to interpretating great works of art; sculpture and painting both realistic and abstract.

Our in-school sessions for establishing the emotional aspect

In our highly verbal society one is familiar with movement closest to the word. Communication exists at many levels. The least important one may be the one which is most specific. In dance, one must return to long-forgotten basics; the revelations of nonverbal symbology, the shape of things, the assessment of one's spacial world, the physical knowledge of emotions.

—Bella Lewitzky

through feeling became very exciting and filled with self-discovery as the art and music students worked together. The new language had established itself as a true vehicle of communication. The students were able to empathize. There was the existence of a sense of entering into the spirit of the individual works of art, and what at first may have seemed to be difficult without using the dynamics of intellectualization and verbalization was not in the least beyond the students' present comprehension, and in fact had grown to be natural.

Minimal narration was an outward essential used later at various points in the audio-visual presentation. Two students composed the narration and attempted to communicate so others who had not experienced such "growth" could be introduced to the concept. There was a sense of reservation regarding the use of verbal expression because the participants had reached greater growth themselves. Later, in discussing reactions to the individual works of art, descriptions of feeling were used to characterize the strength of the sculpture, "Isaac." "Isaac believed and his father Abraham believed, even though God asked Abraham to prove his love by taking the life of his son. . . ., but you have just got to see the look in Isaac's eyes to understand." A sculpture, "Awakened One" was symbolic of a journey into an inner world: "When you see the sculpture, you just grow immediately in diverse ways. It's sort of growth to higher empathy." The students summed up their feelings in the simple narration written for the introduction to the project: "The museum appeared like a somber fortress, but from each window there was a gleam of light, a light of communication. It was a communication of soul and the students were after the key to that soul."

The diverse fibre of the arts tends to motivate educators to explore possible happenings which utilize the multi-sensory approach. The Wadsworth Atheneum's Education Department characterized the usual concept of museums as follows: "School children have been going to museums for a long time in crocodiles, decked out in Sunday clothes and with phalanxes of teachers, guards and guides to keep them in line. A very negative experience for most of them. They were told the titles of the works, who did them and what they were supposed to think about them." The most significant and revealing feature of Impressions Workshop is that it is setting in motion a departure from survey and observance and as an educational tool it should strongly encourage other such cultural-creative workshops.

INTERMEDIA:
A SPECIAL EXPERIENCE
FOR COLLEGE STUDENTS

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INTERMEDIA
A SPECIAL EXPERIENCE
FOR COLLEGE STUDENTS

In recent years there have been a number of attempts to wed art, education and technology into a medium of communication. Most noteworthy among these has been the project, Experiments in Art and Technology (E.A.T.), based in New York City. Since its inception in 1966, E.A.T. has provided the contemporary artist with "a unique source of experimentation and exploration for developing human environments of the future."*

However, this program, like most others, has generally restricted itself to large-scale projects involving professional artists and engineers. To date very little has been done along these lines at the non-professional level with college students. An attempt to fill this need was undertaken by three University of Wisconsin professors recently with a course entitled "Intermedia."

The course's primary objective was to expose through direct student participation the relationships and processes involved when messages are presented through several media simultaneously. Its intention was to serve as an experiment in instrument-assisted human communication structured around an eclectic mix of student artists and student educators equipped with ideas and instruments and guided by faculty in the fields of multimedia instruction, communication arts, and art.

*E.A.T. Proceedings, *May 19, 1969, p. 1.*

The formal justification for the course was based on the following premises:

- *One of the most exciting aspects of contemporary art has been the attempt to incorporate electronic media into artistic activity. With a few exceptions, these efforts have been failures. It is theorized that the failure lies on the part of the psychological or physiological character of the messages they are producing.*

- *There is a considerable body of research in the area of environmental design and human factors engineering that needs to be related to the design of instructional methodology and technology.*

- *The American university needs to train teachers who have a theoretical understanding of the variety and interrelation of electronic media, so that they can sensibly employ them in their teaching.*

Program

The Intermedia course, unlike most audiovisual courses, was characterized by an interdisciplinary approach on two levels. The instructors represented three different academic areas — Art (J. Sowaal), Communication Arts (L. Rosenfield), and Education (G. F. McVey) — as did the students. Thirty students, ten from each of the disciplines and about equally divided between undergraduate and graduate levels, enrolled in the course. Each of the students accepted was screened for his interests and skills. The course began with a series of lectures and laboratory sessions conducted by each of the instructors on the topics of his specialization. G. F. McVey presented lectures and laboratory sessions on topics related to psychophysics, human engineering, environmental design, and multimedia communication; L. Rosenfield conducted sensitivity sessions, gave lectures on nonverbal communication and served as general coordinator of the course; and J. Sowaal, whose special discipline is cybernetics, lectured on art and creativity and introduced the concept of "feedback" mechanisms in project design.

In many of the laboratory sessions, students were provided with the opportunity to develop local production skills such as photocopying, thermal, diazo, and xerographic reproduction techniques; audio and video tape recording skills, as well as specialized exercises with measuring devices, such as recording goniophotometric measurements of screen reflectances and lumen outputs of projectors with foot candle and foot lambert meters, and output characteristics of sound systems using a sound pressure level meter. The students also had the opportunity to witness flicker fusion, stroboscopic and phi phenomenon effects with the aid of electronic demonstrators especially designed and built for the Intermedia course by the Multimedia Laboratory staff.

This structured phase of the program took approximately seven

weeks after which lectures were held only when the instructors felt that they were needed to overcome some practical or theoretical production barrier. In preparation for the second phase of the course, the students were organized into project groups. This grouping was heterogeneous in that each group consisted of students having different skills and differing interests. Attempts were made to spread the technically proficient students among the six different groups in order that each group would have someone who could help them articulate their ideas into some form of media presentation. Students having other specialized skills, such as writing and research ability, art and design competencies, were also divided as equally as possible into the six groups. The composition of the groups was very important because the emphasis of the course was directed toward the successful completion of a group project.

The texts used in the course included *Vision and Motion,* Moholy-Nagy; *Understanding Media,* McLuhan; *Theatre of the Bauhaus,* Schlemmer; and *Human Engineering Guide for Equipment Designers,* Woodson and Conover. The production and presentation facilities of the School of Education's Multimedia Instructional Laboratory (MIL) were used for lectures and laboratory technical sessions. These included a large-group lecture space with fully automated rear and front multiscreen display systems, a stereo sound system, a recording studio, photographic and graphic preparation rooms, a darkroom, an electronic workshop, and an audio-visual self-instructional laboratory. The MIL staff contributed generously of their time to help students with their more difficult technical tasks.

Student Projects

As noted above, a major requirement of Intermedia was the preparation of group projects involving over six weeks of work. The projects developed included: a continuous motion picture film that demonstrated flicker and simultaneous color contrast effects; a number of slide or motion picture-type programs on different topics related to the current social scene; a multimedia satire on a sensitivity session; the production of a plastic surrogate environment; an architectural perception project; a sensory deprivation chamber; and a sensory awareness maze. At no time did it appear that the students had difficulty in thinking of novel outlets for their creative urges. However, after the initial stages of project development a number of the groups decided to reduce their working party to two or three students. Although larger groups were desirable for creating new ideas, smaller teams proved more workable during actual production. Four of the more sophisticated projects dealt with subjects ranging from environmental awareness to patient comfort during an x-ray examination. The description of these projects follows.

Eco-Media:
an Ecology Related Project

This ecology related project employed about 1000 slides and taped music to convey a sense of awareness of: population, garbage, water,

air, and noise pollution. A non-verbal approach was employed in order that the audience could focus its attention on the visual message. The rationale for this approach was based on the feeling in the group that the most blatant messages of environmental violation are best conveyed via images and sounds rather than the typical rhetorical commentary. To this end, slide projectors controlled by an electronic sequence selector and a stereo sound system were employed. The success of this project was evidenced by the fact that the program was repeated for the University's E-Day activities.

Folk Scene Montage

In this project six unique mediums were mixed to portray the various moods of folk music; television, simultaneous rear and front slide projection, motion picture films, and live and taped folk music. Beneath this montage of mood, the student group worked within a weave of reality and media. The communication problem tackled was — Which is more "real" — reality or its media equivalent? For example, the first music heard was recorded from records. This was followed by folk music recorded live (although pantomimed on camera and given the appearance of being a live performance on a television monitor).

The program ended with the idiom of the times, with music played live and in person.

The lyric mood induced by folk music and visual images was abruptly shattered with a bombardment of loud music, noise, firecrackers, and noxious, although harmless, gas — a simulation of the realities of the student rioting occurring at that very time on the campus outside the confines of classroom.

Patient Diversion

This intermedia project looked off campus to a local hospital for its challenge. The primary purpose of this project was to provide passive, media-diversion for the patients undergoing cardiac catheterization, an x-ray procedure for studying the chambers and valves of the heart. This lengthy (5 hours) exam is generally used in the diagnosis and evaluation of congenital and rheumatic malfunctions in young children and teenagers.

It was important that the media not interfere with the normal internal physiological functioning of the patient. A display system had to be designed that would be co-ordinated with the patient's most comfortable sight lines — some human engineering techniques were suggested that might accomplish this. A number of suggestions were made that could help change the overall severity of the room's appearance. These ranged from hanging mobiles to decorating the room and its awesome machinery to look like the insides of the "yellow submarine." An extensive library of slides and tapes was produced that would seemingly promote the desired emotional mood and body tonus of the patients.

Transitive Nightfall

This unusual project utilized media to create a "happening" in which

Folk Montage showing 45-foot wide panorama of rear and front projected images.

Rear projection multimedia facility used in *Intermedia*.

the major themes stressed were ritual, community, mystery and love. The primary objective was to weld media and theater into a pattern of events that enabled the participants both personally and communally to experience them in an emotional way. Extensive and enthusiastic audience participation was to be a major element in the project.

The event took place on a moon-lit hilltop on a farm outside of Madison. The audience had been forewarned that something unusual and exciting would take place, but knew nothing else about the event. In an effort to further heighten the atmosphere of mystery and the unusual, "painters" moved among the audience, streaking faces with grease paint in bright, friendly colors. As night fell, the audience was gathered for a communal breaking of bread and drinking of wine. Lighted candles were given to everyone.

On a hilltop some distance from the audience, answering candles accompanied by oriental flute music pierced the night. A girl clothed in translucent white appeared. She began to beat a drum and to lead the audience slowly in candlelit procession toward the hilltop. What then followed has best been described by one of the students:

The participants, clothed in orange felt and clear vinyl robes moved as a glowing worm up the hill past luminous images suspended in the dark of night. Under an oak tree and up in the branches was seated a nude maiden whose slowly gesticulating body was played upon by colored lights and three hundred eyes. Up through grass and trees flowed the mass, past a felt and vinyl bird-like figure reciting poetry over the multi-colored fires. An evergreen tree on the right exclaims, "always, maybe, never, always . . ." while ten screaming high school students are involved in an oversized Mah-Jongg tournament. The path nears its end. Six nun-like figures clothed in white motorcycle helmets and black veils slowly step past the crowd.

The destination was a grassy area at the top of the hill. Dancers appeared out of the night. Their bodies were painted with fluorescent day-glow colors illuminated by a 400 watt mercury vapor black light. The level of the music increased to 150 watts of acid-rock power. Spectators sprang to dance within the circle. Everyone together — Energy unleashed — Energy transformed.

The two students who created the program looked upon it as an extremely complex system composed of modules of thought — love, energy, space, mystery, the absurd, aesthetics, nature, the meaning of color and sound, rhythm, physiology of the senses, physical layout, lighting, sound equipment. They compared the finished project to programming systems utilized in today's high-speed electronic computers. The project, like high-level computer programs, did not function on a linear step-by-step process.

Modules or subroutines performed the standard tasks too simple to be of concern to the supervisory program. In "Transitive Nightfall" the subroutine "aesthetics" called upon "psychology of the senses" and "lighting" in order to operate. Yet the students insisted that their complex system was not dehumanizing in the way that computers are. The main reason that their complex production escaped a mechanized quality was that the ultimate goal was supremely human — a frenzy of love and community. Another reason for the spontaneous quality of "Transitive Nightfall" was that chance and personality were, in a way, programmed into the production. Only the two student coproducers were aware of the total concept. The other levels of organization — lighting, dancers, sound, painters, etc. — were operating autonomously. They were informed of the general mood and tone of the festival, and allowed to work out their own ideas within this framework. The choreographer, for example, knew he had certain tools to work with — sound, fluorescent lighting and paint, costumes — and from these produced his own dance. Thus, even the actors and technical crew were able to experience the aura of mystery because they knew little more about the whole production than the average guest. The plan, in short, was to treat all participants in such a way that they could experience the events with the same spontaneity as the guests.

In practice, this did not work out as smoothly as planned, but few people missed more than a small percentage of the total. Certainly, the primary objective was met. With the aid of media, the participants and guests came together to experience a communal emotion of festivity, brotherhood and love.

Evaluation of the Course

As reflected by their follow-up critiques of the course the Intermedia experiments did not draw only positive responses from the students. Many students complained of "imbalance of instruction," but there was no common demoninator to the criticism. While some students clamored for more technical instruction, others more skilled in media felt too much time was spent on production techniques: "I perceived our goal as learning to be collaborating artists while what we were learning was how to become mechanics."

Problems in group coordination also plagued some of the projects. For some students, the process of "coming together" meant the exchange of different ideas and the eventual expansion of concepts, yet for others togetherness came only in the form of collective desperation: "For lack of a leader, we wallowed in indecision for almost a month and any progress we made was more a result of inertia than drive." This problem of social dynamics was predicted by the faculty prior to the start of the course. In hopes of facilitating interpersonal relationships within working groups, sensitivity sessions were conducted during the first two weeks of the course. For one sixth of the students, the sessions were so startling and disorienting that they opted to drop the course. Some students resented the methods used, but put up with the

encounters as "part of the game of the course." It is interesting to note that one of the group projects was a satire on T-group experiences. Yet, other students felt that the experience was broadening and recommended that in the future more workshops on personal encounter be offered.

Other criticism included: lack of structure to the course due to the diverse nature of its content and the unwillingness of the professors to supply students with defined parameters for projects. As one student noted, "We were asked to perfect our skills in the use of media . . . given the directives of lectures ranging from campus stylism to body posture. It worked like a hallucinogenic drug to trigger numerous thoughts and impulses, but the course was schizophrenic . . . it never was quite sure who it was."

There are a number of possible explanations for the high level of confusion experienced by the students. Not the least among them was the fact that the teaching staff itself was unsure of its own role and the amount of structure that was needed. On the one hand, it was felt that a too structured course would dampen student creativity. On the other hand, if the course requirements and procedures were left to the individual students to decide, it was doubted that enough basic learning and project development would take place.

The various levels of knowledge and different fields of interest represented by the students also created a problem. However, it was felt that the mixing of different abilities and sensibilities, both of students and teachers, was a greater stimulus to creativity than a homogeneous group. Despite the frustration felt by some of the students in this endeavor, the general overall consensus toward the experimental course was, on the whole, positive.

While emotional involvement was a crucial objective of the course, an attempt was made to measure objective learning outcomes by administering a final exam. Each student was given his choice of questions to answer according to his particular communication bias. As evidenced by the exam scores and the sophistication of several of the group projects, Intermedia clearly communicated some essential aspects of the complexity of multimedia design, programming and utilization.

Epilogue

Intermedia was an expensive experiment. In financial terms, it involved an investment of $3,000 in the purchase and rental of media equipment and reference materials. More importantly, it required large amounts of student and staff patience, energies and working time. On the whole, the outcome of the course was encouraging.

Although problems were present, none seem to be of such significance as to call for a radically different approach to the course. Intermedia, by definition, calls for experimentation, cooperation within the disciplines, and group activity. Also, one should not overlook the intrinsic value of Intermedia as a truly heuristic learning experience.

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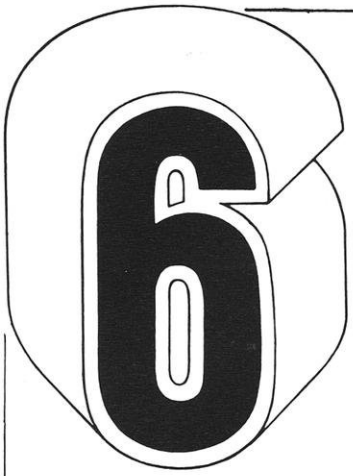

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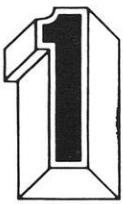

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