XLII ESPOSIZIONE INTERNAZIONALE D'ARTE LA BIENNALE DI VENEZIA

ARTE E SCIENZA

CONTENTS

COMMUNICATING INDIVIDUAL REALITIES

Don Foresta

"Meaning – objective reality – is the joint product of those who communicate".
John Wheeler,
Center for Theoretical Physics, University of Texas, 1983.

Quantum Physics, with Relativity one of the major scientific revolutions of our century, has brought communication into the very heart of the definition of matter, through resolving the classical physical contradiction in the definition of light. Neils Bohr, one of the world's most eminent physicists, demonstrated early in the century that light could be both particle or wave depending on the method of experimentation used to define it.

Each definition became a system consisting of an observer, the observed, and a method of observation. Rather than discovering an object, particle or wave, distinct unto itself, we find instead a process defining one or the other, which includes the observer linked to the observed with a method which is, in fact, a medium of communication. The definition of matter as process replaces matter as object of classical mechanics. There is now the premise that an objective reality existing outside of ourselves, if it exists at all, can not be perceived. Our very act of perception changes the reality we are attempting to perceive. In fact, our reality is part of a process in which we ourselves participate.

A system of communication between observer and observed with a method of observation as the communication medium is a cybernetic system. We know that our bodies act in a cybernetic fashion as we perceive, react, perceive the reaction and act again.

Zen Buddhism calls communication the act of becoming the other. We see this in action in our own perception as we intellectually engage things perceived in order to define them. The twofold process of perception , objective and subjective, takes place simultaneously, as we first sense and then understand. This can be better understood by examining the mechanical process of the eye-brain relationship. The eye first sends its impulse to the brain in the form of an electronic signal, meaning that at the first moment of perception we receive an objective impression of what is perceived.

However, in analysing the area of the brain where the image is contructed, science has shown that in fact many other parts of the brain feed into that area to add to the final form of the image. Those other parts are memory, experience.

We know from daily experience that people "see" things differently, that each of us has a slightly different notion of reality, and that the communication of those different realities is what defines the *meaning* referred to in the John Wheeler quotation above.

Art is also a part of this process of defining reality. The artist uses other mental tools – turning the process around we might say, moving from concept to analysis rather than

the reverse. The truly important artist is one who has a highly developed and profound personal mythology, a view of the world created with much imagination and great depth. Each work is a manifestation of that world, permitting us to experience the image of man as conceived by that creator.

All systems created by the human imagination, religions, political ideologies and the personal world-view of creators are measures of man and the supposed reality in which he exists. Conflict arises when we believe in the superiority or exclusivity of any of those measures, when we consider them as absolute rather than understanding them as being relative.

Marchel Duchamp touched on this idea in a simple yet profound way in his work, *Trois Stoppages-étalon.* By creating new standard meters, he recognized simply that many ways of measuring the world exist. That each of us in his way is a measure of man, a *mètre-étalon*. The subjectivity of perception provides each individual with his measure of the world, and the communication of those various measures defines reality.

Neils Bohr, when discussing the dilemma of the impossibility of purely objective observation, talked about the limits to the *meaning* which we can attach to such observation. "We meet here in a new light the old truth that in our description of nature the purpose is not to disclose the real essence of the phenomena but only to track down relations between the manifold aspects of our experience". Again we are talking about relationships, about interpreted reality seen through individual perspectives, the kind of perspectives that are shared among researchers trying to understand something of the reality which is us.

The artist is a kind of social researcher applying his creative intuition to the condition of man in order to discover, as Bohr put it, "the relations between the manifold aspects of our experience". He judges, debates, evaluates, criticises, comments on the human condition – the analysis of man from the interior of the creator, "myself as mirror".

The subjectivity of perception was never denied by the artist as it was in the past by scientists and their sociopolical manifestation, the technocrat. For them objectivity was elevated to a status of near divinity. The artist however flaunted publically his subjective view of the world and this of course was the source of much friction between artists and society since the world-view of the artist conflicted sometimes brutally with the established order. He judged and was judged in return. The ferment created by that – yet another – cybernetic process was considered the evolution of culture.

As artists begin to move into the large-scale global communication networks now being created, they begin to transmit their individual *mètres-étalon* in a wider and wider system of exchange. Their role does not change, but the scale and the speed are new. In the past, the proximity which permitted that ferment was geographically limited, growing from small villages to cities, from regions to nations, and finally to continents as communications systems grew. With cable and satellite the world is now wired.

This means simply that in the new communication environment, we now understand the world as a whole. The shared intellectual space of communication need no longer be limited to shared physical space.

The artists in this growing network are redefining reality through the exchange of their individual realities. This net of interactive centers ressemble a huge geodesic dome with each center connected to several others. The organization is horizontal among equally weighted centers, an independant interdependence.

The system is one of multiple cybernetic processes exchanging multiple realities all adding new dimensions to each of our individual realities. The network become something akin to the circuits of the brain which contribute to the interpretation of reality, where each part of the human memory, represented in the several people participating, add to the understanding of an event.

Communication has always been at the base of the formation of our social and political institutions. It not only is part of the definition of reality itself, but also the tool through which we interact and form social groups. This will continue to be so, but on a scale never before possible. There will be contradiction in this multiple world view, just as there is contradiction in the definition of light. Opposing world views do not necessarily mean that one is wrong and the other right. Contradiction very often adds to our understanding, by forcing us, as in the case of light, to move to a higher plane, another dimension, in order to reconcile the contradiction. Horizons become larger as more and more human elements are added to the definition of reality. Contradiction becomes complementary, which brings me back again to Neils Bohr who defined the Theory of Complementarity and spoke of "Two sorts of truth: trivialities, where opposites are obviously absurd, and profound truths, recognized by the fact that the opposite is also a profound truth".
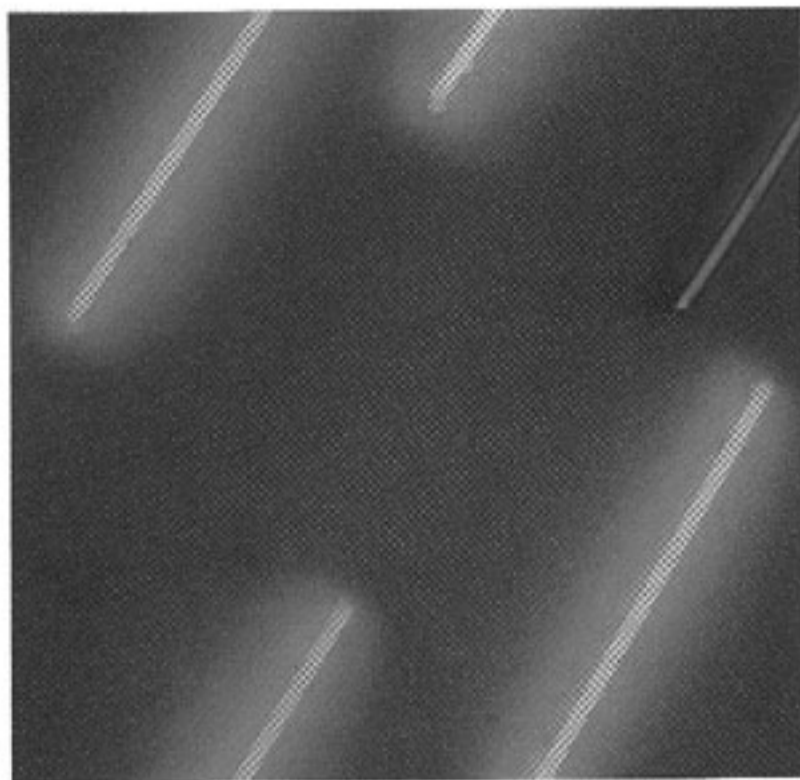
Waltraut Cooper,
Digital Poetry, detail, 1986.

TECHNOLOGY AND INFORMATICS

artistic organization by
Roy Ascott, Don Foresta, Tom Sherman, Tommaso Trini
with an exhibition "Synthetic and Three-dimensional Images" organized by
Dario Del Bufalo and Valerio Eletti.

Olivier Agid,
Electronic Painting,
1986.
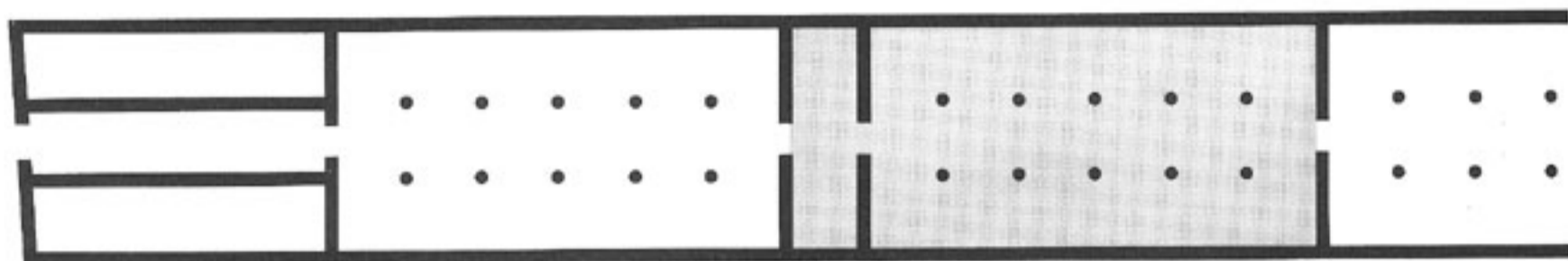
ART, TECHNOLOGY AND COMPUTER SCIENCE

Roy Ascott

Apart from one or two face to face meetings in Venice, this exhibition has been organised "remotely". The commissioners, widely dispersed in Europe and North America, have been in daily contact with one another, with the invited artists, and with the Biennale administration through an electronic "mailbox" system which has allowed us to discuss our strategies through individual portable computer terminals, plugged into a computerised planetary network from our own studios and offices or wherever our work takes us around the world. Thus *networking* (meeting, interacting, negotiating, and visualising in electronic space) is the very substance of this exhibition in all its phases: planning, execution, distribution, reception, transformation, memory. We should perhaps more precisely call it *telematic networking* since it constitutes an attitude of mind and a form of behaviour which have emerged from the recent convergence of computer and telecommunication systems. Its forms are various, using both high and low technology, and ranging across videotex, slow-scan TV, laser disc, telefacsimile, computer animation, simulation and modelling, teleconferencing and text exchange, telemetry and remote sensing, cybernetic structures, and sound/video environments. All essentially interactive systems, all capable of intercommunicating, networking, through the "lingua franca" of digitalisation. These are the new tools which the artists in this exhibition employ but they are at once both media and metaphor from new ideas and new language.

Networking not only connects a diversity of media, persons and cultures, but brings them into a cybernetic relationship – let us call it *telematic interactivity* – which has the effect of erasing the old dichotomies of artist/viewer, producer/consumer. Instead we might refer to the participants in these networks as *users* (and by "networks" we mean the small scale configurations of stand-alone systems as well as the far reaching webs which link multiple locations). Users are engaged in the negotiation for meaning (if that defines "art") or the celebration of human communication (another definition). Art as the invention of new language and the creation of new metaphors will arise to the extent that these systems are *used*, participated in – that is, to the extent that we become actively involved and responsible for these new modalities of exchange, memory, transformation and production of image, text, and sound.

In telematic networking, authorship is dispersed throughout the system, potentially throughout the planet, just as the zone of reception and encounter is stretched across the globe, decentralising – actually destabilising – gallery or museum space. Thus, this section of the Biennale is (potentially) everywhere; the ropes and cables of the old Corderie now extend, as it were, beyond Venice to the world.

The old communications model of sender/receiver, where a message or meaning was the property of a "creator" who sent it to a more or less passive "viewer" (a model which was so convenient to the needs of cultural and political hegemony, to the maintenance of fixed value systems, rigid ideologies, and orthodox views of "reality") is seen now to be redundant. It has been replaced by the new order of dynamic relationships of *users*, engaged in open-ended creative interaction; users who become collaborators, perhaps widely dispersed in space or time, extremely varied in their cultural and personal histories, exchanging their separate realities, unified only in their pursuit of joy, self-knowledge and self-creation (Nietzschean telematics perhaps!)

Networking has called forth another order of art practice, so radically different from what we have known that we may recognise it as constituting a paradigm change in culture. Here we see a cybernetic process of creativity, one which can be entered into from any point which can be reached by cable or satellite. Inputs from multiple sources can be stored on disc or in massive memory banks (just as our own personal life experiences can rest until roused in our own cerebral memories), to be released and retrieved at whatever moment, in whatever context a user may choose – then to be acted upon, modified, played with, restructured, deconstructed, inverted, twisted, stretched and eventually re-circulated according to each individual desire.

In the collaborative activity of telematic networking which suggests perhaps in a certain sense a Derridean "death of the author" (whether on the micro or macro scale of human/system interaction), we would be wrong to think of an anonymous, totalised collectivity of minds, endlessly recycling data, in which individual visions or aspirations are subsumed or diminished. Rather, the process offers the possibility of the *amplification* of individual thought and imagination – by widening contexts, opening up horizons, multiplying, diversifying and enriching connections and references – all of which is to bring an individual's ideas and images into collision and collusion with radically different minds and life histories. Telematic networking may lead to a heightening of individualisation. What is at stake here, then, is not the simple exploitation of new media to support old values (nor merely to subvert the systems ideology of the multinational corporations which principally develop and use these media), but the creation of new images, new language and metaphor for new human relationships and perceptions. Rapidly, networks must be extended to all regions of the planet and made available to all cultures, should they wish to interact, if we are to avoid a more subtle form of cultural hegemony. At present the West is wired, the Third world is excluded. We are ourselves networks within networks, the metaphor is ubiquitous. Telematic networks are finally no more than an extension of mind, a further reach of consciousness. It is this metaphor and tool which allows us to creatively manage a world of chance, a contingent universe – a reality which we now know to lie not outside ourselves, nor within ourselves, but between us, in relationship, resonating and alternating. The multiplicity of personal realities and world views, value systems and goals which characterise our post-modern condition constitute an immense network from which we can draw and to which we can contribute through telematic systems. This new technology, far from being the enemy of creation and expression

as popularly imagined, is only the enemy of those old orders of art which glorified the object in a material universe, and with it ideas of a market product, stylistic trademark, copyright, ownership, set within immutable canons of "excellence", "beauty", "value" and "truth"; all reinforcing an artificially stable, unified but totalising world view.

The artists here deal with and celebrate uncertainty, contingency, the unknown outcomes of open-ended interactive systems. They stand at the threshold of a new culture, at the interface between a world conceived in the language of a gross materialism, and a world of language which celebrates the immaterial, the invisible, the virtual, the becoming. A world in which there are essentially, in Norman O. Brown's words, "no things, but an irridescence in the void. Meaning is a continuous creation, out of nothing and returning to nothingness. If it is not evanescent it is not alive. Everything is symbolic, is transitory, is unstable. The consolidation of meaning makes idols, established meanings have turned to stone".

Telematic culture, seen here at its beginnings, produces an art which is both inconclusive and immanent, it creates a new kind of collectivity for the unconscious, tapping also the dreamworld of the microprocessor as much as the magic of digital simulation and transformation. Here is work in process, in production. Rather than presences we have traces. Electronic space is a new kind of space. Computer time is another kind of time. We are in new relationships to surface, image and memory.

This use of information technology and cybernetic systems by artists comes at a time when science itself is being dethroned, deconstructed and viewed critically as just another set of metaphors of the world, often of great utility when applied to human needs, but no more to be priviledged than art or poetry, as being closer to "reality" or to "truth". Imagination and irony serve us as well as rationalism in a contingent universe, and uncertainty and indeterminacy are the only common elements in our relativistic and pluralistic culture. To network between the polarities of scientific and artistic discourse, between the rational and the poetic, the natural and the artificial, to create new connections between them, to make the distance between the human and the technological creatively resonate, to collapse these dichotomies into a field of undreamt of possibilities – this must be the ambition of telematic culture. The artists here confront this ambition.

"With Respect to Audience"

Tom Sherman

What are the socio-cultural implications of artists' uses of electronic memory technologies and communications systems with respect to audience? We now live in an elaborate global culture of interrelated images and sounds. The audience as a whole has given up collecting. Analysis and classification are strictly the behaviour of professionals. Members of the greater audience function like artists. They find their way intuitively. Observation for the purpose of integration describes the perceptual mission of today's audience. This leads the individual towards an obsessive quest for a virtual state of personification. Members of the audience begin to literally embody the art they cherish. Personal identity is maintained by counter-balancing emotional responses against a studied practice of disassociation. Today's audience finds common ground in a quiet zone of privacy fully detached from the heat of immediate feelings. We all shed tears from a safe distance.

In the late 20th Century we swim in a sea of images until we are overcome and slip under. A single fixed image means nothing to most of us these days. If we were shown a highly detailed picture of our own inevitable demise, it would have little impact unless we could see that the image was constantly evolving. We simply cannot sit still for a perfectly static image. Even history is fading in and out, depending on how it is being used and by whom. More to the point, we are reading images from a much different perspective today. First we were moving through the information and now the information is moving through us. The transportation era has given way to the information age. Today's audience knows that it must remain relatively still if patterns in a swirling field of constantly changing information are to be distinguished. All images must be weighed against a total universe of images received and pending. Events are recognized, not as history, but as images and sounds based in time. Our sense of place must be perceived within the broad abstraction of time.

Electronic memory technologies, especially when linked with communication systems, contribute to the general perception of a comprehensive, simultaneously integrated conglomeration of all existing images and sounds. Through the use of these technological systems we get a daily glimpse of the total picture. Past and future mean nothing to an audience desperately trying to survive by assimilating every image and sound in a violent, unstable world apparently running out of time. Our world has become yet another emotive image of the plan at earth from a distant vantage point in outer space. From within the frame of this remote image of our planet, we continue to breathe life into an evolving, composite reality of images and sound. We barely survive emotionally by taking advantage of the super-human memory and communications potentialities of contemporary technological devices. Instantaneous telecommunications destroy the perceptual security we once found comfort in sharing - our sense of place was once determined somewhat mechanically by examining our relationships with spatial coordinates. Today the only theoretical prohibition on being in two or more places at the same time is the speed of light. Our sense of place was once based primarily on the physical location and orientation of our bodies. We now rely on digital addressing techniques and the periodic presence of the audience to establish our position. Digital time code or non-linear addressing techniques will eventually be used by everyone involved in reading the vast electronic memory reservoirs of images and sound we see pooling everywhere today. As the audience is asked to interact with the artmaking (performance) process, the audience may trigger a whole series of communications events through its interactions with the artist. The audience will effectively create an image or sound of itself, and it will be remembered (or forgotten) by the artist because of its characteristic presence or by its exact moment in time. The audience's effect on the artist will depend on how successful it is in distinguishing itself through its presence and responsive action.

All of the above preconceived notions are based on the observation that art audiences are becoming increasingly selective in determining the nature of their own very particular information environments. The audience practices selective observation for the purpose of integration into the precise information environment of its choice. An audience must be highly selective indeed to demonstrate the social character necessary to generate the presence of a significant cultural location, a memory with an address fixed precisely in time. Distinctive leadership towards this end has come traditionally from the critic, the individual in the audience responsible for enunciating the exact nature of the audience's response in print. The critic represents the audience through the provision of an unforgettable response from a rather distant, somewhat guarded state of virtual personification. The critic is expected to become one with the artist's work while being once removed from the artist. The critic must embody the work of art while remaining visibly aloof. In the meantime, while the critic continues to function in a somewhat primitive "show and tell" mode, the serious, discriminating audience continues to scan more and more information in an effort to determine exactly that which it wishes to identify with.

The discriminating audience reads all of the critics. The serious audience reads everything. Today's audience has an insatiable appetite for more and more art information. Unfortunately most art institutions fail to answer the audience's real needs. Most art institutions are failing to do an adequate job of representing the true diversity and vitality of contemporary art activity. Most art institutions are over-specialized because curators and artistic directors conveniently limit themselves according to the conventions of traditional artistic disciplines. In other words, galleries and museums offer paintings and sculpture, concert halls offer music, theatres offer plays, etc, etc. Such rigid compartmentalization makes no more sense in the arts than it does in medicine, law, economics, the sciences, theology, philosophy, education or politics. Narrow-casting for the audience's attention, however pragmatic, is a painfully shortsighted approach. The philosophy behind such over-specialization is easy to understand. Redundancy enforces clarity. Consistency generates trust. Insecurities vanish

when there are answers to all the questions.

Why do most art institutions choose to ignore artists working in unconventional ways with non-traditional media? Art history is very expensive to update, let alone rewrite. Has increasing channel capacity provided opportunities for narrow-casting in the telecommunications field? Diversity is too often considered to be entropic in the most negative sense. Is narrow-casting less of a paradox in traditional fine art institutions than it is in mass media broadcasting? Economic value will continue to be based on scarcity so long as the concept of exclusivity remains attractive to the individual. Will the artist relinquish authorship freely to an audience through works of art designed to be fully interactive? The audience will have to develop confidence in its own ability to respond intelligently to the challenging opportunities presented by interactive art works. How is professional status to be maintained when all the roles are reversed? We have come to the realization that children may have a better understanding of the art-making potential of advanced technological systems. How can we change the prevailing belief that work in the marketplace is more important than voluntary work in the community or work in the home? The relationship between the artist and intelligent machine must be studied to form the basis of our future understanding of audience.

A common criticism of most contemporary art activity is that artists are communicating exclusively with other artists of a similar mind. Their shared work is viewed as being unnecessarily cryptic and anti-social. With serious new art which begs for interactivity, naturally the first individuals courageous enough to respond will be fellow artists. There is nothing wrong with artists making art which only other artists can understand and respond to. Furthermore, there is nothing prohibiting the critic from intervening for the purpose of interpreting the work at hand. With art which begs for interaction within the realm of electronic memory, the critic may find it impossible to intervene in the conventional manner. Creating value through inflation is next to impossible in no man's land. But then again, the critic so rarely intervenes directly in the specific medium of any work of art. For example the critic seldom paints a critical response to a painting. But the artist who craves direct interaction expects all members of the audience to respond in just so direct a manner. The audience must therefore be part artist, part critic and part something else to interact so directly. The audience may have to be a machine in the first place. Afterall, the machine allows the artist to deposit a composition of images, sounds or ideas within its memory to be picked up later by an audience. All contacts must be made and subsequent interactions undertaken through a machine. The artist and audience must learn to exchange positions through an address in a machine with memory. The audience itself may have a fixed address or be transient within the ubiquitous state of electronic memory.
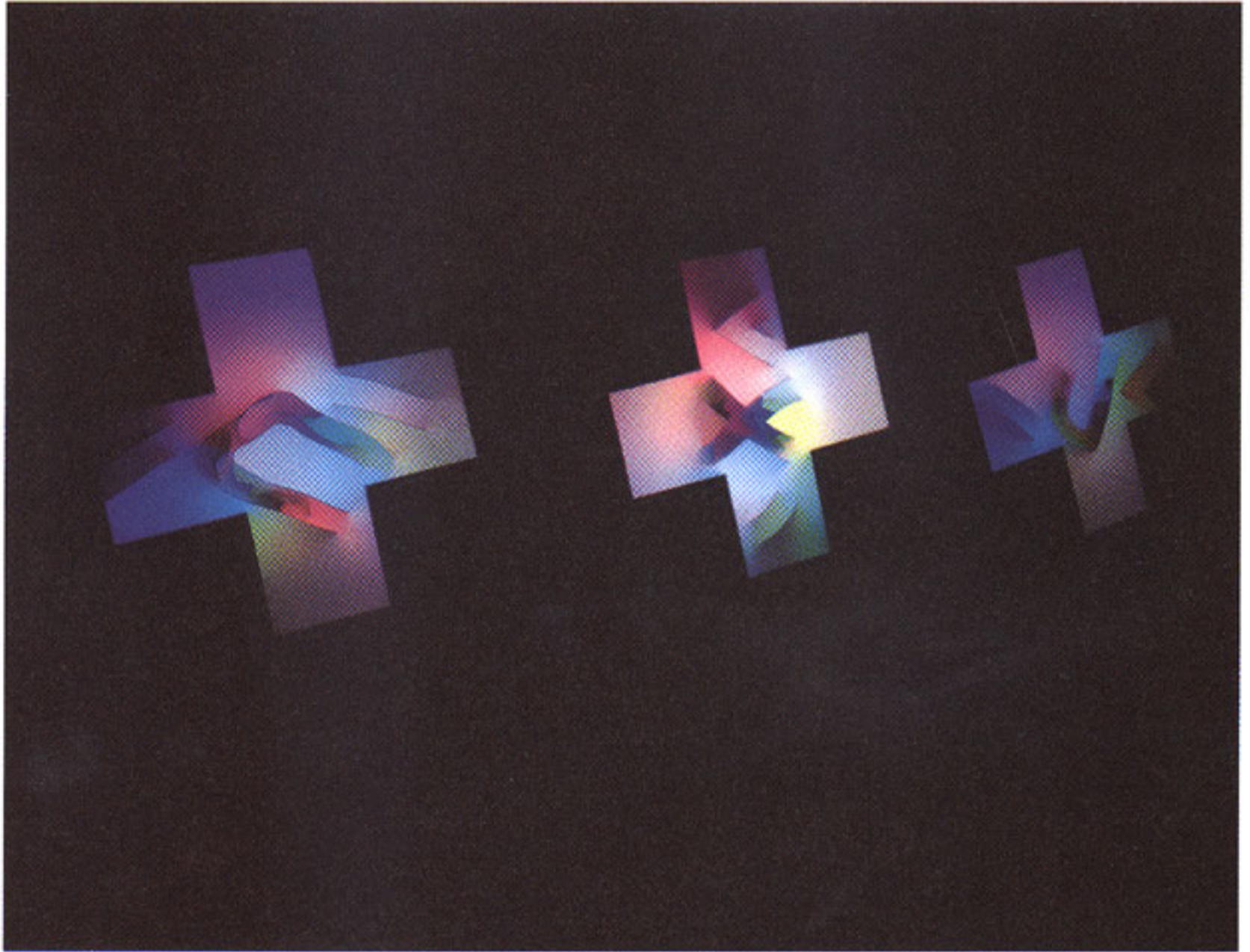
Brian Eno, Hanging Crosses,
1986.

INSTALLATIONS

WALTRAUT COOPER

Linz, Austria, 1937.
Lives in Linz.

1. Digital Poetry, 1986.
Interactive computer/neon
installation.
Property of the artist.
Music by Christoph Herndler.

BRIAN ENO

Woodbridge, UK, 1948.
Lives in London.

1. Work Constructed With
Sound and Light, 1986.
Sound and video light
installation, 8 pieces,
120×90×50 cm each.
Property of the artist.

PIERO FOGLIATI

Canelli, Italy, 1930.
Lives in Turin.

1. Kiosk of Apparitions
(Ambient for Light Events
Recreated by the Visitor
through Impulse
Procedures), 1985-86.
Optical/mechanical and
electrical technique,
dimensions of the ambient:
600×600×290 cm.
Property of the artist.

LILIANE LIJN

New York, 1939.
Lives in London.

1. Lady of the Wild Things,
1983.
Woman of War,
1986.
Interacting sculptures, painted
steel, aluminium, synthetic
fibres, glass, electronic
installations,
245×240×120 cm,
267×230×120 cm.
Property of the artist.
Sponsors: Aerotech GmbH,
Nuremberg; Crouzet Limited,
Farnborough, UK; Le Maitre
Lighting and Effects, Croydon,
UK; Sarner AudioVisual,
London; South Durham Fibres
Limited, St. Helens, UK.

MAURIZIO MOCHETTI

Rome, 1940.
Lives in Rome.

1. Bachem Natter 349 and
Mission n. 3,
1986.
Fiberglass, wood, steel, laser
36×64×100 cm.
Property of the artist.

DAVID ROKEBY

Tillsonburg, Ontario, Canada,
1960.
Lives in Toronto.

1. Very Nervous System,
1984-86.
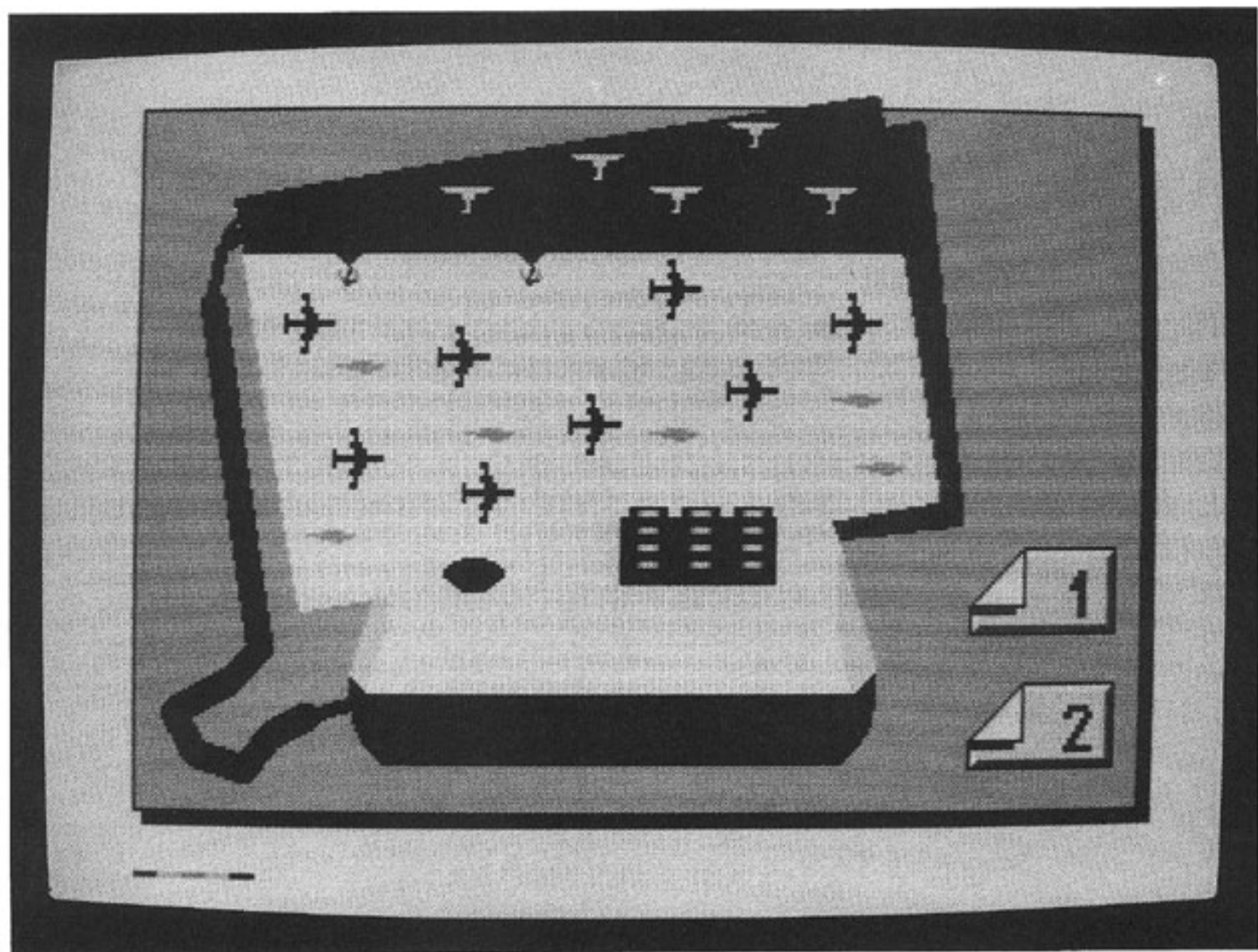*Interactive sound installation.*
Property of the artist.

BILL VIOLA

New York, 1951.
Lives in Long Beach,
California.

1. Room for St. John of the
Cross.
1983.
Video-sound installation.
Dimensions of the room:
262×386×915 cm.
Property of the artist.

*Piero Fogliati, Kiosk of
Apparitions, projection,
1985-86.*

Zelko Wiener, First Page of "Imaginator", 1986.

LABORATORY WORKSHOP

VIDEOTEX

Videotex art works selected by Red Burns (New York University):

JOHN ALLISON

New York.
Lives in New York.

1. The Electronical Postcard, 1985.
Property of the artist.

STEVE MORRIS

Bridgeport, Connecticut, USA, 1946.
Lives in New York.

2. It's Cooler in the Shade, 1986.
Property of the artist.

BILL NORTON

Osceola, Nebraska, USA, 1953.
Lives in New York.

3. Electronic Art, 1986.
Property of the artist.

JAMES PENDERGRAST

Douglas, Arizona, USA, 1944.
Lives in New York.

4. Cadillacs, 1982.
Property of the artist.
5. Boxes, 1982.
Property of the artist.
6. Halley's Comet, 1986.
Property of the artist.

BARBARA SANDERS

New York, 1955.
Lives in New York.

7. Time, It Was Exactly..., 1986.
Property of the artist.

TONNY WONG

Curaçao, Netherlands Antilles, 1962.
Lives in New York.

8. Asian Visions, 1986.
Property of the artist.

Videotex art works selected by Geoffrey Shea (United Media Art Studies, Toronto):

PIERRE ROVERE

Paris, 1953.
Lives in Montreal.

1. To, 1983-85.
Property of the artist.
2. Into, 1983-85.
Property of the artist.
3. Sea, 1983-85.
Property of the artist.

JOHN GURRIN

Gander, Newfoundland.
Lives in New York.

4. One Hour of Love, 1986.
Property of the artist.

GEOFFREY SHEA

London, Ontario, Canada, 1958.
Lives in Toronto.

5. Democracy at Work, 1985.
Property of the artist.
6. Taste, 1985.
Property of the artist.

ROBERT FLACK

Guelph, Ontario, Canada, 1957.
Lives in Toronto.

7. String, 1984.
Property of the artist.
8. Web, 1984.
Property of the artist.
9. Oh Baby, 1984.
Property of the artist.

AHAT MATRI

Haifa, Israel, 1952.
Lives in Toronto.

10. Mummies, 1985.
Property of the artist.

VALYA PAVLUK

Lives in Toronto.

11. Axis, 1984-85.
Property of the artist.
12. PCRO, 1984-85.
Property of the artist.
13. SQ8, 1984-85.
Property of the artist.
14. Square, 1984-85.
Property of the artist.

ANDREW OWENS

Holyhead, Great Britain, 1950.
Lives in Toronto.

15. South American Alert, 1985.
Property of the artist.
16. There She Is, Miss America, 1984.
Property of the artist.
17. Travelling on a Lightbeam, 1984.
Property of the artist.
18. What Is It about Today's Renaissance Woman that Makes Her so Attractive?, 1983.
Property of the artist.

ZELKO WIENER

Koviljaka, Yugoslavia, 1953.
Lives in Vienna.

1. Imaginator, 1986.
Videotex art work:
2 monitors, 2 computer mupid, 1 modem.
Varese, Italy, Loewe Opta Italiana s.r.l. - Vienna, Österreichisches Post und Telegraphen Verwaltung.

LASER DISK

JEAN-LOUIS BOISSIER

Loriol, France, 1945.
Lives in Paris.

1. Peking, for the Memory,
1985-86.
Interactive videodisk operated
through a Chinese table with
tactile surface.
Paris, University of Paris VIII.

LOUISE GUAY

Montreal, 1949.
Lives in Paris.

1. Tell Me an Image,
1984-86.
Interactive videodisk
installation.
Property of the artist.

LYNN HERSHMANN

Cleveland, Ohio, 1941.
Lives in S. Francisco.

1. Lorna (the First
Interactive Laser Video Art
Disk), *1984.*
Laser Disk.
Property of the artist.

COMPUTER IMAGING

ADRIANO ABBADO

Milan, 1958.
Lives in Milan.

1. Sound-Light Project:
Isomorphisms,
1986.
Computer generated
isomorphic images and sounds.
Cinisello Balsamo, Italy,
Commodore Italy.

OLIVIER AGID

Puteaux, Paris, 1951.
Lives in Paris.

1. Olivier Agid on Graph 9,
1986.
Electronic system, Graph 9,
X Com.
Property of the artist and of
the Centre National d'Art
Plastique (Paris).

MICHELE BÖHM

Venice, 1955.
Lives in Rome.

1. Masks, *1985.*
28 computer print-outs,
24×28 cm each.
Property of the artist.

2. Lacunar, *1986.*
Code for an image in real time.
Property of the artist.

MARCO TECCE

Rome, 1955.
Lives in Rome.

1. Aye-Aye Picnic Part II,
1986.
Computerized video.
Property of the artist.

2. Untitled,
1986.
10 colour photos from
computerized images,
24×30 cm each.
Property of the artist.

STUDIO CRUDELITY STOFFE
(Michele Böhm,
Marco Tecce)

1. Abolitionist Anthology,
1983-1984.
Code for an image (18 pieces
in real time).
Rome, Crudelity Stoffe studio.

2. Abol City, *1983* - Romeo
Juliet, *1984* - Love Proof,
1984.
Computerized videos.
Rome, Crudelity Stoffe studio.

ELDON GARNET

Toronto, 1946.
Lives in Toronto.

1. I Shot Mussolini, *1985-86.*
Excerpt from an electronic
novel, an image/text art work
for interactive computer
installation.
Property of the artist.

ROBERTO SEBASTIÁN MATTA

Santiago, Chile, 1911.
Lives in Paris.

1. Mattamorphoses, *1985.*
Electronic system, paint-box,
Quantel.
Paris, Centre National d'Art
Plastique, Centre Georges
Pompidou, Sodaperage.

ANNE MARIE PECHEUR

Nice, 1950.
Lives in Paris and Bordeaux.

1. Anne Marie Pecheur on
Graph 9 - Sequence 1,
Sequence 2, Sequence 3,
1986.
Electronic system, graph 9,
X Com.
Property of the artist and of
the Centre National d'Art
Plastique (Paris).

ANDREAS PFEIFFER

Graz, Austria, 1954.
Lives in Paris.

1. Andreas Pfeiffer on
Graph 9, *1986.*
Electronic system, Graph 9,
X Com.
Property of the artist and of
the Centre National d'Art
Plastique (Paris).

COMPUTER-BODY INTERACTION

RICHARD KRIESCHE

Vienna, 1940.
Lives in Graz, Austria.

1. A World Model, 1986.
Two interacting robots,
25×20×69.5 cm.
Property of the artist.

RICHARD LOWENBERG

Haifa, Israel, 1946.
Lives in Petaluma, California,
USA.

1. IR, 1986.
Infrared thermal video and
computer generated speech.
Property of the artist.

NETWORK

ROBERT ADRIAN

Toronto, 1935.
Transmission centre: Vienna.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

BRUCE BRELAND

Iona, Michigan, USA,
1924.
Transmission centre:
Pittsburgh, USA.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax; Macintosh P.C.
(Fairlight C.V.S.).

HANK BULL

Calgary, Canada, 1949.
Transmission centre:
Vancouver, Canada.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

AUGUST COPPOLA

Hartford, Connecticut,
1932.
Transmission centre:
San Francisco.

Media: Slow Scan TV;
Telefax; IP Sharp Text.

BEN DAVIS

Syracuse, N.Y., USA, 1947.
Transmission centre: Atlanta,
Georgia.

Media: I P Sharp Text, Slow
Scan TV (Robot 1200 C).

ERIC GIDNEY

Jarrow, U.K., 1946.
Transmission centre: Sidney.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax.

PAUL HAYWARD

Stroud, U.K., 1960.
Transmission centre: Chicago.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax; Macintosh P.C.
(Police Scanner).

TOM KLINKOWSTEIN

New York, 1950.
Transmission centre:
New York.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

PIERRE LOBSTEIN

Marrakech, Morocco, 1953.
Transmission centre: Paris.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

CARL LOEFFLER

Cleveland, Ohio, USA, 1946.
Transmission centre:
San Francisco.

Media: I P Sharp Text.

RAUL MARROQUIN

Transmission centre:
Amsterdam.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax.

MIDA GROUP

(Members of the Group:
Gualtiero Carraro, Roberto
Carraro, Alfio Domenghini,
Vincenzo Ferrari, Mauro
Maffezzoni, Enrico
Mangialardo, Giancarlo
Norese, Maurizio Pirola).
Transmission centre: Milan.

Media: IP Sharp Text; Telefax.

DANA MOSER

Winfield, Kansas, USA, 1956.
Transmission centre: Boston,
Mass.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

MIKE PUNT

London, 1946.

KYERAN LYONS

London, 1946.

Transmission centre:
Plymouth, U.K.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax.

SHERRIE RABINOWITZ

USA, 1950.

KIT GALLOWAY

USA, 1948.

Transmission centre: Santa
Monica, California.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

LISA SELLYEH

Hamilton, Ontario, Canada,
1956.

PEETER SEPP

Kurresare, Estonia, URSS,
1935.

Transmission centre: Toronto.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C);
Telefax; Amiga (Commodore
P.C.); Fairlight C.V.S.

JOHN SOUTHWORTH

Transmission centre:
Honolulu, Hawaii.

Media: I P Sharp Text;
Telefax.

PAUL THOMAS

Sutton on Sea, UK,
1950.
Transmission centre: Perth,
Australia.

Media: I P Sharp Text; Slow
Scan TV.

AGNES TREMBLAY

Alma, Quebec,
1948.
Transmission centre: Alma,
Quebec, Canada.

Media: I P Sharp Text; Slow
Scan TV (Robot 1200 C).

NORMAN T. WHITE

Texas, 1938.
Transmission centre: Toronto.

Media: I P Sharp Text.

TOFFE

Paris, 1955.

PHILIP GERBAUD

Paris, 1955.

Transmission centre: Nice.

Media: Telefax; IP Sharp
Text; Macintosh P.C.; Minitel.

CARO

Paris, 1955.
Transmission centre:
Rennes.

Media: Telefax; IP Sharp
Text; Macintosh P.C.; Minitel.

BERNARD TURNOIS
(coordinator)

Transmission centre:
Villeneuve des Avignons.

Media: Telefax; IP Sharp
Text; Macintosh P.C.; Minitel.

PLACIDE

Paris, 1961.

BRUNO RICHARD

Paris, 1955.

Transmission centre: Paris.

Media: Telefax; IP Sharp
Text; Macintosh P.C.;
Minitel; Slow Scan TV.

Technical-artistic coordination
of network transmission and
laboratory workshop under the
guidance of Jean René Bader
and Jacques-Elie Chabert.

For the inaugural week artistic
coordination of telefax
transmissions under the
guidance of Maria Grazia
Mattei, and the coordination
of the Slow Scan TV
Transmissions under the
guidance of Robert Adrian.