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Fine Art, Painting

# UPLOAD AND FORGET?

## Art on the Web

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# Contents

Introduction	1
Chapter 1 An introduction to the Internet and the World Wide Web	2
Chapter 2	6
The Web as a democratic art space	
Chapter 3	14
Individual and public online galleries	
Chapter 4	29
Web-based art	
Conclusion	37
	•
Bibliography	39

#### Introduction

The World Wide Web was invented in 1992, and ever since then there has been much eulogising and enthusing on its merits: "The astonishing rapidity of this information explosion," says Robert Atkins, "has only been matched by the media-driven hype surrounding it" (Atkins, 1995, p. 58). However, the Web has also had its fair share of dissidents and critics. Yet the questions broached by both camps have centered on the same areas, namely those relating to community, public space and access, and democracy.

These are obviously areas of great importance and relevance to the creation and exhibition of art on and for the Web: artists need a *community*, an audience to exhibit their work for; artists need a *public space* in which to exhibit their work, space to which their audience has *access*. The Web seems to offer a veritable smorgasbord of such options, with interconnectivity between sites and users across a global network being the basis of its existence, and not forgetting the democratic element of the Web -- for relatively little cost one has the means of distributing one's work to previously unreachable audiences around the world, bypassing the need for agents, galleries and the art press.

In this thesis, I will be addressing Web art in relation to these topics and asking if artists working on the Web are fully taking advantage of the unique elements it has to offer. I will do this while looking at a cross section of the kinds of art to be found on the Web, from artists' web sites, to personal exhibits, to on-line museums and finally to art made specifically for the Web. To fully understand these, however, we must first examine the history and origins of the Internet and the World Wide Web.

### Chapter 1

Though the Internet has only become popular and captured the public's imagination in the 1990s it originated some thirty years earlier in 1960s cold-war America. There, the Department of Defence (DoD) was eager to continue to assert American supremacy through military science, and was willing to invest in new technology to keep ahead of the Soviet Union. Within the DoD the Advanced Research Projects Agency (ARPA) was set up to realise this goal. ARPA put up the money for an advanced computer network which became known as ARPANET. The aim of ARPANET was to enable computer scientists and engineers working on military projects throughout America to share resources and research. Moreover, the idea was to set up a decentralised system: rather than the network having a central computer which all other computers depended on, the network was designed to continue working in the event of any of the computers connected to it breaking down. Considering that the project was funded by the military, it is hard to imagine that this desire for no central authority within the network did not stem from an effort to ensure its continued operation in the event of attack, though it has been stated that ARPANET was never designed to be resistant to nuclear war (Leiner et al, 1997, Footnote 5).

The way that information travelled around ARPANET was to be its main technical advantage, and one that is still in place in today's Internet. Data is split into tiny groups, known as 'packets', which can take any available route across the network to reach their destination and once there can be reassembled in the order in which they were intended to be communicated. The beauty of this system was that if one link in the network was out of action, for whatever reason, the 'message' would automatically reroute itself via the remaining parts of the network in order finally to reach its destination. Various methods of achieving this were tried: some failed quickly; a few, like NCP (Network Control Protocol) succeeded for a short time, but floundered. It was only after Vinton Cerf from Stanford and Bob Kahn from ARPA were set to work on delivering a robust method of ensuring accurate data transmission between networks that the system which is still in place today took shape. The name given to this system is TCP/IP, or Transfer Control Protocol/Internet Protocol.

Briefly, TCP enables the innovative packet-switching of the ARPANET to continue across other networks in a very standardised form, enabling myriad makes and configurations of computers to be able to decode and make the same sense of the data that one sends to another -- in other words, when I send an image of the Mona Lisa from my computer to yours her nose is where it should be, rather than attached to her shoulder. However TCP needs IP, Internet Protocol, in order to have anywhere to send TCP's packets of data to. IP is a standard means of registering a computer's connection to a network of networks. It is a combination of four numbers, separated by dots, and analogous to a postcode. It is the reason why when I send you the image of the Mona Lisa it is you who receive it rather than anyone else.

This linking up of ARPANET to the many other networks in operation at this time, formed a network of networks that became known as the Internet. The growth of the Internet was rapid as more and more networks joined up, but it was not until the invention of the World Wide Web (WWW) by Tim Berners-Lee, in 1992, that the interest of the public at large was aroused.

The WWW has been described as the "Internet service mainly responsible for the recent rapid growth in the numbers of hosts and users" (Cawkell, 1996, p.205). Berners-Lee and his colleagues, working

3

at the CERN Physics Laboratory in Switzerland, developed the Web protocols known as Hypertext Mark-up Language (HTML) and the Hypertext Transfer Protocol (HTTP). HTML is the language used to create web pages that includes the interlinking of separate but related documents. HTTP moves data from point to point using Internet's TCP/IP transmission protocol. Put simply, the Web is a space of linked pages, documents and pictures. But it is this ability to link documents to one another, 'hypertext', that is the Web's main feature, as it allows the user to 'surf' the net, travelling freely from one document to another. Tim Berners-Lee has stated that this ability to link up your web page to anybody else's without asking their permission is central to the web's principle of free speech, and that "that design decision was the thing that allowed the web to take off" (Berners-Lee, 1998, BBC).

Cawkell cites Gates's division of Internet activities into three phases -- the research phase (up to the mid-1980s), the academic club phase (mid-1980s to early 1990s), and the communicating phase (early 1990s) onwards) -- but claims that a fourth phase is approaching, the process of making the Internet self-supporting (Cawkell, 1996, p.202). This has already begun: one only has to look at the increasing number of businesses advertising on the Web. That this did not happen immediately is surely because nobody could have predicted the rapid growth and popularity of the Web. Though the initial increase in websites was down to enthusiastic web users, by 1995 the most active sector of Web development was commercial sites (Feldman, 1997, p.111). As user numbers increased it became viable and cost-effective for advertisers to place ads on the Web. But the fear is that, as in television advertising, the Web will become dominated by the traditional giants, who will buy up space in the most popular websites. And, as in other media, if their income is dependent on advertising what effect will this have on the

content of web pages? E-commerce, the ability to buy and sell with real money over the web, has increased dramatically in the past few years. In 1995 the net supported \$200 million in e-commerce (Bryant Quinn *in* Myers, 1998) but it is predicted that by the year 2002 e-commerce will reach \$300 billion (Rappa *in* Myers, 1998). Indeed, it has been estimated that over the Christmas period of 1998, American online shoppers alone spent \$3.5 billion (Lillington, 1999, p.10). This increase is probably due to more security, with Internet sellers starting to adopt encryption techniques that allow credit-card numbers to be sent safely. It has been stated that this eagerness to embrace a 'free-market' ideology on the Net is unusual in light of its history. It would not be in existence but for huge government subsidies and many of its key programs and applications were invented by enthusiasts and hobbyists or by professionals in their spare-time (Barbrook/Cameron, 1998).

It has been estimated that traffic on the Internet is doubling every one hundred days (Bridis *in* Myers, 1998) and that by the year 2001, 268 million computers will be connected to the web (Jose *in* Myers, 1998). One reporter has noted that radio existed for 38 years before it had 50 million listeners and television took 13 years to get 50 million viewers. But within just 4 years the Web already had 50 million U.S. users (Bridis *in* Myers, 1998).

Some commentators claim that the "growth of the Net is not a fluke of a fad, but the consequence of unleashing the power of individual creativity" (Anderson, 1996, p.97). Therefore, it would seem that the Internet is an ideal place for artists to produce and display work, share ideas and generally take control of their own output, bypassing galleries and institutions, and all on a global scale. But does the reality of art on the Internet bear this out?

5

#### Chapter 2

When commentators discuss the Internet and the WWW, they often focus on the democratic potential of this new medium. Because of its decentralised structure it gives users the opportunity to be producers as well as consumers. The Internet allows the user to be as passive or active as s/he chooses. One can simply view it as a catalogue of information for education or entertainment, or as an opportunity to interact with other people, for example through chat groups, or as a creative space in which to distribute one's own ideas directly to an audience, avoiding artistic bureaucracy.

Mark Poster, in discussing the Internet, states that it heralds the beginning of a new media age. In the 'first media age', by which he means film, radio and television, a small number of producers distribute information to a large number of consumers. Whereas in the 'second media age', the age of the Internet and information technology, there are multiple producers, distributors and consumers (Poster, 1995, p.3). This leads to the conclusion that the Internet is more democratic than earlier media. But this would not be the first time that such claims were made for new technological inventions. In his essay, The Work of Art in the Age of Mechanical Reproduction, 1936, Benjamin tells how photographic technology "emancipates the work of art from its parasitical dependence on the ritual" (Benjamin, 1969, p.224) and reproduces it without its 'aura', calling into question the value of the original. Benjamin sees this liberation of the artwork, by mechanical reproduction, from its ritual seclusion in churches and temples into the pages of books and magazines, as having a positive political outcome because it allows for the possibility of a mass critical reaction. However, not everyone has seen the democratic potential of new

6

technology. For Adorno, modern technological developments were employed in a culture industry that functioned only as a way of repressing and manipulating the audience. "The technological rationale is the rationale of domination itself" (Adorno, 1973, p.121) which transforms the working class from a potentially revolutionary group into passive consumers.

Poster goes on to say that the Internet imitates the telephone's democratic structure (Poster, 1995, p.25). Not only are the roles of caller and receiver interchangeable, but the more people that are on the system the better it functions as a tool for communication. It is quite ironic, then, that while this example can be used to demonstrate the democratic structure of the Internet, it can also be used as one of the main arguments in questioning if the Internet is really so democratic. The Internet is linked together by telephone lines and it is along these lines that data travel back and forth. But when we begin to look at the fact that only a small percentage of the world's population actually owns a phone, and that more than sixty per cent of the world population has never so much as made a phone call while more than fifty per cent could never do so due to lack of phone lines (Feldman, 1997, p.76) the Internet begins to look less global in its scope. Indeed, when one looks at statistics on who is using the Web, what is revealed is not representative of a cross section of society, but of a much more select group. The average income of Web users in May 1998 was US\$52,500 (GVU, 1998) which is considerably higher than the average income of a working person in this country at least. Since the Web's inception in 1992 the demographics of users has changed considerably. There has been an increase in the number of female users, from less than 10% in 1994 to 38.7% in 1998, as well as more variety in terms of age, yet the income of users is not significantly changing, dropping by only \$500

(US) since the last survey was carried out (GVU, 1998). In stressing these figures the intention is to show that the Web is not, at least not at this point in time, the democratic, equal-access, global network it is sometimes portrayed as being, but rather a virtual space the inhabitants of which, as with any real space, are likely to have certain commonalities and similarities, i.e. educational achievement, class, income, rather than being a cross-section of society. Indeed, it has been stated that the new 'virtual class' can inhabit cyberspace without encountering any of the inequities that exist in reality and in turn a new divide is being created between the 'information rich' and the 'information poor' (Barbrook/Cameron, 1998), and whole regions may fall into what Manual Castells refers to as, 'informational black holes' (Harris, 1998, p.53).

Having highlighted the fact that, in terms of its users, the Web may not be as all embracing and diverse a global network as it might be (and as it hopefully will grow to be) it still remains that if you do happen to fit the demographics and are a Web user, there exists in the Internet a potential for democracy rarely before seen in media.

One of the artworks on the Web which embraces the notion of democracy and privileges public opinion and taste is the on-line project, *The Most Wanted Paintings on the Web*, by Russian emigre conceptual artists Vitaly Komar and Alexander Melamid. The project, which was one of the first on the Dia Center for the Arts website (http://www.diacenter.org), is an extension of the duo's earlier work, *People's Choice*, started in 1993. This work set out to discover what a true 'people's' art would look like. Komar and Melamid, in conjunction with The Nation Institute (an offshoot of *The Nation* magazine), commissioned a comprehensive poll of American tastes in art, asking 1,001 adult Americans, of all demographic hues, 102 questions relating

to their aesthetic preferences, particularly to their taste in painting. The questions posed numerous options. Did people prefer art that was landscape or portrait? realistic or imaginary? with or without people? historical or contemporary figures? religious or not? domestic or wild animals? As well as questions about content there were questions about form, such as preferred colour, textured surface or smooth finish, dishwasher size or paperback book size.



America's Most Wanted, 1994

The poll showed an unexpected homogeneity in taste, which the artists found surprising in "a society famous for freedom of expression" and freedom of the individual (Komar *in* Wypijewski, 1997, p.8). Though initially they intended to make a number of paintings related to various population groups, those with a significant museum-going experience, those with incomes under \$20,000, those of a particular ethnic origin, etc., because a general consensus occurred at the poles of like and dislike, the poll yielded only two paintings, *America's Most Wanted* and *America's Most Unwanted*, based on the artists'

interpretation of the data. The *Most Wanted* painting shows a predominantly blue landscape (44% of the people polled picked blue as their favourite colour) with lots of water and the figure of George Washington in the foreground along with a couple of deer and a threesome strolling leisurely across the scene. The *Most Unwanted* painting is very different indeed, featuring a geometric abstraction in glaring colours.



America's Most Unwanted, 1994

Komar and Melamid have since expanded the project by carrying out the same surveys in thirteen other countries with the surprising result that people in places as different as the Ukraine and Kenya, and Turkey and China, have similar aesthetic tastes. Almost all of these countries chose landscapes similar to that chosen by Americans, with some small variations. For example, the Kenyans wanted a blue landscape, but with Kilimanjaro as a backdrop and a hippopotamus rather than a deer. Only Holland chose an abstract painting as its most wanted. Though nobody encountering the painting claiming to be America's Most Wanted could seriously believe it to be so, the work does challenge the art industry's version of good taste and asks some pointed questions about how we define art and beauty and why art is often so remote from people's lives. Does the art world even care what the general public likes or dislikes? In a democratic society, should art remain the preserve of experts? And since the "idea of democracy is the basis of American society" (Melamid in Wypijewski, 1997, p.11), why should it not be seen as a legitimate foundation for art? And what better way of gauging what the public wants than using the classic instrument of democratic politics -- the opinion poll? The artists have stated that the reason behind the polls was to "search for new co-authors. Everyone works collaboratively. That is why society exists" (Komar in Wypijewski, 1997, p.8). This desire for collaboration aside, the use of statistics as a means of making art that questions national taste is a very astute move. "Statistics are a crucial technology of power in modern states everywhere...but the fetishism of numbers has above all played a role in the U.S." (Ross, 1995, p.76). Melamid states that the U.S. has created a new type of leader, one "who doesn't give orders supposedly, but asks questions... new leaders conduct polls. Picasso mimicked Stalin, so we try to mimic Clinton" (Melamid in Wypijewski, 1997, p.15).

The project has been expanded and broadened on the Internet, after the duo was invited by the Dia Center for the Arts to place the project on its website. A new 'country', Cyberspace, was then available to Komar and Melamid to investigate. In a similar fashion to that of earlier polls, visitors to the website were questioned on their aesthetic preferences, in an effort to produce *The Web's Most Wanted/Unwanted Painting*. The results are strikingly different to earlier ones and, crucially, were intended only to be viewed on a computer screen.

11



The Web's Most Wanted Painting/The Web's Most Unwanted Painting, 1998

Though the participants in this poll are international and represent a much more diverse ethnic mix than any one of the previous polls, there may be more similarities between the participants than one would think. Whereas, in *America's Most Wanted*, for example, the pollsters insured that they were including all demographic hues, on the Web poll those surveyed *chose* to visit the site and *choose* to answer the questions. This changes things considerably, as one would presume that there are two main characteristics common to those surveyed *--* an interest in art and a facility with computers. So it could be argued that while this poll may appear more expansive, it is in fact narrower in its scope.

What makes this project interesting for the Web, and relevant for my argument, is that it is one of the few art projects on the Web that takes advantage of the democratic possibilities of the Web. In fact it privileges democracy in more than one way. The method it employs is the common instrument of democratic politics, the opinion poll; the medium it utilises is perhaps the most democratic new medium, the Internet; and all in an effort to produce a more accountable and democratic art, the people's art. While other artists have used the interactive and collaborative possibilities of the Web as a means of getting visitors to their web site to participate in making work, for example Jenny Holzer, who offers visitors the chance of making changes to her *Truisms*, the Komar and Melamid project is doing more than encouraging interaction for the sake of it. They are utilising the Web as a means of collaborating with a wider public and are using the results of this collaboration in a way that directly influences, indeed determines, their artwork. Though the work, as with Holzer's *Truisms* (http://adaweb.com), was in existence prior to being placed on the Web, in the case of the Komar and Melamid project the Web is used as a means of extending and developing the original work, as a way of reaching more people and, ultimately, as a means of creating new work.

### Chapter 3

One of the claims often made for the Internet is that it offers the possibility for a new digital utopia, a virtual world where people can come together on equal terms. It has been stated that the 'superhighway' as a conduit for communications also becomes "a means of breaking down barriers between peoples, getting nations to speak unto nations and ultimately, therefore, helping to build a single global community" (Feldman, 1997, p.70). Marshall McLuhan, as far back as 1964, was expounding the virtues of new technologies and predicting the empowering effects that they would have on individuals.

Electric media...abolish the spatial dimension, rather than enlarge it. By electricity, we resume person-toperson relations as if on the smallest village scale. It is a relation in depth, and without delegation of functions or powers...Dialogue supersedes the lecture (McLuhan, 1964, p.255).

Mark Poster claims that "the use of the Internet to simulate communities far outstrips its function as a retail store or reference work" (Poster, 1995, p.33). He criticises other commentators who, in his view, see the Net only within the framework of modern social institutions, e.g. Bollier, who sees the Net as bringing new efficiencies to modern life but ultimately not changing anything. Poster feels that new media offer more than an enhancement of the 'modern' individual, one that is rational, autonomous, centered and stable, and will play a role in forming a new post-modern individual, one that is unstable, multiple and diffuse (Poster, 1997, p.23-42). "The emergence of the mode of information, with its electronically mediated systems of communications, changes the way we think about the subject and promises to alter as well the shape of society" (Poster, 1997, p.59).

However, some writers show concern that discussion about cyberspace is limited to 'rhetoric' regarding the "liberatory, utopian ideology of infinite educational leisure and virtual communities" and the fact that "various forms of cyberspace have been almost entirely subsumed within this dogma" (Jewesbury, 1998 p.34). Others, such as Richard Barbrook and Andy Cameron, comment that not only does the Net not function as the community space that many of its early programmers and writers had hoped it would, but also many of these same people no longer seem interested in working towards this objective. They blame this on the coming together of the New Left and the New Right in an ideology, which they see as being dominant in defining a heterogeneous orthodoxy for the coming information age: the Californian Ideology. Responsible for this ideology, which combines the 'free-wheeling spirit of the hippies and the entrepreneurial zeal of the yuppies', is a loose grouping of 'writers, hackers, capitalists and artists' (e.g. Wired, "the monthly bible of the 'virtual class'") from the west coast of America (Barbrook/Cameron, 1998). Furthermore, they maintain that the west coast radicals who, inspired by the theories of McLuhan, sought to instigate social change though new information technologies, and to create an "electronic agora -- a virtual place where everyone would be able to express their opinions without fear of censorship", no longer hold out any hope for rebelling against the system. Indeed, they have come closer in their thinking to their partners in the New Right, who, in "place of the collective freedom sought by the hippie radicals,... have championed the liberty of individuals in the marketplace" (Barbrook/Cameron, 1998). Yet, Barbrook claims, the Net is "haunted by the disappointed hopes of the Sixties" (Barbrook, 1998, p.57). He states that many contemporary commentators look back to the

sixties, a time of social change and ('stalled') revolution, to explain what is happening in today's period of rapid technological change. "Most famously, the founders of *Wired* appropriated New Left rhetoric to promote their New Right policies for the Net" (Barbrook, 1998, p.57).

Whether or not one views the Web as a digital utopia or cyberspace as fostering new communities and ways of communicating, it is surely evident that the Web offers an exciting new space in which to communicate and interact with others, as well as a space to gather and disseminate information and ideas. The Web is a public space, a cross-boundary, international public space. What better place to show art? Compared to many forms of exhibiting work, showing art on the Web can be a relatively cheap, simple and painless exercise. Furthermore, thanks to the democratic nature of the Web, free speech and self-expression – surely cornerstones of any individual's creative process – can be given free reign. Add to this the fact that work placed on the web can be seen simultaneously all over the world, at any time of the day or night, and the potential for artistic expression of all hues is unlimited. Or so it would seem.

As has already been mentioned, the Web falls short of being a fully inclusive democratic arena: access is limited by a range of constraints, financial, geographical and otherwise. Consequently not all artists who want to make use of the Web are able to do so. But let us concern ourselves with artists who have overcome such hurdles. Artists who have access to the Web face two main problems. Firstly, they may find the kind of art they do, or at least its display, moulded by the restrictions of the medium, and, secondly, due to the sheer size of the Web their work may be lost, a drop in the digital ocean.

HTML is the computer language that most artists will need to use



in order to create art on the Web. Therein lies the first restriction of the medium: an artist has to be able to speak its language in order to get it to work for him/her. This is not by any means an insurmountable problem, as there are numerous books available to take the beginner step-by-step through the process of creating a website. There are even a number of software packages, like Microsoft's Front Page, Adobe's Page Mill, Macromedia's Dreamweaver, and Netscape's Composer, that can be bought or downloaded across the Internet to aid artists in this task, some of which use a WYSIWYG ('what you see is what you get') interface so that the artist never needs to learn a single term of HTML: s/he simply selects from a menu of items - images, text boxes, email return buttons – and the program compiles the web page automatically. Certainly, to be able to construct a web page is in itself an achievement, though not necessarily an artistic one. In most cases it owes more to computer programming than any artistic inspiration, and as a result the artist comes immediately right up against the restrictions of the medium. Web pages are essentially linear, text-based entities which exist within a browser window (as mentioned before, nonlinearity can be created through the use of hyperlinks, but for this to resemble anything more than a bunch of arbitrary direction-changes a great deal of construction work needs to take place). This linearity is reasserted again and again as one surfs the Web by the ubiquity of the 'home page'. In the majority of how-to books the first major project encountered is the construction of such a page, consisting of text (in various sizes), an image (generally of the person whose page it is), a list of links (usually to 'things I like') and a return email function ('Mail me!'). Even the software packages mentioned above all contain templates to make web page creation easier, and the simplest of these is generally the 'home page'.



What this means is that for a great number of non-technically oriented artists, simply to display an image and some explanatory text in a place on the Web they can call their own is enough. Take for example Fred Bendheim's website at http://www.geocities. com/soho/museum/9903



This demonstrates the very basic nature of a large number of artists' websites: the crude typography and layout (left justified, large banner at the top, default font, one- or two-colour background) the 'range of wares' on display (complete with price tags), the ability to click on a small ('thumbnail') image to see a larger version of it. On another page Fred presents us with a picture of himself and a brief artist's statement:



Signifiers of art and authority abound: the 'welcome' note, which is made to look like it has been painted rather than typed; the opening statement ('Fred Bendheim is an artist...'); the wide-ranging mastery ('in the past twenty years, he has worked in a variety of media including oil, acrylic, watercolor, wood, metal, stone, cement, ceramics, water, printmaking and most recently, paper and cloth collage'); the uniqueness ('He is an artist hard to classify'); the artistic struggle ('he is constantly challenging what he already knows how to do well); the earnest look and the fact that the prose is written in the third person. We are given the impression that we are learning more about the artist than we might do merely by encountering his paintings alone, and that when we buy one of his works we are buying a part of him too - a two-forone deal, great value for money. Fred's art undoubtedly means a lot to him, and to have a presence on the Web is surely a step forward, but by concentrating more on the art of painting than the art of web page design (let alone the art of constructing art for the Web) Fred's website becomes as significant or insignificant as millions of others' 'home pages' - a polite hello from somewhere you might never visit.

In some respects, however, Fred's website is a step up from others in that if, for example, you heard Fred Bendheim was an interesting artist and you wanted to look up his work you could do so without too much trouble, because he is listed in Yahoo! This is one of a number of 'search engines' (like Alta Vista, Excite, Lycos and Hotbot, to name but four) which can be used to locate and navigate to particular websites. At their most basic, search engines provide users with a text box into which to type search terms ('Fred Bendheim', 'Monet Impressionist 1880', etc.); upon submission the search engine sorts through its database of entries to find a website or websites which contain the words the user inputted. Some search engines also organise entries according to their subject matter along hierarchical lines, and allow users to search for sites along branching lists. Yahoo! for example is made up of 14 main subject headings: Arts and Humanities, Business and Economy, Computers and Internet, Education, Entertainment, Government, Health, News and Media, Recreation and Sports, Reference, Regional, Science, Social Science, and Society and Culture. Each heading has sub-headings, which in turn have sub-headings, and so on. Fred Bendheim's website is listed at the end of a branch which runs: Arts and Humanities -> Visual Arts -> Painting -> Artists -> Personal Exhibits.

The Personal Exhibits section of *Yahoo!*, one of the largest and most-used search engines on the Web, would seem a fine place to find Web-based artistic endeavours. But alongside 'Bendheim, Fred - painter and mixed media artist', are listings for 1,564 other artists, from 'Andrew, Keith - visual contemporary artist creating works in oil, watercolor, acrylic and reproduction prints' to 'Zima, Bill - encaustic paintings of figures and earth'. So right from the start, anyone who is

listed here will still be a drop in the ocean, albeit a smaller ocean. Furthermore, for all the individualism of the artists listed there is a surprising homogeneity. Many of the brief entries tell the same well-meaning tale as Fred's website, focusing on the media, or more precisely *range* of media, used by the artist, the style of the work (generally divided up along simplistic modernist lines – 'expressionist', 'surreal', 'abstract', 'impressionist'), the 'prestigious' nature of the artist or their work ('Przewodek, Camille - Studied with Henry Hensche', 'Tomlinson, John - New York Artist') and, of course, the work's financial worth ('Woodend, James A. - clients have included educators, clergymen, civic leaders, and leading professionals'). The vast majority of artists listed are American.

Part of the reason for this homogeneity, I would contend, is the manner in which artists sites are categorised in the Personal Exhibits section. The artists have to suggest to Yahoo! via email that their site should be listed there. Then, 'Sites are placed in categories by Yahoo! Surfers, who visit and evaluate your suggestions and decide where they best belong' (http://www.yahoo.com/info/suggest). It is this categorisation that ensures a particular homogeneity to the type of art on show in the Personal Exhibits section, a categorisation which is at best hackneyed - the section is subdivided into Acrylics, Airbrush, Landscapes, Oils, Portraits, Still Life and Watercolors. Granted, if we go back up one level to Arts and Humanities -> Visual Arts -> Painting -> Artists there are categories for areas such as Installation Art, Mail Art and Video Artists, but the categorisation seems to preclude types of work which would consciously question the nature of the medium (the Web) they appear in. For instance, say an artist made a piece which consisted of a webpage which was split into two frames, with one frame automatically redirecting itself to a random variety of live webcams

(digital cameras linked CCTV-style to the Internet and viewable around the clock) dotted around the world, and in the other frame a picture of Mickey Mouse. And say the artist did not want to provide any documentation (why should s/he?). Would the people at *Yahoo!* take the suggestion that the website should be included in Personal Exhibits? Or would they instead list it under Web Cameras? Or Cartoon Characters?

Perhaps in response to the overcrowded marketplace which is Personal Exhibits, a few artists are taking the step of casting their websites as galleries. A salient example of this is Lady Diamond's Art Studio, http://www.geocities.com/paris/metro/5072/. Here the artist has self-consciously attempted to simulate a series of gallery walls or rooms on her website, patterning the backgrounds with wallpaper, displaying each of her artworks complete with frames. The desire for a status above that of lowly artist is almost palpable, especially with regard to the commentary supplied ('Before you take a tour of my gallery, would you care for a glass of wine? Cheese and crackers are here on the coffee table.') The pretence at simulating a gallery, or gallery tour, falls apart on numerous occasions, for example when an image of a pair of paintings is displayed in the centre of the browser window and accompanied by the following: 'If you will please turn to your left you will see two paintings of still lifes.' Clearly working within the medium of webspace design is secondary to the desire for importance and significance. The whole enterprise becomes merely one of wish fulfilment – a dressed-up home page.

For the artist who wishes to avoid the trouble Lady Diamond has gone to but who wants to have their work acknowledged as in some way legitimate by being curated – to be brought within the realms of a gallery system – a number of on-line galleries have cropped up. These service the needs of their artist clients by providing space on their server for images of the artists' works. These works are then accessed through the gallery's main page and are brought under the umbrella of the gallery's domain name. An example of this in action is Artshow, http://www.artshow.com. One of Artshow's artists is Tammy Anderson at http://www.artshow.com/anderson/



This all seems good enough – a simple, well-designed home page (Artshow, rather than the artist, design the pages), albeit designed to sell work rather than just purely to exhibit it. Artshow's sales blurb says:

We are here to help you advertise your art. We will direct art lovers your way and supply you with a personalized address that will enable you to send potential buyers directly to your work as well. (http://www.artshow.com/infoartist.html)

But when we look at the small print a different story emerges:

[The cost is] Only \$100 US dollars per year plus an initial (one-time) setup fee of \$75 to display 9

pieces of artwork (in both thumbnail and large sizes), your resume or biography, and an artist's statement. You may change any image at anytime for a fee of \$15 per image or change all 9 images for only \$75. (http://www.artshow.com/infoartist.html)

Clearly concerns other than the creation and dissemination of artistic works are central to companies like Artshow. Furthermore, Daniel Jewesbury has pointed out that while there is nothing intrinsically 'bad' about creating exhibition websites that do little more than document the artists' works, when there is so little else in terms of art on the Web, "it pushes art further away from the realm of social interaction, and further into that of 'entertainment'" (Jewesbury, 1998, p.29).

The great custodians of art, the museums, national galleries and institutions, have latterly, one by one, been launching websites. This is a golden opportunity for art institutions, both to reach out to audiences who previously would not have been able to visit in person, and to foster the creation of new works which are not reliant on two- or threedimensional static space and which harness the considerable power of personal computers and the Web. The results so far, however, have been mixed.

The Tate Gallery's site, http://www.tate.org.uk/, is symptomatic of the lower end of the spectrum. It came online (falteringly) during 1998, rather late in the day in terms of the expansion of the Web, and has a very typical restricted usefulness. The "What's On" section is a list of exhibitions and opening times with an amount of P.R. blurb, the Information section contains information on how to get to the gallery itself, and the Collections section is a very dry, long list of the works in the Tate's various collections, with very few of the listed artworks illustrated. Crucially there is very little in the way of explanation of artworks, which is surprising in these days of schools' education programmes and outreach initiatives.



There is of course an online shop where you can buy slides, postcards and so forth, but amazingly, virtually none of the items are illustrated and the payment options section asks you to phone or fax your order in preference to emailing it. So not even the most basic aspects of web design are being taken up – indeed, the impression is that the institution would really rather not be sullying itself in this way. Like many other museum and gallery sites, this is a bare step up from the likes of Fred Bendheim. More time and money has gone into its graphical design, but not the design of its content, or even its raison d'etre. As Linda Strauss, director of information services for the Whitney Museum of American Art says, 'Everyone is getting on the Web, but I'm not really sure that everyone has thought about *why* they're on it' (Strauss *in* Kastner, 1996, p.85). Merely to keep up with

the institutional Joneses, or to provide an online advertisement – an *upload and forget* mentality – seems to be enough where some galleries are concerned.

Up to this point the only art we have seen on the Web has been art made in one medium and transposed – by being photographed – onto another. As such, these works barely scrape the surface of the possible. Thankfully however a few major galleries have begun to take the bull by the horns and at least acknowledged that the Web could be a viable place to make art. Typical of this attitude is New York's Museum of Modern Art (MoMA) at http://www.moma.org.



Here, as well as the standard information packages as outlined above (the museum provides an audio commentary on only a few of its most popular paintings, culled wholesale from its acoustiguide portable handsets), there is an Online Projects section. This at least has the potential to foster interesting new art forms. In reality however what we are presented with are addenda. Two of the pieces are illustrated journals which, while containing the odd sound or video clip, by their very nature deny the necessity for random hyperlinking in favour of a straightforward linear page-turning approach on the part of the viewer. One of the pieces, in support of a Peter Halley print show, invites the viewer to rather tediously colour in and sign one of Halley's prints. Only in Robert Cumming's *Academic Interactive Exercise*, wherein the viewer is invited to rotate and illuminate three Platonic solids, is there any form of engagement with matters of representation in the digital realm. The message of this section of the website appears to be 'if it's in some small way interactive and it's designed by a big name, it's an online project'.

Perhaps the reason for this is, as Jeffrey Kastner says, 'because the medium is so new, any hard fiscal justifications for getting on the Web are still bound to be speculative' (Kastner, 1996, p.85). The Whitney Museum's website (http://mosaic.echonyc.com/~whitney), and more importantly their website policy, is a model of the way in which museums and galleries could foster art on or for the Web without needing to spend too much precious money. Very simply, alongside the usual opening hours information and so forth, the website contains a series of links to sites chosen by the museum, including Web-based multimedia projects by artists like Laurie Anderson and Julia Scher. Admittedly, the criticism levelled previously against MoMA (stars only) could be levelled at the Whitney, but the important thing is that these hyperlinks – one of the basic cornerstones of the Internet – mean that the museum can confer on artists outside its domain a new form of patronage. Without needing to spend time or money on or with an artist, the Whitney, and other institutions if they took the step, could either find or encourage new Web-based works which would simultaneously be independent of the museum and virtually part of it. These links could

be rotated, appearing only for a month or so (to simulate 'exhibition'). The works themselves would be developed by the artists, would take up space only on their own servers, thus saving the institution money. All it would take would be a single person charged with the responsibility of finding the art and artists and determining, or recommending, which pieces deserve the gallery's patronage.

In order to reach this situation, though, there must first be resources and education. Mastering the new media is an often daunting task, and the availability of expert technicians, computers and software -- especially if geared towards artistic production -- is vital. Naturally, this will be much more effective if staged at a local rather than a national level, and can be seen in action in places like Dublin's Arthouse Multimedia Centre (http://www.arthouse.ie) -- indeed, exartistic director of Arthouse Niall Sweeney recently described the current trend in this form of education as 'becoming more local and enabled' (Sweeny *in* Jewesbury, 1998, p.34).

Arthouse, as well as being an exhibition space, is a dynamic combination of training and workshop centre, multimedia archive, professional advice shop and all-round digital media evangelist, encouraging the creation of new work. It does not often show Web art on its own website, but this is fitting: such institutions should be continually evolving, giving those who 'graduate' from them the ability to set up the projects they want to make however and wherever they want to make them.

#### Chapter 4

The Internet is undoubtedly the mass medium of this decade and on it one would hope to find new forms of artistic expression and new ways of viewing our culture. Indeed, it has been said that, when given new forms of media, "it is essential to find 'new things to say' and 'new ways' of saying them" (Jewesbury, 1998, p.24). Neil Postman, in discussing new media, has stated that

> each medium, like language itself, makes possible a unique mode of discourse by providing a new orientation for thought, for expression, for sensibility. Which, of course, is what McLuhan meant in saying the medium is the message (Postman, 1985, p.10).

But, as we have seen so far in this thesis, very few of the artworks to be found online were created expressly and primarily for the Web. This is a sad state of affairs, one which needs to be rectified if Web art is to have any future – indeed, if it is to be taken seriously at all. In his article *Ten Reasons Why The Art World Hates Digital Art* Ewan Morrison rails against Web and electronic art: 'Nothing offends the sensibilities of those who have been raised on a diet of conceptualism and minimalism more than gimmicks and theatricality,' he says (Morrison, 1998, p.25). He goes on to describe a graphically designed 3D world, 'undoubtedly the product of immense technical mastery and several years of committed hard graft' as 'a waste of time' (Morrison, 1998, p.25), and states that 'artists get used by technology. Not the other way around' (Morrison, 1998, p.24). Morrison's fears are undoubtedly well-founded. Just as with any other medium – video,

installation, oil paint – work which is gimmicky and theatrical often leaves a bad taste in the mouth; as with any other medium, bad artists expend huge amounts of effort on unappealing ideas; and as with any other medium, the artist can easily find him/herself seduced by their materials. Such things come as no surprise. Good work often arises from an artist feeling completely at home with their medium, understanding that it can do some things well and others not so well, developing an attitude towards *it* as well as to the things s/he wants to express through it. Such qualities are essential in the Web artist, where default settings and web page templates are easy traps to fall into, and the learning curves of programs needed to create such work are steep.

For those who manage to scale these curves there is now some recognition to be had. Perhaps foremost amongst these is the annual Prix Ars Electronica (http://prixars.orf.at), which is organised by the Austrian Broadcasting Corporation but international in scope. 1998 was its twelfth running, and saw 1,845 entries from 47 countries in the categories of computer animation, interactive art, computer music, under 19s/'freestyle computing', and -- since 1995 -- Web art. When judging the category of Web art the jury assesses the work in terms of its suitability for the Web, discounting work that simply puts on the Net what is more commonly seen in the gallery (PAE in O'Brien, 1996, p.210). The total prize money on offer in 1998 was 1.35 million Austrian schillings (around IR£77,000), and the combination of these financial rewards and the prize's global reach mean that for each time of its running the Prix Ars Electronica establishes an ever-shifting standard of excellence, a 'state of the digital art', which serves to encourage others working or aspiring to work in the media.

What of those artists who, rather than aiming for the stars, simply wish for their work to be exhibited in a sympathetic context? Thankfully there are already a few sites and organisations set up to cater to this need, espousing advancement in technological-artistic terms and wider bringing it to a audience. The RGB Gallery (http://www.hotwired.com/rgb/), while not perfect, is a valiant attempt to exhibit and encourage such work by artists who are committed to the medium as opposed to artists who want to dabble in the medium, or programmers who want to dabble in art. RGB is one of the main sections of hotwired.com, which is the news, arts, and entertainment website of Wired magazine, the now-famous oracle of the 'digerati' and 'neterati'.

One of the first things one notices about the RGB Gallery is that there is no pretence at simulating a physical gallery space. The browser window does not become a wall, there is no 'please step through this way'. It is simply a classic webpage (though both introduced by and including some introductory animations) with a link to the most recently-exhibited artwork at the top, and links to previously-exhibited works lower down. Indeed, perhaps 'exhibited' here is an outmoded term, and 'posted' should be used in its place. New pieces are posted on a regular basis (roughly once per month), and viewers can elect to be sent an email alerting them when new work appears. Works are commissioned, but as with other areas on hotwired.com, the 'curators' are interested in seeing submissions from any artist who have made pieces in the medium. This is another angle on the new patronage mentioned in connection with the Whitney Museum in the previous chapter, and is evidence of an enlightened view on the part of people who want to see interesting and innovative art first and dollars somewhere lower down the list.

Two pieces in particular stand out from others posted at RGB. The first is *Relisten:Please!* by Leo Neumann and Ole Luetjens
(http://www.hotwired.com/rgb/relisten/). The premise of the piece is simple: to take a story and turn it into a single sound. The viewer is allowed to choose from a number of scenarios, each of which comprises a piece of text, an image and a resultant sound. The sound wave that creates the sound begins as a line traced through some of the elements of the image, but can be modified by the viewer using the computer's mouse to drag and drop words from the piece of text into different combinations, different sentences. As s/he does so – as the meaning of the text changes – so does the sound wave.



Here then is a multidisciplinary work (prose, photography, sound engineering, computer programming, graphic design) which can only be experienced (and, it could be argued, could only realistically be brought into being) via the Web. Due to its slightly whimsical premise it could be seen to fall foul of Morrison's accusation of gimmickry, but that is a matter of individual taste. It is a simple and efficient piece designed from start to finish with the Web as its natural home.

To be purist about the matter, Neumann and Luetjens's piece is

caught in the Web. In other words, it exists as subservient to the browser window. When we look at it and join in with it we do so thanks to the browser we are using. The nature of the browser is not central to the piece. In fact it does not impinge upon it, does not seem to make any difference. It is as if a video artist made a piece of video art and didn't care whether it was shown on a fifty-foot screen or a two-inch pocket T.V. Clearly, if an artist wants to have full control over their artwork they must take control of the medium, if at all possible, engaging with it as and when necessary. So must the Web artist. S/he must confront the fact that we experience the Web through a browser and, if it is felt necessary, make provisions for that fact. Or even make use of it. Such is the case with *you me and: A Digital Minimal Opera in Three Acts* by Erwin Redl (http://www.hotwired.com/rgb/redl/).

The three 'acts' of the piece pop up simultaneously in separate browser windows on the viewer's computer desktop. The viewer is encouraged to place them wherever desired. The 'acts' only become active when the viewer's mouse pointer rolls over them.





which rotates between two lines of moving numbers; the viewer discovers that clicking on the numbers creates more rotating figures.



The second 'act', *and*, is a 'crowd scene', with male and female silhouettes replacing the rows of numbers but being replaced by them under the command of the viewer's mouse.



In the third 'act', *you me and*, the numbers and figures reappear in new combinations, and the sound textures created by the previous two acts are also combined into a new 'score'. Redl's piece embraces both the possibilities of the Web (interactivity, the delivery of images both static and moving, text, and sound) and its framing device. This latter point cannot be understated, as it implies that what the viewer sees on his/her screen is *meant to be that way*, rather than being that way simply because it was the best the artist could do before s/he had to compromise. As such, it pushes against the boundaries of what art can be, what the Web can be, and what Web art can be.

As a cap to all of this, and in addition to its open submission policy, RGB further acts as a spur to the creation of Web art in its tutorials section. These are a series of illustrated guides to programming and using certain software tools (Director, Shockwave Flash, etc.) in order to create Web art. They are entertainingly written by programmers and Web artists, and serve to broaden fellow artists' knowledge and abilities. Furthermore, they are linked to from within the interviews conducted with the artists whose work is posted at RGB, so when an artist mentions a particular software package, its name will form a hyperlink off to one of the tutorials. This social and educational aspect, of artists sharing information, skills and techniques, is invaluable to a global artistic community which, for obvious reasons, cannot do so at someone's private view. Perhaps this would be the next step for institutions like the Whitney Museum and other institutions like it, if they seriously want to promote Web art as a viable and legitimate art form. Many large galleries have education programmes, so why not a Web art education programme? At the very least it might inspire some artists to try their hand, or want to learn more. Consider the three artists mentioned above: Erwin Redl studied electronic music at the Academy of Music in Vienna; Leo Neumann also began his career in electronic music; only Ole Luetjens comes directly from a fine art background, the other two having moved into art sideways. If more fine artists can be made to feel at home in this new medium through adequate education – multimedia and computer art courses – then we will ensure that the first new art form of the new millennium will not be the same as the last new art form of the last one.

## Conclusion

In the 1970s, when portable video cameras first became commercially available, many artists and social activists were excited by the possibility of production tools finally being in the hands of people who could make non-commercial, community-based programmes. But as we now know, this had little impact on the content of broadcast television. Terms like 'broadcast quality' were used by the industry as a way of preventing 'amateurs' gaining access to the airwaves and ensuring that their commercial interests remained unchallanged.

So today, when one hears talk of the Web as holding "a key to the future of art in our democracy" (Broun, 1996, p.318), the tendency is to remain a little cautious, if not somewhat sceptical. And as the Web, like television, becomes ever more commercial -- a virtual shopping mall -- it appears less likely that relatively esoteric works by artists will seem at home, or even appropriate, in this environment. As this thesis has shown, much discussion of the Internet has been in techno-utopian terms, with its liberatory and democratising potential highlighted. But as its commercial potential is increasingly recognised and exploited, the emphasis seems to be much less on freedom of information and expression than freedom of the marketplace. And though cyberspace is supposedly a neutral space where people can come together on equal terms, forming new communities, it could be argued that the Internet, on a fundamental level, is biased towards certain groups -- for example, as Poster points out, the dominant use of English on the Internet suggests an extension of American power, as does the fact that e-mail addresses in the U.S. alone do not require a country code (Poster, 1995, p28).

Artists intending to make work for the Web must keep these

arguments in mind. But even after overcoming all the difficulties of making and distributing art on the Web, artists seem to face opposition within their own community. Though digital and Web art is receiving more notice from the artworld (in Britain there is now the Imaginaria prize for digital art, and as has already been mentioned the international Ars Electronica prize has a category for Web art) there exists what has been called 'a long-simmering antipathy' between 'digital art' and 'contemporary art' (van Mourik Broekman/Worthington, 1998, p.23). This has been attributed to 'post-Duchampian hatred of technique', meaning art which requires any form of technical skill has been devalued to the status of craft (Morrison, 1998, p. 25). Perhaps another reason could be that the notion of the 'original' is alien to digital art. And though the dematerialisation of art has been around for quite some time, it has not lessened the artworld's desire to preserve the iconic status of the original artwork. It is not only the concept of the original that Web art undermines, but notions of value based on place. Therefore, attempting to make art on the Web might require a rethink of what we consider art to be, otherwise one could end up judging art of one medium in the terms of another.

It has been said that "Periods of major technological change transform art and disrupt the criteria used for evaluating it" (Lovejoy, 1997, p. 179). Without a doubt the coming of the Internet and the Web represent such a period of change. And even though at present the majority of Web art might offer little more than an electronic example of the sorts of artworks one encounters in 'real' space, as artists become more familiar with the medium, and begin to understand and exploit the properties it has to offer, we will undoubtedly begin to see more Webspecific work being created, and art can begin to address what it means to live in our brave new digital world.

## Bibliography

ADAWEB, http://adaweb.com

ADORNO, Theodor and HORKHEIMER, Max, "The Cultural Industry: Enlightenment and Mass Deception", in <u>Dialectic of Enlightenment</u>, London, Verso, 1979.

ANDERSON, Christopher, "The Internet", in <u>Going Digital: How New</u> <u>Technology is Changing Our Lives</u>, London, Profile Books in association with The Economist Newspaper Ltd, 1996.

TAMMY ANDERSON, http://www.artshow.com/anderson/

ARTHOUSE MULTIMEDIA CENTRE, http://www.arthouse.ie

ATKINS, Robert, "The Art World & I Go On Line", <u>Art in America</u>, December, 1995, pp. 58-65+109.

BARBROOK, Richard, "The Holy Fools", <u>Mute</u>, issue 11, 1998, pp. 57-65.

BARBROOK, Richard and CAMERON, Andy, "Californian Ideology", http://ma.hrc.wmin.ac.uk/ma.theory.4.2.db

BARRETT, Edward and REDMOND, Marie, (eds.), <u>Contextual Media.</u> <u>Multimedia and Interpretation</u>, Cambridge, MA, MIT Press, 1997.

FRED BENDHEIM, http://www.geocities.com/soho/museum/9903

BRITISH BROADCASTING COMPANY, The Netstory, BBC 2, 1998.

BENJAMIN, Walter, "The Work of Art in the Age of Machanical Reproduction", in <u>Illuminations</u>, New York, Schocken Books, 1969.

BROUN, Elizabeth, "Art, Electronic Outreach and American Democracy", Leonardo, vol. 29, no.4, 1996, pp. 317-318.

CAKWELL, Tony, <u>The Multimedia Handbook</u>, London, Routledge, 1996.

CERF, Vint, <u>A Brief History of the Internet and Related Networks</u>, http://ww.isoc.org/internet-history/cerf.html

DIA CENTER FORTHE ARTS, http://www.diacenter.org

FELDMAN, Tony, Introduction to Digital Media, 1996, Routledge, 1997.

GRAPHIC VISUALISATION & USABILITY CENTER, <u>9th WWW</u> <u>User Survey</u>, www.cc.gatech.edu/gvu/user\_surveys/ survey-1998-04/

HARRIS, Martin, "Pancapitialism and Panaceas: Manual Castells in London", <u>Mute</u>, issue 11, 1998, pp. 53-54.

JEWESBURY, Daniel, "Where do you want to go today?", <u>Circa</u>, no.84, Summer, 1998, pp. 24-27.

40

JEWESBURY, Daniel, "C is for...", <u>Circa</u>, no 85, Autumn, 1998, pp. 30-35.

KASTNER, Jeffrey, "Web-Sight: Museums and the Net: Onward and Somewhere", <u>ARTnews</u>, October, 1996, pp. 85-86.

LADY DIAMOND'S ART STUDIO, http://www.geocities.com/paris/ metro/5072

LEINER, Barry M. et al, <u>A Brief History of the Internet</u>, http://www.isoc.org/ internet-history/brief.html, 1997.

LILLINGTON, Karlin, "Online Shopping Bonanza Hits U.S.", Business This Week, <u>The Irish Times</u>, January 15th, 1999.

LOVEJOY, Margot, <u>Postmodern Currents: Art and Artists in the Age of</u> <u>Electronic Media</u>, Prentice Hall, New Jersey, 1997.

MCLUHAN, Marshall, <u>Understanding Media: The Extensions of Man</u>, London, Routledge and Kegan Paul, 1964.

MORRISON, Ewan, "Ten Reasons Why the Art World Hates Digital Art", <u>Mute</u>, issue 11, 1998, pp. 24-25.

MUSEUM OF MODERN ART, NEW YORK, http://www.moma.org

MYERS, Brad A., <u>Computer Almanic: Numbers</u>, http://www. cs.cmu.edu/afs/cs/user/bam/www/numbers.html. O'BRIEN, Paul, "Leaving Reality Behind", <u>Circa</u>, Winter, 1996, pp. 20-23.

POSTMAN, Neil, <u>Amusing Ourselves to Death: Public Discourse in the</u> <u>Age of Show Business</u>, London, Heineman, 1986.

POSTER, Mark, <u>The Second Media Age</u>, Cambridge, Polity Press, 1995.

PRIX ARS ELECTRONICA, http://prixars.orf.at.

RGB GALLERY, http://www.hotwired.com/rgb

ROSS, Andrew, "Poll Stars: Komar and Melamid's 'The People's Choice", Artforum, January, 1995, pp. 72-77.

STERLING, Bruce, <u>A Short History of the Internet</u>, http://www. forthnet.gr/forthnet/isoc/short.history.of.internet

TATE GALLERY, http://www.tate.org.uk./

TURKLE, Sherry, <u>Life on the Screen: Identity in the Age of the Internet</u>, London, Phoenix, 1997.

VAN MOURIK BROEKMAN, Pauling and Simon WORTHINGTON, "In the Name of Art", <u>Mute</u>, issue 11, 1998, p. 23.

VINE, Richard, "Numbers Racket", Art in America, October, 1994, pp.117-119.

WERTHEIM, Margaret, "Painting by Numbers: The most wanted painting in the world", <u>World Art</u>, no.2, 1996, pp.12-13.

WHITNEY MUSEUM OF AMERICAN ART, http://mosaic.echonyc .com/~whitney.

WYPIJEWSKI, JoAnn, (ed.), <u>Painting By Numbers: Komar and</u> <u>Melamid's Scientific Guide to Art</u>, New York, Farra, Strus and Giroux, 1997.