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Reversing the Circuits: Democracy and Interactive TV, by Conor O'Boyle

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Introduction

Over the last 20 years there has been a widespread acceptance that the international culture of the industrialised world has undergone a number of fundamental changes. The term postmodernism has frequently been applied in relation to this situation.. However there seems to be little clearcut definition of what postmodernism actually stands for. Is it simply a new form of modernism , a reaction against modernism , or both?

It could be argued that the term postmodernism is really just another word for confusion. Postmodernism involves the breaking down of barriers, and the destruction of clearcut definitions which once allowed people to know where they stood within their culture. The free mixing of once opposing styles by artists, designers, and architects, the breakdown of a sense of time and the feeling that we are trapped in a perpetual present, the blurring and sometimes total collapse of the once impenetrable divide between high art and mass culture, the widespread loss of faith in all political ideologies, and the worsening environmental crisis, all seem to point to a growing sense of confusion as we approach the end of the century and millennium.

In the midst of this confusion new technologies are emerging which hold the potential to cause changes in society that would previously have been unthinkable. The one advance more responsible than anything else for creating this potential is undoubtedly the rise of the computer. In relation to visual culture computer technology has completely transformed the nature of the work of those involved in mainstream design. In the mainstream fine art world this change does not yet seem to have taken place.

In most cases where artists and designers have begun to make use of computer technology, their use of these new means of production has made little difference to the types of work that have been produced. We are still only experiencing the early stages of the computers impact on culture in society. Interactive artist Stephen Wilson has described our present situation as "a cultural crossroads" where we could either enter a "dark age of increasing passivity and centralisation, and a decay into a faceless mass society" or experience "a great flowering of individual choice, expression, access to information, and communication." (Wilson, 1990, p. 255) Bill Nichols in his essay "the work of culture in the age of cybernetic systems" points out the dual potential of cybernetic systems towards "negative....control" and "positive....collectivity ". (Nichols, 1988, p.)

Undoubtedly from this point in time, as we look into the future we can see both utopian and dystopian visions of what that future might be. As we approach the end of the twentieth century it is essential that we explore the positive potential of technology for creating a more open and democratic culture in the twenty first century.

Throughout the twentieth century technology has played an enormous part in changing the accepted understanding of culture and the function it has played in society. Walter Benjamin's 1936 essay, *The Work of Art in the Age of Mechanical Reproduction,* explored many of the changes which technology had brought to bear. He begins by pointing out Marx's prediction for the future development of capitalism : "one could expect it not only to exploit the proletariat with increasing intensity, but ultimately to create conditions which would make it possible to abolish capitalism itself". (Benjamin, 1936, p. 27)

For Benjamin photography and film represent the most advanced examples of the revolutionary potential of mechanical reproduction in relation to culture. With photography the image cannot be viewed in a state of contemplation the meaning is much more immediate. Captions often have to be provided. With film the meaning of each frame is determined by the meaning of all previous frames. (Benjamin,1936, p. 34) The presence of the stage actor disappears with the actor in film, the performance cannot be adjusted to suit the particular audience on a given night, instead the actor must perform to the camera. The cinema audience identifies with the camera and takes on the role of critic. (Benjamin, 1936, p. 36)

For Benjamin film has the potential to provide a much more precise analysis of reality than any previous artform. The camera techniques of close up and slow motion provide an insight into reality which would previously have been unimaginable. (Benjamin, 1936, p. 42-43) The constantly moving image of film prevents contemplation and causes what Benjamin describes as "the shock effect of film". (Benjamin, 1936, p. 44) A fusion of the aims of the expert and the enjoyment of the public also takes place. In Benjamins view this fusion is of great political importance:

> the greater the decrease in the social significance of an art form the sharper the distinction between criticism and enjoyment by the public. The conventional is uncritically enjoyed, and the truly new is criticised with aversion.With regard to the screen , the critical and receptive attitudes of the public coincide. (Benjamin, 1936, p. 40-41)

This public enjoyment of progressive ideas, the collective simultaneous experience of film by the audience, the ability of film to provide a powerful insight into the nature of reality, and the placing of the audience into the position of critic results in what Benjamin sees as a revolutionary potential for film.

Bill Nichols in his essay *The Work of Culture in the Age of Cybernetic Systems* follows on from the thinking of Benjamin, but writes from the vantage point of the late twentieth century. He argues that the progressive potential noted by Benjamin in the art created in the process of mechanical reproduction has been put in check by the dominant ideology which created this process in the first place. However, the devel-

opment of new technologies which hold the potential as a liberating force within the dominant culture continues. This process continues in the form of "electronic dissemination and computation" rather than mechanical reproduction. (Nichols, 1988, p. 26) Nichols classes these new technologies under the general heading of "cybernetic systems" which he defines as machines with a limited element of intelligence and a "capacity to process information and execute actions". (Nichols, 1988, p. 22) These systems tend to deeply involve the user in a process of interaction.(Nichols, 1988, p.28)

Cybernetic systems in Nichols view have the effect of diminishing the importance of reality. (Nichols, 1988, p. 30) The user is engaged in a new reality, the reality of the computer interface. "Cybernetic systems give form, external expression to processes of mind such that the very ground of social cohesion and consciousness becomes mediated through a computational apparatus. Cybernetic interaction achieves with an other the simulation of the social process itself". (Nichols, 1988, p. 31) The question is, who controls these simulations?. Nichols notes that much of the attraction of cybernetic systems is the sense of being in control they provide for the user (Nichols, 1988, p. 31). However despite the feeling of control which the user experiences, his or her choices and decisions must always take place within the limitations of the pre-programmed system. As a result the user has little or no say as to the overall function and ideology of the system. (Nichols, 1988, p. 32) This lack of control over the ultimate purpose of cybernetic systems amounts to what Nichols pessimistically describes as "the power of post - industrial capitalism to simulate and replace the world around us, rendering not only the exterior realm but also the interior ones of consciousness, intelligence, thought and intersubjectivity as commodity experience". (Nichols, 1988, p. 33)

For Nichols it is in the arena of the law courts that many of the most telling battles have been fought over the future control of cybernetic systems: "re - conceptualisations of copyright and patent law brought on by computer chip design, computer software and biogenetic engineering, give evidence to the process by which a dominant ideology seeks to preserve itself in the face of historical change". (Nichols, 1988, p. 38) He gives examples of the 1980 Software Act which was designed to overcome the fact that copyright and patent law were inadequate for protecting the mathematical algorithms of computer programmes, (Nichols, 1988, p. 40) and the case of Atari v North American Phillips in which North American Phillips' "KC Munchkin" was found to have infringed on Ataris "Pac-Man". (Nichols, 1988, p. 42)

The judgement stated "A person who is entranced by the play of the game,'would be disposed to overlook' many of the minor differences in detail and regard their aesthetic appeal as the same". The court places emphasis on the process of interaction rather than the visual appearance of the game. (Nichols, 1988, p. 43) For Nichols this

is an example of how the legal system can re-adjust itself in relation to the problem of new technologies which threaten the status quo. "On the whole the decisions have funnelled that control back to a discreet proprietor, making what is potentially disruptive once again consonant with the social formation it threatens to disrupt". (Nichols, 1988, p. 43)

Nichols argues that rather than "seeing ourselves as cogs in a machine or elements in a vast simulation" ,if we are to benefit from the true liberating potential of new technology, we must find ways of understanding and redefining the rules and values that govern the cybernetic system. This might then facilitate a decentring of control, the development of a collective consciousness and an overturning of hierarchy. (Nichols, 1988, p. 45-46)

Gene Youngblood has written with much optimism concerning the positive potential of new technologies for disrupting an unsatisfactory status quo. His 1989 essay, *The New Renaissance : Art, Science, and the Universal Machine*, explores the potential of new technologies for overturning the hierarchical structures within our culture. For Youngblood the computer represents the opportunity to provide an unprecedented level of freedom of expression and communication. It is essential for the future survival of civilisation, in Youngbloods view , that this potential is explored. (Youngblood, 1989, p. 9-10) He argues that this potential manifests itself firstly in its ability to break down the distinction between profesionals and amateurs. He defines the professional as being "committed to profit or to institutional power (or both)" whereas the amateur works out of a love for the process and a need to communicate. Therefore, the work of the amateur is of more value than the work of the professional. The availability of increasingly higher quality technology at increasingly lower prices in Youngbloods view would lead to an erosion of the difference between professional and amateur and ultimately a breakdown in the relationship between producer and consumer. (Youngblood, 1989, p. 10-11)

The question of control of the meaning, context, and the overall ideology of the simulated environment of the computer interface, does not seem as much of a problem for Youngblood as it does for Bill Nichols. He states :"The fear of ' losing touch with reality ' of living in an artificial domain that is somehow ' unnatural ' is for us simply not an issue, and we have long since elected to live accordingly. What matters is the technical ability to generate simulations and the political power to control the context of their presentation". (Youngblood, 1989, p. 15) This power and control would presumably come from Youngbloods definition of interactivity, not the more popular definition which consists of : "a menu of multiple choices in a branching structure", but, instead, " something less controlled by the author, where the environment changes as a result of the users interactions with it ". (Youngblood, 1989, p. 18)

Ultimately in Youngbloods view, the most revolutionary aspect of computer tech-

nology is its ability to perform as a communications device : "computer networking has become synonymous with the communications revolution that is gradually decentralising our hierarchical mass culture into a republic of highly specialised autonomous networks (a heterarchy)". (Youngblood, 1989, p. 18) Youngblood imagines a future in which society will fragment into different political and cultural groups known as "reality communities". These communities will come together over telecommunications networks and will be defined "not by geography but by consciousness ideology and desire". The merging of digital video technology with computers will ultimately in his view allow the formation of a two way mass media network with the result that the "postindustrial concept of networking will gradually replace the industrial concept of distribution". However he also admits : "the phone system can't yet handle real time video, that is, cinema. That waits for fibre optics".Fiber optic cables which transmit information in the form of light pulses, have an information carrying capacity, or bandwidth which is several billion times greater than that of ordinary copper telephone cables. This ability to transmit vast amounts of information at high speed is in Youngbloods view "profoundly political because it means that the bandwidth going into the home would finally be equalled by the bandwidth coming out of the home". (Youngblood, 1989, p. 19)

The development of autonomous electronic communities linked through telecommunications networks with the ability to "produce models of possible realities (art) and also to control the cultural contexts in which these models are published and perceived (politics)," is in Youngbloods view essential if our civilisation is to survive the current atmosphere of global chaos and confusion that exists at the end of the twentieth century (Youngblood, 1989, p. 20).

What do most people experience as contemporary culture? I do not believe the answer is gallery art, theatre, classical or experimental music, etc. While these activities undoubtedly form an important part of our culture, the majority of people in the industrialised world are rarely exposed to them. For most people contemporary culture is the mass media. in the form of television, radio, newspapers, etc. Through these media information about current affairs, fashion trends, the arts, racial, cultural, and gender identity, and the whole system of values in society is disseminated. The media plays a large part in shaping our consciousness and view of reality, not just in news and arts programmes but also in the subliminal codes and accepted ideas that underlie drama/action series, and perhaps most blatantly, but also most effectively in the nonstop bombardment of advertising.

If one accepts that the mass media constitute what most people experience of contemporary culture, it seems quite amazing that we can only receive but not transmit information within this culture. In a society which prides itself on democracy, where freedom of expression is supposed to be of paramount importance, the most potent form of expression is denied to the vast majority of people. In short, our society is dominated by a mass media network which talks to us, but prevents us from talking to each other. It would seem far more interesting and desirable if a two way, or collective system of communications could be established, instead of the one way system which currently exists.

For some, the undemocratic nature of the mass media is symptomatic of the wider lack of democracy which exists in society. Theodor Adorno in his 1944 essay "The Culture Industry : Enlightenment as mass deception" launched a devastating attack on the emerging popular culture of the industrialised world. In Adorno's view the idea that modern society has reached a state of cultural chaos is false. Instead the new culture of popular music, films, radio, and magazines has imposed a new level of regimentation on society. Everyone from politicians to the stars of popular culture has become part of the same " iron system ". (Adorno, 1944, p. 120) This system is closely bound to the powerful forces of industry which impose strict control on its output. (Adorno, 1944, p. 122) Consumers are divided into statistical groups according to their income and status in society and then bombarded with a "hierarchical range of mass produced goods of varying quality". Each individual is expected to "behave (as if spontaneously) in accordance with his previously determined and indexed level, and choose the category of mass product turned out for his type". (Adorno, 1944, p. 123)

The " aesthetic barbarity " of popular culture reduces cultural output to a common denominator and places culture into a world of total administration where the only thing that matters is "obedience to the social hierarchy". (Adorno, 1944, p. 131) For Adorno, the labour process itself is reflected in the output of the culture industry, with the result that the public continues to experience the oppression of the work-

place "from the time they leave the factory to the time they clock in again the next morning" (Adorno, 1944, p. 131)

Herbert Marcuse in his book "One Dimensional Man", written twenty years after Adorno's condemnation of popular culture, describes a society which has satisfied basic needs such as food, clothing, shelter, and warmth, (Marcuse, 1964, p. 1) and created the potential for a new level of freedom where : "the individual would be free to exert autonomy over a life that would be his own". (Marcuse, 1964, p. 2) This potential calls for a widening of traditional definitions of freedom :

> "economic freedom would mean freedom from economy - from being controlled by economic forces and relationships; freedom from the daily struggle for existence, from earning a living. Political freedom would mean liberation of the individuals from politics over which they have no effective control. Similarly intellectual freedom would mean restoration of individual thought now absorbed by mass communication and indoctrination, abolition of 'public opinion' together with its makers". (Marcuse, 1964, p. 4)

Marcuse argues that the realisation of this potential freedom has been held in check by the superimposition of a whole series of false needs on the individual by the vested interests and economic forces which originally served basic human survival :

> "social controls exact the overwhelming need for the production and consumption of waste ; the need for stupefying work where it is no longer a real necessity ; the needs for modes of relaxation which soothe and prolong this stupefication ; the need for maintaining such deceptive liberties as free competition at administered prices, a free press which censors itself, free choice between brands and gadgets". (Marcuse, 1964, p. 7)

The superimposition of false needs leads in Marcuse's view to a perpetuation of " toil, aggressiveness, misery and injustice", it prevents individual autonomy, and ultimately leads to a state of "euphoria in unhappiness". (Marcuse, 1964, p. 5) The possibility of liberation is further hampered by the fact that the individual actively identifies with this state of submission : "The people recognise themselves in their commodities ; they find their soul in their automobile, hi-fi set, split level home, kitchen equipment. The very mechanism which ties the individual to his society has changed, and social control is anchored in the new needs which it has produced". (Marcuse, 1964, p. 9) This identification occurs to such an extent that it leads to a change in the thought

process of society. Mass conciousness becomes confined within the strictly defined limits of the system. For example such things as freedom of enterprise might be defined under the terms of "freedom" in the west, but other forms of freedom which oppose the system would be seen as "anarchism" or "communism" etc . Strict limitations are placed on the progress of ideas, ideas that clash with the system are repelled. This is what Marcuse refers to as "one dimensional thought". (Marcuse, 1964, p. 14)

Marcuse defines the "pacification of existence" as the creation of "conditions where the competing needs and aspirations are no longer organised by vested interests in domination and scarcity". (Marcuse, 1964, p. 16) However in his view the population has been firmly manipulated against this possibility by the creation of false needs and the rigid control of information and thought. Marcuse pessimistically adds : "the more technology appears capable of creating the conditions for pacification, the more are the minds and bodies of man organised against this alternative". (Marcuse, 1964, p. 17)

Guy Debord in his 1967 book "Society of the Spectacle" adopts a similar approach to advanced industrial society as that taken by Marcuse. In Debord's view all of lived reality has been reduced to a spectacle. (Debord, 1967, Paragraph 1) This spectacle is made up of the commodities which are produced as a result of the economic forces of alienated production and consumption. As the spectacle grows in power it becomes the only reality : "It is the diplomatic representation of hierarchic society to itself, where all other expression is banned". (Debord, 1967, Paragraph 23) The spectacle breaks down any sense of community or collectivity and encourages isolation : "from the automobile to television all the goods selected by the spectacular system are also its weapons for a constant reinforcement of the conditions of isolation of ' lonely crowds ' ". (Debord, 1967, Paragraph 28)

Like Marcuse, Debord agrees that industrial society has managed to provide for the most basic of human needs but at the same time has replaced these needs with new needs : "economic growth frees societies from the natural pressure which required their struggle for survival, but at that point it is from their liberator that they are not liberated". Instead the population becomes part of a new "pseudo nature" where they must engage in "increased survival" (Debord, 1967, Paragraph 40). The consumer leads a life devoted to the satisfaction of administered needs in the society of the spectacle which they have helped to create during working hours and which they help to sustain during leisure time with the result that : "the more he accepts recognising himself in the dominant images of need, the less he understands his own existence and his own desires. The externality of the spectacle in relation to the active man appears in the fact that his own gestures are no longer his but those of another who represents them to him". (Debord, 1967, Paragraph 30)

Such views as those expressed by Adorno, Marcuse, and Debord paint a depressing picture of a society run by an outmoded economic system which no longer has any real function but to maintain its own power, and prevent any possibility of change. Is it then foolish to talk of a new and more democratic structure for the mass media? Perhaps it is not possible to democratise and reverse the one way structure of the mass media without first changing the entire structure of society. However, as we approach the end of the twentieth century the mass media is on the brink of changing, possibly beyond all recognition. So perhaps a more appropriate question would be not, should the mass media be changed ? But instead , when this change occurs, what form will it take ? Will it lead to a democratisation of culture, or will it simply lead to the development of a new form of the status quo ?

The desire for an alternative mass media network is by no means new. In 1932 Bertolt Brecht wrote of the radio as: "one sided when it should be two. It is purely an apparatus of distribution, for mere sharing out". His suggestion was to: "change this apparatus over from distribution to communication...On this principle the radio should step out of the supply business, and organise its listeners as suppliers". (Brecht, 1932, p.) Brecht also pointed out how "public institutions" had lost touch with the interests and thinking of the people. This situation could be rectified if the radio audience could be turned from "pupils into teachers". (Brecht, 1932, p.) Brecht also noted, however, that while the radio had not yet reached its true potential "its proper application makes it so ' revolutionary ' that the present day state has no interest in sponsoring such exercises". (Brecht, 1932, p.) Brecht's observations of the inadequecies of the radio network were to prove even more relevant with the advent of television.

In the nineteen seventies Hans Magnus Enzensberger in his essay "Constituents Of A Theory Of The Media" suggested that there was much untapped revolutionary potential in existing media networks, (Enzensberger, 1974, p. 97) and that the technology of the mass media could easily be changed from a system of distribution to one of communication. In his view this change had been prevented for obvious political reasons, because the division between transmitters and receivers was a reflection of the social division of labour between producers and consumers and ultimately based on the gap between "ruling class" on one side and "ruled class" on the other. (Enzensberger, 1974, p. 98)

He criticized George Orwell's vision of a totalitarian future dominated by a two way transmission and surveillance system as an outdated concept. : "blanket supervision would demand a monitoring that was bigger than the system itself. The monitoring of all telephone conversations, for instance, postulates an apparatus which would need to be n times more extensive and more complicated than that of the present telephone system. A censors office that carried its work extensively would of necessity become the largest branch of industry in its society". The present system was far

more satisfactory in controlling the flow of information and ideas, by excluding the masses from the means of production. (Enzensberger, 1974, p. 99)

Enzensberger criticised the New Left for failing to understand the significance of the electronic media, using examples such as the 1968 student uprising in Paris, in which the Odeon Theatre was occupied instead of the national radio station, information was spread using archaic forms of production such as hand presses, painted slogans, etc, and also the beginning of the free speech movement in Berkeley where the computer was a popular focus for aggression. (Enzensberger, 1974, p. 102) In his view politically active groups will have no chance of success if they use old forms of information distribution in a society which is dominated by the mass media. (Enzensberger, 1974, p. 103) He argues that a better approach would be to create a process of "democratic manipulation". By manipulation he means the technical treatment of information. When this treatment occurs in the mass media it is inevitably a political act. (Enzensberger, 1974, p. 103) He calls for the establishment of "networklike communications models built on the principle of reversibility of circuits.....a mass newspaper, written and distributed by its readers, a video network of politically active groups". (Enzensberger, 1974, p. 108) This would, "make everyone a manipulator" and release the true potential of the mass media. (Enzensberger, 1974, p. 104)

Jean Baudrillard in his essay "Requiem for the media", agrees with Enzensberger's analysis of the contemporary mass media as an oppressive one way system, but opposes his view that the media has not yet reached its true potential. In Baudrillard's view, the entire structure of the media is so closely integrated with the political and economic structure of mainstream society that any attempt to introduce radical content or to create an alternative network, cannot succeed. He points out the media's capacity to absorb and pacify all forms of subversion, also citing the events of Paris 1968. The media at the time were accused by the authorities of "playing the revolutionary game" by spreading the news of the uprising across France, but ultimately in Baudrillard's view they defused the situation. By projecting the message of the uprising into the separate sphere of public opinion they unnaturally accelerated its progress and in the process stripped it of its true meaning. So instead of providing strength, the results of media intervention were "tantamount to dismantling the movement by depriving it of its own momentum". (Baudrillard, 1981, p.131-132)

For Baudrillard, attempts at subverting the media such as those suggested by Enzensberger are doomed to fail because they rely on the dominant communications theory which separates the categories of transmitter and receiver. The message, or "code" is controlled by the transmitter, and must be accepted unaltered by the reciever . Even if each receiver has also the chance to transmit, a form of communication still remains in which "one speaks and the other doesn't, where one has the choice of code, and the other only the liberty to acquiesce or abstain". (Baudrillard, 1981, p. 136) This

theory is in Baudrillard's view the communications equivalent of the dominant economic system where people no longer exchange, instead the system of exchange reproduces itself through the separated categories of producer and consumer (Baudrillard, 1981, p. 136-137). Baudrillard argues that any attempts to introduce subversive content into the media, or to develop alternative networks which uphold the dominant communications theory, only succeed in strengthening the system which separates transmitters and receivers, and therefore cannot lead to any fundamental change. (Baudrillard, 1981, p. 140)

Analyses such as those carried out by Brecht, Enzensberger, and Baudrillard highlight the unsatisfactory state of the media as it exists now. However, with the advent of sophisticated technology at increasingly low prices, suggestions such as those advocated by Brecht and Enzensberger for a restructuring of the mass media are becoming increasing possible to attempt. It remains to be seen whether such attempts would lead to a democratisation of the mass media, or whether despite such possibilities the inherent properties of the mass media would prevent any real change from taking place.

1. TV,TV interview broadcast television news correspondent Douglas Kiker in, *Four More Years, 1972*

In 1965 The Sony Corporation introduced the first consumer grade video equipment into the United States. The late sixties was a time when the establishment was being challenged by numerous protest movements such as civil rights, feminism and anti war protests. The artists role as social activist was being seen as increasingly important. (Boyle, p. 51) For a new generation of artists the advent of consumer video was seen as a powerful opportunity for creating grassroots documentary video which challenged the authority of the mainstream mass media. (Boyle, p. 52)

Central to the development of the underground video scene at this stage were the collectives, such as videofreex, TV TV, Global Village and Raindance Corporation. These collectives were formed in order to share information, ideas, equipment and resources. Videofreex documented different aspects of the counterculture such as anti war protests, the activities of the Black Panthers, life in the communes and the trial of the Chicago 9. The Raindance Corporation documented the progress of the underground video movement and built up a bank of "Street-tapes" which they combined with images from the mass media to produce what they called "Media Primers". These were video sequences which formed commentaries on the contrasts and power structures that existed in society. (Sturken, 1988, p. 113-114)

The term "Guerilla Television" was coined in the early 1970's to describe the new wave of alternative video news reportage which began to appear as an above ground phenomenon at the time. Paul Ryan, a member of the Raindance Corporation, described guerilla television as: "The application of guerilla techniques in the realm of process. Guerilla television is grassroots television. It works with the people not from above them. On a simple level this is no more than 'Do it yourself TV'. But the context for that notion is that survival in an information environment demands information tools." (Sturken, 1988, p. 108)

Perhaps the best known of this work was that of "Top Value Television" (TVTV). Their documentary "Four More Years" (1972) provided the viewer with a fresh insight into the many different aspects of the Republican National Convention. With their portable equipment they explored the world of Young Republican rallies, anti-war demonstrations and the chaotic atmosphere of the convention floor, providing the viewer with images of events from "within the crowd" which challenged the more conventional approach of mainstream broadcast television with its "above the crowd" style of reporting. (Boyle, p. 56-57) As the quality of consumer video technology improved, there were increased opportunities for the work of guerilla television groups to be shown on national public television. As the 70's continued, the original revolutionary aims of geurilla television were displaced by a desire to improve broadcast television by example. (Boyle, p. 58)

By the end of the 1970's many of the most distinctive features of guerilla televi-

sion had been absorbed into the mainstream mass media. As news crews began to use video rather than film, the influence of guerilla television became more apparent. Often, the results of this influence had little to do with the original intentions of these groups, for example the tendency of independent video groups to interview ordinary people rather than celebrities formed the basis for shows like "That's Incredible!" and "Real People". By the end of the decade many of those involved in alternative documentary video had found work in commercial television. A process of recuperation had taken place. (Boyle, p. 59)

In Marita Sturken's view the failure of the collectives to overturn the monopoly and control of broadcast television resulted from from the fact that, despite being perceived as anti establishment, groups like the Raindance Corporation started out as profit making organisations and also tended to be hierarchical and male dominated. Also despite their anti television image many of these groups were from the beginning trying to have their work aired and broadcast on TV. She also points out that these groups had little success in confronting the entertainment side of mainstream television. (Sturken, 1988, p. 107)

The seventies was also a time of fragmentation, in that a sharp division arose between those who were interested in video as a social tool and those who wanted to explore video as a new art form. The influence of funding institutions which tended to support art based video rather than socially concerned video works became increasingly important. This in turn led to an increased emphasis on production values. (Sturken, 1988, p. 112) Dee D ee Halleck has pointed out how the competition for grants led to an increasing amount of self censorship. At the grant application stage the choice of style and subject is often carefully tailormade into what is perceived as acceptable. The influence of funding organisations over the subject matter of independent video combined with the increased emphasis on costly production values has to a certain degree taken independent video away from its original status as a low cost democratic medium. (Halleck, 1988, p. 264)

By the nineteen eighties there was an increasing tendency among younger artists to embrace the advanced special effects technology of commercial television and an increasing abandonment of the low tech approach of earlier video art. This new breed of artists tended to view conventional video art as elitist. (Barry, p. 251) They were more interested in broadcasting on commercial television and saw themselves as populist in the sense of their attempts to "recontextualise a dominant media form". (Barry, p. 250) Their new approach was described by some as "television art" and was often criticised for being indistinguishable from other commercial programming and for lacking any clearly defined strategies of opposition. Judith Barry in her essay "This is Not a Paradox" describes this situation. In her view the chaotic output of MTV provides one of the ultimate examples of this phenomenon

which she bleakly describes as "the triumph of advertising over art as the art programming is indistinguishable from the ads (and often not as interesting)". (Barry, p. 255)

Perhaps the most democratic form of television to have come into existence so far is that of public access, which was developed in the U.S. in 1972 after the Federal Communications Commission ordered American cable companies to provide the local community with free air time and low cost facilities for production. (Davitian, 1985, p. 4) Dee Dee Halleck has suggested that large cable corporations resent the existence of the public access system which uses up potential profit-making channel space. The result of this in Hallecks view is that large sections of the U.S. media which are owned by the cable companies are unlikely to provide public access with a favourable image, and frequently attack it for providing a platform for those who wish to offend against widely held moral views. Halleck gives the example of "Ugly George's Manhattan Series" in which women are lured into the studio and encouraged to undress in front of the cameras as a programme which is frequently used as proof by those who wish to discredit the content of public access. (Halleck, 1988, p. 261)

Halleck also mentions the difficult problem of extreme right wing groups gaining access to airwaves through the public access system. The programme "Race and Reason " with its mixture of racism, homophobia and anti-semitism is broadcast on over a hundred public access channels across America every week. In Halleck's view racist programming has frequently been reported on by the mainstream media while more positive community programming has been ignored, with the result that the impression given is that this type of programming dominates the public access channels. At the same time she argues that "racist programmes have galvanised resistance to racism in many communities" citing examples of antibias groups that have been formed in numerous communities to counter the views expressed in such programmes. The problems or right-wing extremism did not begin with public access but in Halleck's view public access has served to bring such issues out into the open and this can only be healthy. (Halleck, 1988, p. 262)

Whether or not she is correct, the fact is that with the advent of a truly interactive two-way television system the problem of dangerous and extremist views getting on to the airwaves would no doubt be greatly intensified. Perhaps one's stance on such an issue should depend on whether television is seen as a public announcement and entertainment system which reflects mainstream opinions which is more or less the way television is seen at the moment. In such a case the expression of such views would obviously be unacceptable. On the other hand, if television is seen as an electronic public space, then perhaps the expression of all views no matter how offensive should be permitted. Whatever the case, the likeli-

hood of dangerous views being expressed should not in my opinion be used as an argument against the establishment of an interactive two way television system. If necessary, views that would be considered dangerous or harmful to other people could come under the jurisdiction of incitement to hatred laws, just as the expression of such views in any other public space would be dealt with in a similar manner.

Public access television has made it possible for anyone to have access to the equipment necessary to broadcast their ideas locally. The setting up of the "Deep Dish TV" network in 1987, also made it possible for the first time to distribute independent video to local public access channels throughout America, with the use of satellite technology. (Halleck, 1987, p. 41) This was designed to be the first national alternative video network. However the success of those involved in this type of television has been limited by frequently inadequate budgets and a shortage of space on public access channels. (Barry, p. 256-257)

It has also been pointed out that most forms of video art and public access television lack any real level of interactivity. (Sargent-Wooster, p. 284) Despite their often subversive approach these media remain as one-way forms of electronic expression. The separated categories of transmitter and receiver still exist. Perhaps this is why, as Baudrillard predicted, these new forms of electronic expression have had little effect on the output of mainstream mass media.

Having said this, the advent of independent video and public access television provides a good example of the potential for newly available cheap technology to empower individuals and to break down the division between professionals and amateurs. The failure of this technology to overturn the status quo merely indicates the fact that control of equipment is not enough. If one wishes to change the mass media new structures and definitions of what it means to be part of an electronic network are needed.

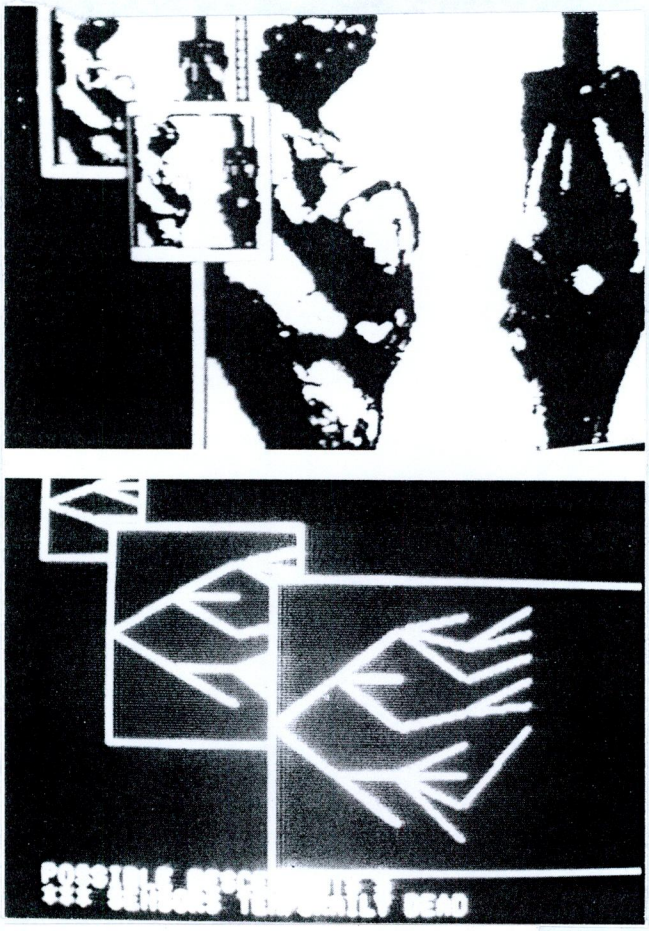
The use of the computer as a communications device has allowed new types of networks to come into existence. The largest of these is undoubtedly the Internet, a network made up of many networks, which evolved out of research attempts carried out by the Rand Corporation in the early sixties to develop a communications system which would be able to continue to operate in the aftermath of a nuclear war. The Internet was never designed to challenge the power of the mass media, but since it allows millions of users to interact with each other on an almost unlimited range of topics, for many people this is precisely what it has come to represent. The Internet is not controlled or owned by any organisation. The system is largely funded through government subsidies and arrangements between universities, corporations, and laboratories. (Elmer-Dewitt, 1993, p. 60) There are also numerous public access services which allow users with a modem to connect with

the Internet from home for a monthly fee. (Rheingold, 1993, 39) Users can participate in discussions on subjects ranging on everything from genetic engineering to sado masochism. Censorship is interpreted by users as damaging to the system and so far attempts at introducing censorship into the network have proved unenforcable. (Elmer-Dewitt, 1993, p.62)

Howard Rheingold has described how normal social distinctions become meaningless on computer networks, because one's status in society is invisible to all other users. (Rheingold, 1989, p. 33) In Rheingold's view even with advanced technology which will one day allow the widespread use of video images and sound on computer networks, the use of computer animation and sound synthethising technology could still have the effect of hiding social distinction. (Rheingold, 1989, p.43) Rheingold suggests that this system could ultimately evolve into "a living room wall that can simulate anything you want to see, connect you with any person or group of people you want to communicate with, tell you almost anything you want to know, and even figure out what you want to know ". (Rheingold, 1989, p. 24)

However the gradual phasing out of U.S. Government subsidies combined with the deregulation of commercial activity on the Internet, has led to fears that the network will eventually be taken over by commercial interests. (Elmer-Dewitt, 1993, p. 62) While this might make the system more easy to use, access to it could easily become more expensive with the result that linkage to such a system could become a priviledge rather than a right. (Rheingold, 1989, p. 29) Ann-Sargent Wooster has pointed out how the government has abandoned the information business and placed it in the hands of the private sector. She criticises Gene Youngblood's vision of a utopian future of widespread access to free-flowing information : "The reality is different. In our society power lies in the hands of those who control information, and since the government went out of the information business, information is an expensive controlled substance". (Sargent-Wooster, p. 289-290)

The growth of computer networks in recent years has been accompanied by the development of increasingly sophisticated telecommunications technology. Since the late seventies an increasing number of artists have begun to create work which is designed to raise public awareness about the potential of this technology. Among the telecommunications events which have taken place in recent years are " Satellite Arts Project "(1977) in which dance performances 3000 miles apart were linked by satellite and combined into composite video images. The idea behind this project was to explore the potential of satellite technology for allowing people to interact with each other within the virtual space of the television screen, a "space with no geographical boundaries", (Durland, 1987, p.54) "Pacific Rim Identity"(1979) was an artist's and critic's conference involving the transmission of slow scan video images



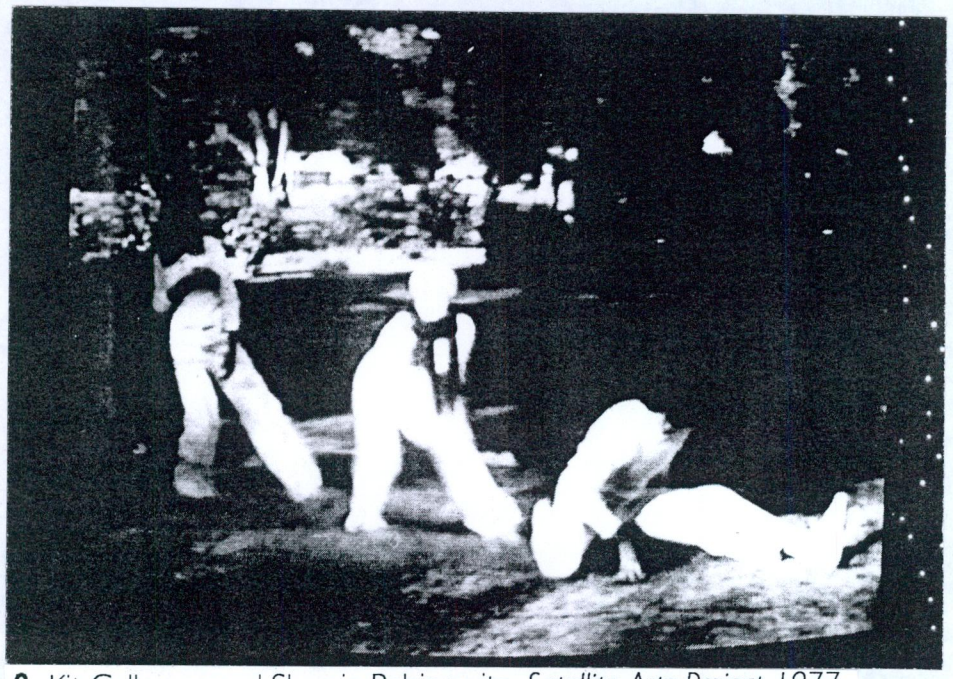
2. Stephen Wilson, *Parade of Shame*

between numerous areas such as, Vancouver, Seattle, Los Angeles, San Francisco, Australia, Hawaii, Fijii, etc.. " LexsSor "(1981) was an event in which any page out of 9500 artists books could be dialled up and displayed in colour. This combined the permanent nature of books with the transitional nature of telecommunications. "Telephone Music"(1983) was an event in which artists on either side of the "iron curtain" created music and were linked by telephone. This project explored the potential of telecommunications to bypass national boundaries and political barriers. (Loeffler and Ascott, 1991, p. 236-237)

Stephen Wilson is an artist who has frequently worked with interactive and communications technologies and has also written a great deal on the subject. He sees it of great importance that artists address the cultural changes which telecommunications and computer technology have brought about.These include the bringing together of numerous cultures previously separated, the erosion of cultural diversity brought about by communications technology, the anonymous nature of electronic communications with the "rendering invisible of gender, age, race, and physical appearance", and the possible threat to privacy posed by technology, . (Wilson, 1991, p. 175-176)

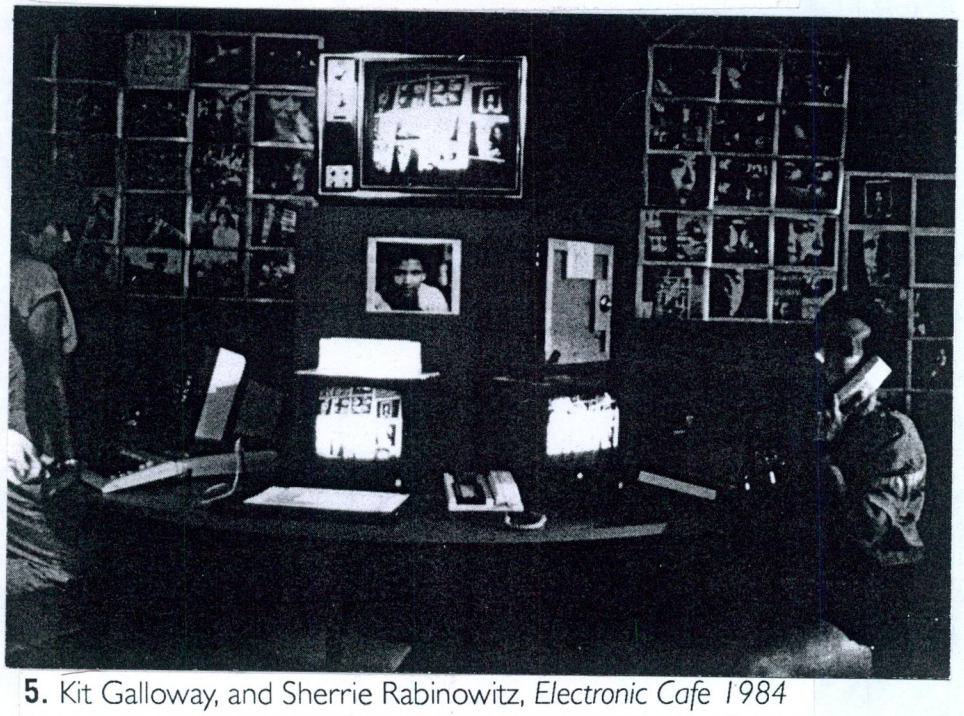
In 1985 Wilson created an interesting and early experiment in interactive television which he called " Parade Of Shame ". For this he used videotext technology modified with an Apple II computer. Parade of Shame took the form of a game which viewers throughout the San Francisco area could interact with, using their telephones to control events on their television screens. The game had an environmental theme. Viewers were able to make decisions about the growth of imaginary environments. Wrong decisions would lead to the viewer being cut off. Viewers were also asked to indicate on maps what areas of the city they came from, and in what areas of the city had various things of special significance happened to them. In this way Wilson hoped to inform the viewers about each other and the environment in which they were living, and to encourage them to interact, rather than take on a passive role towards technology. (Wilson, 1990, p. 257-258)

More recently in 1992 Wilson created a telephone event called "Is Anyone There?", in which a computer was programmed to ring up payphones in several socialy diverse locations around San Francisco and engage passers by in conversation concerning their lives, and impressions of their immediate surroundings. Months later in a gallery environment the results of these phone calls could be viewed as part of an interactive video installation.Viewers of the installation could also suddenly find themselves connected to the pay phones in question, and would then be able to engage in a live conversation with whoever happened to answer it. This event was designed to encourage participation from the public both inside and outside the gallery, and to illustrate how communications networks could lead to



3. Kit Galloway, and Sherrie Rabinowitz, *Satellite Arts Project 1977*

4. Kit Galloway, and Sherrie Rabinowitz, *Hole in Space 1980*



5. Kit Galloway, and Sherrie Rabinowitz, *Electronic Cafe 1984*

new types of social interaction. (Wilson, 1993, p.104-106)

Some of the most distinctive telecommunications art has resulted from the work of Kit Galloway and Sherrie Rabinowitz. Their 3 major projects include "Satellite Arts Project "(1977), " Hole in space "(1980), and " Electronic Cafe "(1984). In these works they have attempted to show some of the ways in which telecommunications could be used that go beyond conventional approaches.

" Hole in Space " took place over 3 days in 1980. This project involved an unannounced satellite link up in which life size video images were rear projected on to screens in window displays in New York and Los Angeles. Passers by on either side who noticed the display would find that they could see, hear, and talk with people on the opposite coast of the United States as if they were standing in front of them on the same street. (Durland, 1987, p.56) By creating this link the artists had set up a situation in which members of the public could spontaneously use satellite technology as a two way communications medium and in the process illustrate the possible future use of such technology.

Their 7 week project " Electronic Cafe " was created as part of the 1984 Los Angeles Olympic Arts Festival. Cafes in five different ethnic communities were linked with telecommunications technology. People in the cafes could send and receive slow scan video images, create images together on electronic writing tablets, print out images, and store and retrieve images and information in a computer database. This project was designed to facilitate the exchange of ideas between different communities and to empower members of these communities into deciding what they wanted out of an electronic communications system. It was hoped that this project could transform Los Angeles into a " global model " for the potential future use of electronic communications. (Durland, 1987, p.58)

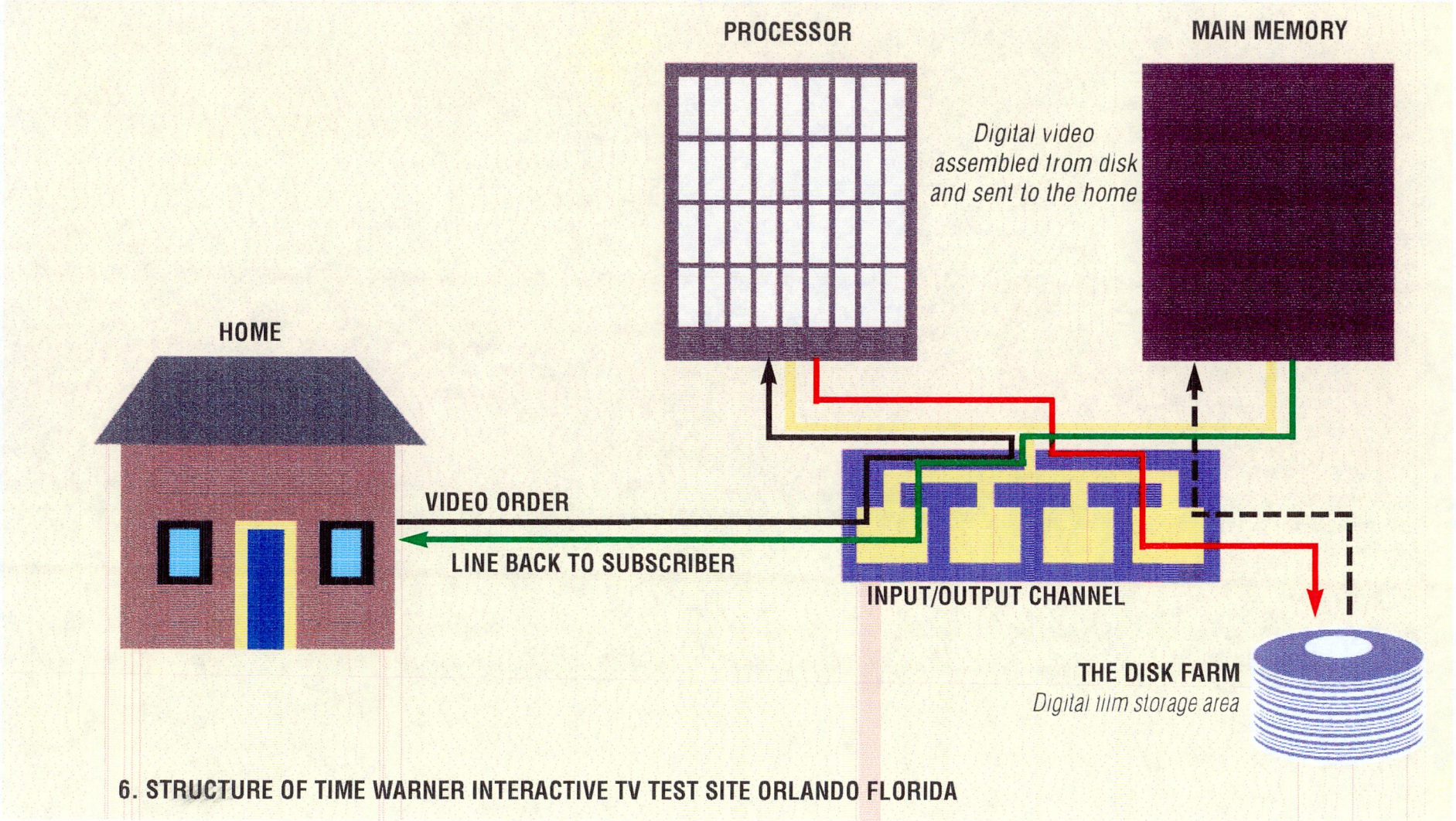
The work of telecommunications artists shows how technology can be used to bring people together rather than isolate them. They have also provided examples of the possible structures that could be created in the future with the advent of advanced communications technology that would oppose the one way, centralised structure of the present mass media. In many ways the work of artists like Kit Galloway, Sherrie Rabinowitz, and Stephen Wilson which involve the public in a process of interaction through communications technology, is similar to the, "within the crowd" style of Guerilla Television. However unlike much early video art, this work involves a completely new definition of what it means to be part of a network.

As we approach the end of the 20th century there has been a growing amount of speculation that the television will merge with the technology of the personal computer and the telephone to become an intelligent entertainment, communications and information device. The network which this new form of television will be built around has been described as "the information superhighway". It will use fiber optic cables to connent every home to enormous regional computers known as video servers. Video servers will hold thousands of films and television programmes. (Deutschmann, 1993, p. 27) Viewers will be able to dial into these video servers through the television, choose from menus and pay for whatever film they want to see, engage in home shopping , check out the state of their bank accounts, book concert tickets, and get access to enormous banks of information. The high bandwidth of fiber optic cables will allow huge amounts of digital information to be sent between video servers and the home.

These networks will allow the development of what is frequently described in the current mass media as the interactive television of the future. Interactivity in this sense is largely seen as the ability to choose programming, to obtain information, and to exert a more sophisticated level of control than ever before over the television. The question of how much control the viewer will be able to exert over the content of the network rarely seems to be considered in many current discussions on the subject..

Most of the technology involved in these networks already exists. However, huge investment is needed in order to replace thousands of miles of copper and coaxial cable with fiber optics. (Meyer, 1993, p. 33) At the same time the need for video servers to be able to send huge amounts of information to millions of individual homes is something that will be extremely difficult to achieve cheaply. (Deutschmann, 1993, p. 27) Despite this, many of these problems are being dealt with and overcome as a result of the intense efforts of private businesses which see this technology as forming the basis for lucrative markets in the next century.

In the U.S. huge amounts of money have been invested by the entertainment industry, cable, telephone and computer companies, in the technology behind the information super highway. This investment has fuelled intense interest and hype in the mass media. Media attention has been focused on such things as the announcement by MCI communications that it would spend $ 20 billion over the next 6 years in improving its communications networks in order to compete with extremely profitable local telephone monopolies known as the "Baby Bells". (Dickson, 1994, 14) The Baby Bells have undertaken huge investments which place them in a good position to compete in the use of interactive networks in the future. U.S. West, one of the Baby Bells has invested $2.5 Billion in Time Warner Entertainment which owns the second largest cable TV system in the U.S. Time Warner and U.S. West have announced that they will spend $5 billion on developing a fully interactive system. Time Warner is con-



6. STRUCTURE OF TIME WARNER INTERACTIVE TV TEST SITE ORLANDO FLORIDA

structing a test site in Orlando, Florida, which from April 1994 will be able to supply 1000 simultaneous viewers with video on demand at a price of $2000 per subscriber. The phone company Bell Atlantic has also developed an experimental "intelligent home" in Virginia which is equipped with futuristic models of interactive television. (Deutschmann, 1993, p. 28)

Oracle systems Corp. which is the world's biggest producer of large scale business computer storage systems known as corporate databases, is spending huge amounts of money researching the technology necessary for the building of video servers. The chief executive of Oracle, Lawrence Ellison plans to develop a new generation computer by early 1995 which will be able to supply 150,000 simultaneous users with video on demand at $300 per viewer. Microsoft, the world's largest software company, is spending huge amounts of money on developing the software necessary to link customers with video servers. (Deutschmann, 1993, p. 31)

Southwestern Bell, another of the Baby Bells, has bought two cable systems in the Washington D.C. area as part of its efforts to unite television and telephone networks. Telecommunications Inc America's largest cable company, has purchased a large stake in QVC, a home shopping network and has announced that it is spending $2 billion on developing a national fiber optic cable network. Another cable company Viacom has been involved in a merger with Paramount film studios which holds vast television and film archives. (The Money Programme, BBC 2, 13 Feb, 1994)

In the U.S. it has generally been agreed that the fibre optic networks necessary for the "information super highway" to become a reality will be built by the private sector. The government will restrict itself to funding research, protecting the public interest by encouraging the companies involved to guarentee privacy as well as widespread access to the network, and also to deregulating the telecommunications industry which will allow telephone companies to offer TV programming and cable companies to supply videophone facilities. This policy of deregulation reflects the current situation in which the technology of the telephone and television are merging into one. (Kapor, 1993, 54)

The combined forces of private investment, government research and de-regulation seem to almost ensure that interactive television and the information super highway will become a reality in the near future. However, despite this high level of probability, a number of important questions remain, as to how this network will operate and the effects it will have on society. The two central questions involved are firstly, will everyone enjoy the right to have access to these networks, or will access be restricted to the wealthier sections of society? And secondly will everyone have the right to insert their own material into the network from home or will this ability be restricted to the entertainment industry and other businesses linked to corporate videoservers?

When considering that almost the entire technological infrastructure behind the "information superhighway" will be privately built and owned, perhaps it would be

7. Bell Atlantic Intelligent Home, Virginia

8. "Pay as you view" Rainman-Bell Atlantic Intelligent Home

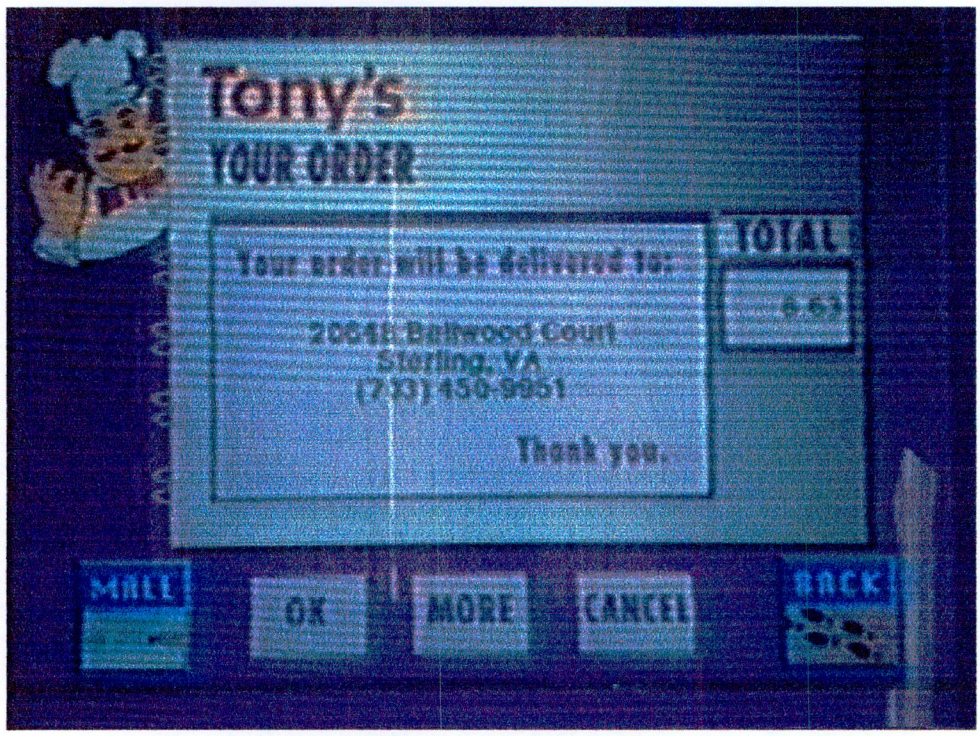
naive to put too much trust in the utopian predictions of writers like Gene Youngblood who imagine a future in which the communications revolution would bring about a dismantling of hierarchical structures and a collapse of the distinction between producers and consumers.

Graham Murdock and Peter Golding in their essay "Information Poverty and Political Inequality: Citizenship in the Age of Privatized Communications" give the impression that an entirely different society might well emerge with the completion of the "information superhighway". They argue that in order to enjoy equal citizenship in society, individuals must have full access to information regarding their rights and political choices, and a say in how they are represented in the dominant culture. In their view under a system of privatized communications this is unlikely to happen. "The central question is 'can these essential communicative resources for citizenship be guaranteed by a production and distribution system that is increasingly organised around market mechanisms?' Our answer has to be 'no' at least not given the present organizations of the relevant markets and the distribution of income." (Murdoch and Golding, 1989, p. 183-184)

They argue that privatised communications "addresses people predominantly through their identity as consumers, both of the communications and information products they buy and of the products promoted in the expanded advertising system that finances many of the new services. In the process the system marginalizes or displaces other identities." (Murdoch and Golding, 1989, p. 180) Whenever purchasing power is required for access to information and communications, those who are most in need of information regarding their rights and status, the poor and disadvantaged, in Murdocks and Goldings view tend to be excluded. (Murdoch and Golding, 1989, p. 185)

They give the British telephone network as an example, pointing out that there is distinctly less ownership of telephones among lower income families and that low income families who do possess telephones must limit their use due to the high cost of local calls. They go on to describe how the cost of local calls has increased significantly due to market forces and privatization. During the time when the Post Office controlled the telephone network the cost of local calls was kept down and subsidised by the cost of international calls. Then due to pressure from the business community, between 1973 and 1978 the cost of long distance calls was reduced by 13 per cent while the cost of local calls rose by 183 per cent.

Then in 1982 the Mercury Consortium, another phone company, was granted permission to compete with British Telecom. The main focus of the competition was the lucrative market of business calls. British Telecom responded by further reducing the cost of business calls and began moving the price of local calls towards their full economic cost. This change was further accelerated in 1984 when over 50 per cent of



9. Ordering pizza on Interactive TV-Bell Atlantic Intelligent Home

10. A schoolteacher leaves a digital video message on the TV-Bell Atlantic Intelligent Home

British Telecom was privatized changing it from a public service to a commercial profit-driven organization. (Murdoch and Golding, 1989, p.185)

Murdock and Golding also describe how poorer sections of the population tend to be excluded from making use of new television services, and from developing skills in the use of computers.With television, the possibility of the underpriviledged making use of new cable channels is ruled out due to the high cost of subscription fees. They argue that subscription systems of payment "operate against the poor by making peoples range of choice directly dependent on their ability to pay." (Murdoch and Golding, 1989, p. 187) With personal computers, the need for expensive add ons such as software, printers, and modems is combined with the fact that individuals with lower incomes are less likely to have jobs which involve computers. The result is that lower income sections of the population find it much harder to develop computer skills. (Murdoch and Golding, 1989, p. 192)

If one takes Murdock's and Golding's observations into account it would seem that there is quite a strong possibility that less privileged sections of the population would be excluded from access to the new technology of interactive TV. This would undoubtedly place them at a disadvantage. Mitchell Kapor in a recent article on the information highway stressed the importance of allowing widespread access to the network warning that "unless there is a safety net that guarantees an affordable connection, the network will further stratify society, not bring it together." He points out that the cheap price of local phone calls in the U.S. was achieved by a system of regulation which is now being dismantled to provide an incentive for the building of the "information superhighway" . He warns that "universal service is the baby that must not be thrown out with the bathwater of a dysfunctional regulatory system" and suggests that the universal right of access should be a central part of government policy in its approach to the development of these new networks. (Kapor, 1993, p. 58)

Kapor also extensively addresses the question of who will control the systerm. Will those who have access to the network also be able to insert their own information and ideas into it? ;

> "the crucial political question is 'who controls the switches?' There are two extreme choices. Users may have indirect or limited control over when, what, why and from whom they get information and to whom they send it. That's the broadcast model today and it seems to breed consumerism, passivity, crassness and mediocrity. Or, users may have decentralized distributed, direct control over when what why and with whom they exchange information. That's the internet model today, and it seems to breed critical thinking, activism democracy and quality". (Kapor, 1993, p. 55)

Kapor points out that new cheap technology such as desktop video makes it possible for people to edit and construct complex videoproductions on personal computers.In his view this democratisation of technology will never have its full effect if there is no way for the work produced with it to reach the public "until now there have been bottle necks of expensive resources at other points in the chain. But thanks to advances in video cameras and desktop video, we're down to a single choke point; distribution." (Kapor, 1993, p. 58)

Kapor argues that viewers should be able to use their interactive televisions not just as consumption points but also as distribution points from the home. As mentioned earlier these ideas are certainly not new, but they are no longer technologically unrealistic. Kapor points out that in today's environment there is little reason why two way transmission could not be built into the network. It merely requires sufficient bandwidth to carry one compressed video signal out of the home. (Kapor, 1993, p. 59) Kapor stresses that we should all be paying attention at the moment to the issues of how open the network will be to widespread access and control "because while it is easy to build openness into the networks it is difficult to build it after the fact." (Kapor, 1993, p. 57)

Despite these doubts and uncertainties Kapor sees reason to be optimistic about the openness of future interactive TV. He points out that under proposed new regulations, telephone companies, will be required to permit independent video servers to use their networks and will have to charge fair prices for this use. They will also have to display the option of using independent video servers on the menu of each interactive television screen.. This model would work in a similar way to today's internet. However he also points out that cable companies would not have to operate under this system, and that when one takes into account the present structure of today's cable industry in which major cable companies also own and create programming there is much incentive for these companies to restrict the content of their networks. (Kapor, 1993, p. 58)

Kapor gives the example of Time Warner and TCI which both own large percentages of CNN. They would be unlikely to favour the notion of another 24 hour news service on their networks. TCI owns 18% of America's cable network and as a result has a full say as to whether or not each American programme and television series gets made, because if a programme is not carried on the TCI network it is doomed to fail. It is hard to imagine how large cable companies like these would willingly give up such power. However due to new regulations growth and profit from existing cable services will be severly limited. Cable companies will be forced to provide new services as a basis for growth. It is widely hoped that these companies would provide new services which would allow open communications and a wide variety of content sources in order to increase the usage and therefore the profitability of their networks.

However, Kapor stresses that if this does not happen, then the Government must regulate the cable networks to prevent them from discriminating against content from independent sources. (Kapor, 1993, p. 58) At the same time he suggests that cable companies "may have a tiger by the tail" if they attempt to control the content and entry into, the "information superhighway."

He gives the example of the Prodigy Computer network which was mainly designed to provide users with ready made information, such as airline schedules or shopping catalogues. The two way exchange of information such as E-mail tended to overload the system. As a result Prodigy raised the rates on E-mail which led to a massive outcry from users. For Kapor this is an example of how interactive but predominantly one way systems run the risk of failing to live up to the expectations of their users. Therefore, it would be in everyone's interest if the possibility for two way exchange was built into the architecture of the network at this stage. (Kapor, 1993, p. 57) At the same time, increased exchange of information and ideas between the public could be matched by increased surveillance of these ideas by the authorities. G.J. Mulgan points out in his book "Communication and Control" that the effect that new communications technology will have on society is hard to predict, because while new technology offers increased control for each member of the public, this new mass control is balanced by new means of control and surveillance from above. (Mulgan, 1991, p. 25)

Much of the electronic media based art which has been produced in recent decades has attempted to encourage a sense of awareness of the potential of new technology for changing and improving the conditions of human existance. This has occurred especially within the field of telecommunications based art where many of those involved have attempted to develop models of possible future uses of electronic communications which encourage spontaneous interaction, a sense of collectivity, and a breakdown in the separated categories of transmitter and receiver. These communications experiments have become increasingly relavent in recent years due to the enormous investements that have taken place in the race to build the information superhighways which will presumably one day be connected to every home. Undoubtedly however, many of those involved in telecommunications based art would freely admit that they are working on the fringes of the art world. Their work recieves little mainstream publicity. This is combined with the fact that much telecommunications based art takes the form of temporary installations and so, by its very nature can only reach a limited audience for a limited period of time in a few seperate locations, with the result that it would probably be true to say that telecommunications based art has made little impact on public awareness of new communications technology and the uses to which this technology could be put.

In Germany a significant attempt has been made to overcome many of these problems by "Van Gogh TV", the television production unit of the Hamburg based Ponton European Media Art Lab.The Ponton organisation was set up in 1986 with a view to exploring the interactive and artistic potential of new media technology. (Documenta, 1992, p.251) Those working in Van Gogh TV include Karel Dusedek, Salvatore Vanasco, Benjamin Heidersberger, Anke Scheib, Nicolas A. Baginsky, Katrina Baumann, Daniel Haude, Ole Lütjens, Axel Roselius, Manuel Telsoff, Michael Ulrich, Christian Wolff, Torsten Tapper, Martin Schmitz, Jan Holthusen, Corry McLeod and Wolfgang Werner. (Ars Electronica, 1993, p.) These people come from varied backgrounds ranging from performance art and avant garde music to computer interface design and hackers groups such as the "Chaos Club" in Hamburg.They are also of varied nationality, coming from Germany, Italy, France, Austria, Canada, and the U.S. (Marshall, 1993, p. 69)

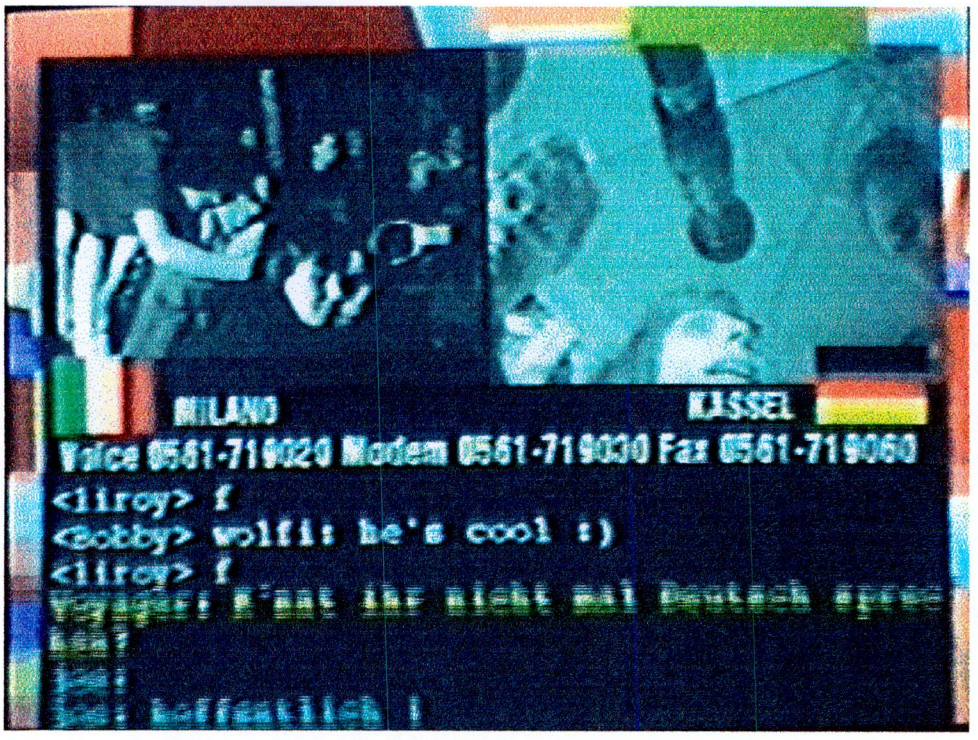
Van Gogh TV has created a medium which could at least be described as semi permanent, which reaches a large number of people and also provides every member of its audience with a chance to interact.This medium could be described as a model using todays communications networks to illustrate how tommorrows "information superhighways" could be used. The Van Gogh TV project is known as the "Piazza Virtuale" and takes the form of an interactive television channel where the viewers can take turns in controlling what happens on the screen. Those

involved in the development of the "Piazza Virtuale" have attempted to create a situation in which the viewers are also the broadcasters.In order to achieve this aim of decentralisation, widely available technologies are used as broadcasting devices.

Using a telephone, fax, or modem viewers can send sound, images, or text into the television station. These are then broadcast across Germany on satellite and cable tv networks. Anyone who can pick up the channel and has a telephone, fax, or modem is free to take part. Videophones which transmit still black and white images, and ISDN videophones which transmit moving colour images can also be used as input devices, although at present few people possess these technologies. The station is set up so that there are usually a few people affecting what is broadcast at the same time. In order to provide everyone with a chance to take part each viewer must operate within a time limit. The viewer interacts with the station for a few minutes, and then the connection is passed on to the next person in the queue. Public entry points known as "The Piazzetas" have also been set up in numerous cities that would not normally recieve the broadcasts of the "Piazza Virtuale". During their 1992 broadcast, their longest so far, Piazzetas could be found in Paris, Lyon, Montbeliard, Nantes, Poitiers, Bordeaux, Nancy, Quebec, Milan, Zürich, Geneva, Prague, Latvia, Moscow, St. Petersberg, Slovenia, Omaha, and Tokyo. Local TV stations broadcasted the "Piazza Virtuale" to these cities at certain times of the day. Viewers could interact with the channel by visiting the Piazzetas. (Documenta, 1992, p.250-251)

Unlike the temporary installations of much telecommunications based art, the "Piazza Virtuale" is designed to be an ongoing experiment in the potential of electronic communications. During the 1992 Documenta IX art fair in Kassel it was broadcast for between 3 and 6 hours each day for 100 days on the 3Sat and ZDF satellite networks.The success of this project led to a 3 day broadcast in Japan in 1993 which caused Japanese switchboards to overload. The "Piazza" was also broadcast on the 3Sat from Hamburg in 1993. A global version is currently being considered for the1996 Olympic Games in Atlanta. While the "Piazza Virtuale" is not yet running continuously, the artists and technicians involved are attempting to develop this medium as the basis for a permanent interactive television network. (Marshall, 1993, p. 71)

The content of the Piazza broadcasts is made up of a number of different programmes. Each programme engages the viewers in a different form of interaction. For example in "The interactive orchestra" up to four viewers can create a musical piece live on air. By dialling one of four different telephone numbers the viewer can choose which instrument he or she wants to play. The buttons on their telephones correspond to the different notes of the scale. This was made possible by a telephone interface which was developed at the Ponton lab which allows the central



11. Milan connected to Kassel by the Piazzeta

12. Images from Graz and Vienna on the Piazzetas

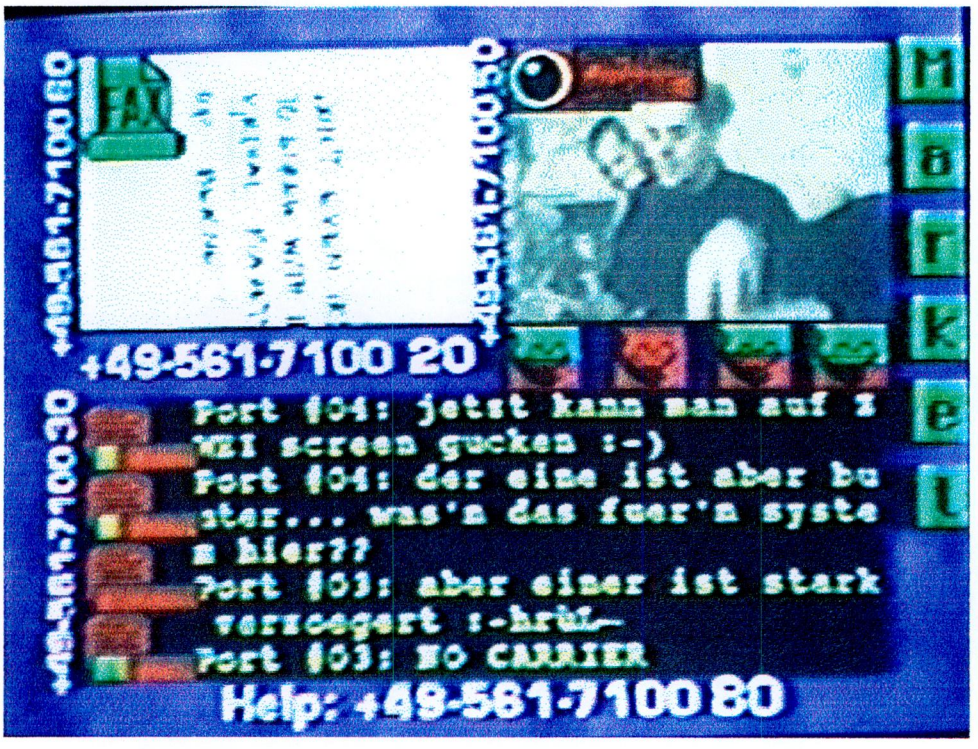
computers of the station to interpret the touchtones of the telephones and transform them into the corresponding sounds of the instruments on the television. The viewers are allotted a certain amount of time to practice and then must commence the performance. If one viewer happens to get stage fright and hangs up then the next person on the line automatically becomes part of the performance. (MACup, 1992)

A similar programme allows the viewers to create Apple Macintosh style 32 colour digital paintings on the TV screen. The finished work can then be printed out by fax in the viewers home. In the " Virtual marketplace ", viewers can offer goods for sale, and the audience can once again, by using touchtone haggle and dial in their offers. (MACup, 1992)In another programme viewers can explore the interior of the Van Gogh TV studio using the buttons on their telephones to control the movements of a robot TV camera which runs along a rail which is connected to the ceiling of the studio. Viewers also engage in discussions on current affairs and recent public events.(Video Documentation of Documenta IX Piazza Virtuale) This is an area where censorship obviously becomes a problem, especially with the current increased support for the politics of the extreme right in Europe.

During the first 15 minutes of the 1992 Documenta project, racist abuse was broadcast on the station. A censor button was hurriedly installed to filter such offensive material from the system. (Marshall, 1993, p. 69) However censorship is generally used as a last resort. Karel Dusedek, a director of the Ponton group, has mentioned how a heated debate developed in the aftermath of neo-fascist riots in Rostock. Viewers who both opposed and supported the events that had taken place phoned in and were able to use the channel to express their opinions. Dusedek stresses the importance of allowing both sides of the argument to be expressed no matter how unsavoury one might find some of those views to be :

> "everyone must have an outlet for their views, so that both groups come together in a public critique. This is an essential discovery we've made in this project, that you have to put forward total social developments and social strata, and that they are not censored or deprived of the right to speak. This is to see whether or not they can stand their ground in the social filter ". (Video Documentation of Documenta IX Piazza Virtuale)

Such an argument obviously stems from a view of television as a public space rather than an announcement and entertainment system and carries with it the assumption that just as anti racist groups were established to counter the views expressed in public access programmes such as "Race and reason", natural forms of



13. Virtual Marketplace

14. The viewer explores the interior of the Van Gogh TV studio by controlling a robot camera. The small keyboard image on the bottom left of the screen corresponds to the buttons on the domestic telephone, and indicates how the telephone keyboar d can be used to control the robot.

15. Interactive Orchestra

opposition to offensive and dangerous views would develop in society if an open and democratic network were allowed to exist. It is hard to tell whether such an approach to the problem of censorship would work on a larger and more permanent scale but it would seem that the airing of offensive views and misleading information is a price that would have to be paid with the development of a truly democratic two way mass media network.At the same time minorities that suffer discrimination in todays society would be free to express their views and fight back against any offensive material which might enter the two way networks of the future.

As mentioned earlier, in his argument for a media takeover by the left Enzensberger criticised those involved in the May '68 uprising in France for their failure to occupy the national radio station.(Enzensberger, 1974, p. 102) In " Requiem for the media " Buadrillard directly contradicted this example given by Enzensberger : " The real revolutionary media during May were the walls and their speech, the silk screen posters and the hand painted notices, the street where speech began and was exchanged - everything that was immediate inscription, given and returned spoken and answered, mobile in the same place and time, reciprocal and antagonistic. The street is in this sense the alternative and subversive form of the mass media, ". (Baudrillard, 1981, p. 184) In many ways this is the kind of alternative space which those involved in Van Gogh TV have attempted to develop with the creation of the "Piazza Virtuale" or "Virtual Town Square".

This view of television as a public space forms a central component of the Van Gogh TV project. The television medium with which the viewers interact is described as the "piazza virtuale" and is based around the idea of an Italian Piazza or town square. Piazzas have traditionally been places of community "where you go to drink your coffee, to talk politics, to flirt and to play." (Marshall, 1993, p. 70) With the advent of television and other forms of mass media such meeting places have become increasingly scarce in modern environments.In this context the advent of interactive television is seen by those involved in Van Gogh TV as providing an oppurtunity for the recreation of such public spaces in an electronic form, where the viewer can "show himself in virtual public streets" and where "television becomes the field of conversation". (Documenta, 1992, p. 251)

In many ways the "piazza virtuale" represents an attempt to put into action many of the ideas which have frequently been discussed in media theory since the time of Benjamins essay *The Work of Art in the Age of Mechanical Reproduction* . The creators of the "Piazza Virtuale" have attempted to emphasise the progressive aspects of the newly emerging technology of interactive television. By creating a medium in which numerous different and opposing views can be expressed they have attempted to make interactive television into a window of a complex society

which is made up of many diverse forces.

This approach encourages the potential of interactive television for providing viewers with an increased sense of awareness of the society which surrounds them. At the same time the fact that the viewer has the potential to interact with the channel and affect what is happening on the screen is designed to encourage the viewer to adopt a progressive approach towards this new technology, while at the same time enjoying the process of interaction. This is what Benjamin described as "the direct, intimate fusion of visual and emotional enjoyment with the orientation of the expert". (Benjamin, 1936, p. 40) It is this fusion which the creators of the "Piazza Virtuale" seem to be trying to achieve through the medium of interactive television.

As mentioned earlier Nichols described how interactive cybernetic systems could provide the illusion of control for the user, when in reality the user would only be operating within the clearly-defined limits of the preprogrammed system with the result that ultimately the user would have little or no say as to the overall function and ideology of the simulation. (Nichols, 1988, p. 32) Nichols stressed the importance of redefining the contexts, limits, and ideologies of cybernetic systems as a means of exploring the possibilities for new types of social organization brought about by advancing technology. (Nichols, 1988, p. 45)

This process of redefinition occurs in Van Gogh TVs attempts to use the technology of interactive television as a creative medium of communication. The viewer, while being entertained, is also engaged in a process which questions the structure and potential of this new technology. By creating the "Piazza Virtuale" they have developed a form of interactive television which is also a simulated public space. The use of widely available technologies such as the telephone and fax as input devices, and the television set as output device, results in a simulated environment which is designed to place as much control as possible in the hands of the viewer. This goes some way towards illustrating how an open and democratic network could function in the future.

The structure of the "Piazza Virtuale" fits closely with Enzensberger's proposal for "network like communication models built on the principle of reversibility of circuits" (Enzensberger, 1974, p. 108) which would allow everyone to become involved in a process of manipulation. However, Klaus Bartels in a 1992 article on Van Gogh TV describes how Enzensbergers approach towards the electronic media and especially television has changed significantly since the time of his essay "Constituents of a Theory of the Media." (Bartels, 1992) He points to Enzensberger's 1988 essay "The Zero Medium or Why all Complaints about Television are Pointless" In which Enzensberger no longer talks of the "emancipatory potential". or "the mobilising power of the media". Instead he describes how "visual technologies, television above all, are in a position to really throw off the burden of language and to liquidate everything that was once called programme meaning content". This removal of meaning and content,

according to Enzensberger follows a tradition long established in the world of modern art. He mentions such things as action painting , constructivism, op art, and computer graphics and claims that the artists involved "have done what they could to purge their works of every meaning." (Enzensberger, 1988, p. 65)

These experiments in art in Enzensberger's view, were the forerunners of the modern electronic mass media. He argues that television represents the ultimate example of this removal of meaning and that its true destiny is to become a "zero medium", that is, a medium with no content or message which acts as a form of electronic sedation for the viewer. (Enzensberger, 1988, p. 66) This form of sedation is infinitely preferable to other forms of escapism in society such as drugs, alchohol and violent crime. "Television is employed primarily as a well defined method of pleasurable brainwashing, it serves as personal hygiene, as self medication. The zero medium is the only universal and widely distributed form of psychotherapy. It would be absurd to question its social necessity." (Enzensberger, 1988, p. 69) In contrast to his earlier writings Enzensberger has little time for those who see television as a technology with much unreleased potential. "There is no shortage of educational and critical theorists, who continue to suspect productive forces in the electronic media which only need to be unfettered in order to set in motion undreamt of social learning processes." (Enzensberger, 1988, p. 66) He believes that views such as these are misguided because, while attempts can be made to use television as a means of educating and enlightening the public, its true function is as a form of escapism. At the same time according to Enzensberger the viewers do not want to be educated or to experience a broader view of the world through television. The viewer only wants to escape: "It is quite clear to the viewer that he is not dealing with a means of communication, but with a means for the refusal of communication, and he does not allow anything to disturb this conviction. In his eyes it is exactly what it is accused of which constitutes the attraction of the zero medium.....The zero position is television's strength, not its weakness. It constitutes its use value. The viewer switches the appliance on in order to turn off." (Enzensberger, 1988, p. 68)

Such a view is quite depressing when one considers that the same individual once saw enormous unreleased potential in the electronic mass media. However, his argument that there is little public will for interaction with the mass media, and that the use of television as a communications device goes against the basic properties of the medium, does not take into account technological advances, new forms of entertainment as well as some of the existing programme formats which form a substantial part of the current mainstream mass media. New forms of entertainment such as video games have proved hugely popular in recent years. This type of entertainment is non passive and frequently engages the player in a process which can often be quite stressful. It would probably be true to say that among some age groups video games are now a

great deal more popular than television. Also a fairly large amount of current mass media output consists of programming which involves at least a limited amount of public participation. This can perhaps be most clearly seen with talk radio shows which rely almost completely on members of the audience phoning in and expressing their opinions. The popularity of this type of programming proves that there is a substantial public desire for forms of entertainment which involve participation rather than just escapism. Passive entertainment will probably continue to make up an important part of televised output in the future but this does not necessarily have to mean that this form of entertainment could not exist alongside a process of communication, and interaction for the viewer.

Bartels also points out in his article that Van Gogh TV's approach towards interactive television would probably fit closely with the "dream of every programme director". The channel runs for 24 hours a day and no one has to pay for the programming because the viewers provide the entertainment content for free. (Bartels, 1992) Van Gogh TV gives the concept of interactive television as a medium of communication and creative exchange, a level of financial viability which could leave it open to being absorbed and diluted by the mainstream mass media. The "Piazza Virtuale" is a form of communications which fits closely with what Baudrillard described as the "dialectic of circuits" in which transmitter and receiver are simultaneously on both sides. This form of communications could not in Baudrillards view lead to any significant change because it maintained the separated categories of transmitter and receiver. Even though everyone has the chance to receive and transmit, the message is sent without instantaneous response and as a result the "monopoly of speech" remains intact. (Baudrillard, 198 , p. 139)

Perhaps, then the experimental structure of the "Piazza Virtuale" will be absorbed into the mainstream mass media without leading to any significant disruption of the status quo and without changing the public understanding of the role that television could play in the future of society as a result of advancing technology. Just as the "within the crowd" style of guerrilla television reportage ended up being absorbed and diluted into bland mainstream shows like "That's Incredibile!" and "Real People", Van Gogh TV could be providing the blueprint for the mediocrity of the future.

In order to reduce the possibility of this happening to a minimum as much control as possible needs to be placed in the hands of the viewer. A system of decentralized control would prevent any one group of people or organization from controlling the content of the medium.. The content would be decided by those who watched this new form of television, and those who felt unhappy with what they were seeing would be able to insert their own opposing content into the medium.. However, Bartels also points out that for many people the difficulty of using both the telephone and the television in conjunction with each other is enough to prevent them form participating in

the "Piazza Virtuale". He suggests that most of the people who attempt to interact with the station belong to a minority art public. (Bartels, 1992) This suggestion does not seem to take into account the fact that those involved in the Van Gogh TV project claim to have received at times more than 110,000 callers every hour. (Video Documentation of Documenta IX Piazza Virtuale) However it is undoubtedly true that if the television is to be turned into a medium of mass communications it will have to be extremely easy to use.

Undoubtedly a form of television which involves participation and interaction is bound to be more difficult to use that the current form of television which simply involves passive viewing, but this is a problem which affects all the proposed forms of interactive television, not just the "Piazza Virtuale." However ease of use is certainly an important issue. The harder the medium is to use the less people will be able to control it. Control would be placed in the hands of a minority. This would lead back to centralization rather then decentralization of the medium., and could leave the medium open to being absorbed and diluted and turned into something ultimately at odds with its original purpose.

The creators of the "Piazza Virtuale" have also been criticised for developing a medium in which for long periods little of interest can happen on the screen while at other times the channel can beccome filled with conflicting sounds images and text. (Marshall, 1993, p. 71) This very much reflects the fact that the technical structure of the "Piazza Virtuale" does not constitute what most people would describe as interactive TV. In some ways its structure could be described as being quite old fashioned due to the fact that the central appliance involved is the conventional television set, a device which is designed for passive rather than interactive viewing. As a result of this only a very limited amount of people can input ideas into the channel at any one time. The rest of the viewers cannot interact with each other and simply have to accept what is happening on the screen, until the brief moment arrives when they become part of the small handful of people who are directly linked to the station. The result of this is an uneven flow of information which contrasts with the carefully controlled output of the conventional mass media

Many of the programmes which are broadcast on the channel are accompanied at certain times with images from a multimedia databank. These tend to consist of such things as simple computer animation, morphing, and collage sequences which are mostly created by the artists and technicians working in the station. Different image sequences are triggered according to certain keywords typed in by modem users. (Video Documentation of Documenta IX Piazza Virtuale) This largely seems to serve the purpose of making the channel appear more interesting. It makes up for the fact that such complex imagery cannot be sent from the home. When these fast moving images are combined with the uneven and often chaotic flow of information, the

results can be quite spectacular. However in the long run the novelty of this unusual format might well begin to wear off. The information overload of constantly changing images, sound, and text, combined with the fact that viewers can only control what is happening on the screen for short periods of time could well lead people to become bored with this medium in the long term and therefore bored with the idea of interacting with their TV.

At present the experimental environment of the "Piazza Virtuale" is more like an electronic platform than an interactive television network. If television is to work as a medium of 2 -way communications it will need to have a more flexible structure in the future. Viewers should be able to access other viewers who share interests in similar topics. It would also be ideal if they could insert their own information, art, music etc. whenever they wished directly into the system from home. As mentioned earlier, it has been suggested that the structure of the internet provides a good example of how such a network might operate. After all, a pedestrian wandering through a real town square can go to any part of the square he or she wishes and can talk to one group of people while ignoring the activities of another group which hold little interest. But in the virtual town square of Van Gogh TV the viewer cannot wander and must experience all the activities of the square simultaneously. Interactive TV as a medium of 2-way communications will need to be more than just one big platform of conflicting messages. It should consist of many platforms all of which are interactive and easily accessible. However it is understandable that in the mid 1990's the technological infrastructure for such a medium of communications does not yet exist. So, for the moment it could probably be said that the disordered flow of information which appears in the "Piazza Virtuale" is unavoidable. Despite problems such as these, the "Piazza Virtuale" represents a significant attempt to create a working model for the possible future use of the technology of interactive television. At a time when we must choose what type of information networks will be built in the future, the existence of the "Piazza Virtuale" will, it is to be hoped, create widespread awareness of the issues involved.

Derrick de Kerckhove has suggested, in an essay on communications art, that the most important thing we learnt from going to the moon was "how to look at the earth". (Kerckhove, 1991, p. 131)In many ways this statement seems to sum up the change which has taken place in many peoples view of technology since the sixties.The excitement surrounding spectacular engineering projects such as trains and railways, motorcars and motorways, bigger and faster airplanes, culminating with rocket travel and the human exploration of outer space, has been replaced with an interest in the inner space of such things as microchips and DNA. While many of the advances in these areas do not seem nearly as spectacular on first sight, they hold the potential to bring about enormous changes in society. Television is one area where dramatic change could occur.

During the lifetime of television and radio numerous critics have pointed out that these forms of mass media are structured around a centralised and one way network of communications, which provides little scope for feedback from the public. There have been frequent calls for this situation to be changed. In the final years of the twentieth century, this type of change has become increasingly possible as a result of new technology. The new and advanced mass media network will presumably be brought to each home by the "information superhighways" currently being planned and constructed. However, as has been frequently pointed out, while advances in technology hold the potential to disrupt the status quo, powerful forces exist in society to keep this potential in check.

As mentioned earlier the information superhighway has been frequently portrayed in the current mass media, as a means of providing the public of the future with increased choice and flexibility in terms of their consumption. The question of whether the information superhighway will also allow people to use their televisions as gateways to distribution, rarely gets a mention. This is combined with the fact that there is still little agreement as to how all sections of the population will be able to use this service at a reasonable price. If the interactive television networks of the next century turn out to be predominantly one way networks for serving well-off customers with the products of the entertainment industry, then in my view much of the most exciting potential of this technology would be missed.

In order to prevent this from happening it is essential that we all become aware of the issues involved. This can be done by looking at the present mass media, examining their flaws, asking how they could be improved, and comparing them with other more democratic forms of communication. Artists working in the field of communications like Stephen Wilson, Kit Galloway and Sherry Rabinowitz, and perhaps most dramati-

cally those involved in the "Piazza Virtuale" project, have done a great deal to raise this type of awareness. At a time when many people cannot imagine the mass media to be anything other than a one way form of communications, this sort of work is vitally important.

There are those who would argue that the current situation is as it should be, that people do not want to insert their own ideas into the mass media, and that televisions true function is to be a passive medium and not a communications device. However this argument seems to overlook the popularity of such things as public access television, and talk radio shows, not to mention the existence and dramatic growth of the internet in recent years. It could be also be argued that an open two way interactive television network, would allow dangerous and offensive views to be regularly expressed and that this possibility alone is enough reason for placing strict controls on the content of the electronic media. To this I would say that in any true democracy the cultural and political direction of society is supposed to be decided by the views of its population. If a two way mass media system were allowed to exist, the message of hate voiced by a small minority would undoubtedly be shouted down by the massive majority of people who would strongly object to such views. It is of course a risk to assume that this would happen, but in a true democracy this risk must be taken.

In a society which claims to be democratic, the existence of a centralised mass media network over which the public has no control, and which holds enormous influence over cultural trends, and political views, results in a situation in which values, and ideologies tend to be imposed on the population from above. At this point in time, when the structure of future networks has not yet been decided, an opportunity exists to change this situation. If we are not scared by the notion of true democracy, then this opportunity should not be missed.

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