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Neon Origami Towards a Philosophy of Interactive Technology

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Table of Contents

1	Terminology
2	Introduction
4	Chapter 1: Defining the Space (i) Modernism
9	(ii) Postmodernism
14	Chapter 2: Creating Cyberspace
23	Chapter 3: Navigating Cyberspace
33	Chapter 4: Mapping Cyberspace
43	Conclusion
45	Bibliography

List of Illustrations

Figure 1: Part of a Macintosh "Desktop"	21
Figure 2: Plant Centre by William Latham	24
Figure 3: Mutation Y1 by William Latham	24
Figure 4: The Mandelbrot Set (i)	26
Figure 5: The Mandelbrot Set (ii)	26
Figure 6: The Mandelbrot Set (iii)	26
Figure 7: The Qabalistic Tree of Life	41



Information wants to be free.

- Computer hacker's ethic.

Terminology

In my terminology in this essay, I have attempted to avoid using any technical jargon without explaining it. My use of the term 'four-dimensional' requires clarification. It is now generally assumed by physicists that the fourth dimension is time, although the term has not yet become common currency. When referring to, for example, a piece of live video, I will be terming it 'four-dimensional'. A piece of static sculpture remains three-dimensional, and a painting two-dimensional. The objects in themselves have a four-dimensional existence– as Einstein showed us, time is a product of space and should not be considered separately from it– but the medium is what I am concerned with and that is what I am referring to in using dimension-al labels.

I have avoided using the over-hyped and much-abused term 'virtual reality' except when referring specifically to the attempt to create a fully immersive computer-generated alternative reality. This typically involves using a stereoscopic visor (at present) or a direct electronic input into the brain (in science fiction). Anything else is almost certainly an abuse of the term. I have appropriated the more looselydefined buzzword 'cyberspace' for my description of an apparently four-dimensional communications universe. For the use of this term, I acknowledge my debt (and the debt of the English language, since it will undoubtedly appear in the next Oxford dictionary) to its creator, William Gibson. He is also the source of the title, 'Neon Origami', from one of his descriptions of cyberspace.



Introduction

These are exciting times in which to live. With the postmodern era, humanity has reached a new frontier in its development. In common with previous frontiers in the Western world such as the Industrial Revolution, the Age of Discovery and the Renaissance, these times are characterised by a great confusion about the beliefs that we had previously taken for granted.

One of the causes of this confusion is the sudden development of technology over the last twenty years. The exponential curve of change has seen the field metamorphose at a far faster rate than our minds or philosophies can keep up with. I will be examining specifically the area of interactive technology, covering the developments that have already occurred but emphasising the changes that we may expect to see in the future. My intention is firstly to prove that the impact of interactive technology, and its associated social changes, will be great enough to require a redefining of our philosophical structure. To this end I will examine the effect that interactive technology has already had on the structure of the economy, and the future implications of this effect. With a brief economic theory of interactive technology in place, I will look at the more purely philosophical effects. Rather than attempt to formulate a new philosophical structure to deal with the technological frontier I will be examining the established philosophical structures that seem most appropriate in dealing with the new technology. I will be looking back to two ancient philosophies or religions, one Western, one Eastern, both of which far predate the Enlightenment-era conception of the individual as a separate entity from his or her surroundings.

But in order to discuss the technology of the postmodern era, it is necessary to have an understanding of the broad characteristics of postmodernity. These characteristics will be drawn upon to support my arguments concerning technology. It is difficult to stand back from



postmodernism and consider it objectively, as it is so pervasive. At present the movement has little orthodox theory and many divergent opinions. As Fredric Jameson points out, "Postmodernism theory is... the effort to take the temperature of the age without instruments..." (Jameson, 1991, xi) To a great extent, it is easier to consider postmodernism in terms of what it is not: namely, modernism, and modernism's philosophical backbone, the Enlightenment. The Introduction, therefore, will give an outline of the Enlightenment and the Age of Reason, modernism, and postmodernism.

In the first chapter, I will be looking at the technology that is in place and how it has affected the economy. Chapter two will examine the future development of the technology in greater detail and its implications for our sense of space. The third chapter will be a look at the established philosophical structures that seem to have most relevance to the field of interactive technology and how close they actually are to our new philosophical requirements. Finally, I will conclude with a summing up of my observations.

Chapter 1 Defining the Space

(i) Modernism

From the Age of Reason in the Eighteenth century almost until the present day, the style of Western thought has been part of a 'grand narrative'. We have been following philosophical themes that were defined by the thinkers who formulated the structure of Reason- most notably, René Descartes and Immanuel Kant. This was the style of thought that endured and developed throughout the Industrial Revolution, the rise of popular literacy, the growth of the cities and the working class, the Victorian era, the development of the sciences, and into the twentieth century. It continued throughout this century, with the development of parliamentary democracy, fascism and Communism, modern warfare, telecommunications and television, technology and automated production, and everything else that we associate with the 'modern' world. And gradually, over the last couple of decades, it began to wind down, as we started to enter the 'post-modern' era.

This 'grand narrative' of Cartesian Reason is not necessarily a particular philosophy; rather, it is an 'umbrella term' for the style of thought generally practiced in Western society, and can be seen in such different areas as Marxism, Fordism, Freudian psychology, and modernist architecture, to name just a few examples.

The Cartesian style of thought can be briefly summed up with a look at the theories of Descartes himself and his most illustrious successor, Kant. René Descartes (1596-1650) viewed the world as an inert object which is manipulated by the observer– the subject. He assumed a radical and definite split between the subject and the object of observation. His world view was founded on dualisms: masculine/feminine, mind/body, logic/emotion, soul/flesh. Cartesian thinking is characterised by the belief that one understands the world not by experiencing it, but by viewing it in an unbiased fashion. Logic is more valid





than instinct, the theory means more than the emotional response, and evaluation triumphs over experience. The human understands the universe because they are a separate entity, and can look at things objectively (Waugh, 1992).

Immanuel Kant (1724-1804) developed the ideas of Descartes. He assumed the Self to be a stable entity which can observe its own inner states and also the outside world. He believed in reason as a transcendent value. If one could discover within oneself the universal motive for truth, justice and freedom, then one could create a correspondence between one's mind and the external manifestations of these forces. This connection between the mental and material ideals would lead to a better understanding of the world. The way to achieve this level of understanding would be to rely purely on reason and to bypass the human distractions of emotion and prejudice (Durant, 1961).

This analytic approach to the world might be traced back to Aristotle and is a fundamental feature of post-Renaissance Western thought. It might be considered to have reached its height in the Modern era. As we trace the change from modernism to postmodernism, one aspect of what we are viewing is the collapse of the belief that we are completely separate from the world we inhabit.

'Modernism' is the term that describes the 'high' culture of most of the twentieth century. Modernism was a period of experimentation and subversion of established practices in an attempt to break with the rooted traditions in the West. Andreas Huyssen further subdivides the movement into modernism proper and the Avant-garde. The former is rigidly antipopulist and is viewed by theorists such as the Marxist critics Adorno and Horkheimer as the last-ditch stand against the administered, totalitarian kitsch of mass culture. It makes no attempt to be accessible to the general public (O'Brien, 1989).

The Avant- garde, on the other hand, attempts to unite the cuttingedge, progressive nature of modernism with a belief in bringing art to



the masses and making 'culture' a part of the everyday lives of ordinary people. Not surprisingly, Avant-garde movements were frequently associated with left-wing politics.For example, Dadaism was a hotbed of post- World War One anarchism. Most Surrealists (not including Dali) were also leftists (O'Brien, 1989). But in terms of longterm impact on the general public, the most successful of all Avantgarde movements was undoubtedly Walter Gropius' Bauhaus school of design in Weimar Germany. The school suffered constant difficulty, due to Right-wing antipathy to its largely Communist student ethos. It was finally closed down by the Nazis in 1933 after Gropius had handed over the reins to the avowedly Marxist Hannes Mayer, and then to the also highly controversial Mies Van der Rohe (Whitford, 1988).

Ignoring for the moment the distinction between modernism proper and the Avant- Garde, other characteristics of the twentieth-century cultural movement include the stress placed on the 'form' of a work as opposed to its content. Conventional ideas of beauty and harmony are rejected in favour of experimentation with new ways of making an artistic statement. Modernism does not reproduce reality perfectly; it challenges and questions it. This abstraction is to fulfil the modern artist's desire that the viewer forget their preconceptions ,their conditioning, their accumulated knowledge and their sense of tradition. (The hyperrealist work of painters such as Martin Gale and Robert Ballagh is no exception: the effect is that of a realism so perfect that it feels emotionally cold and abstracted from reality.)

Could modernism be considered the apex of the Cartesian progression? Modernism's belief in breaking with the past was an attempt to implement the principles of the Cartesian Enlightenment, not to subvert it. This is a self-proving fact, because the very idea of leaving aside established things in order to find a better, more Reason-based answer is the foundation of Cartesian/Kantian philosophy. The modernist apologist Jürgen Habermas notes that "modernity revolts against the normalising functions of tradition... to neutralise the stan-



dards of both morality and utility." (Foster, 1983, p5) One might compare this to Patricia Waugh's description of Kant's idea of enlightenment: "...we must transcend local situation, emotional distraction and personal prejudice, otherwise reason cannot be consistent..." (Waugh, 1992, p87) Comparing the two beliefs, it is clear that both modern art and Cartesian philosophy share the belief that transcendent knowledge is discovered when one ignores ones preconceived ideas.

Another link between modernism and Cartesianism is the political and economic one. Modernism's earliest developments began in the late nineteenth century, at the time of the introduction of the secret ballot in the Western world. The modernist movement followed the reform of the suffrage laws in the twentieth century, and was shaped by the political changes that resulted. For example, the development of feminism would not have been as influential without the introduction of female suffrage. The feminist movement then exerted a great influence on modernism, in the form of people such as Virginia Woolf. The reform of suffrage was a development of the democratic movement that began with the Age of Reason. In a powerful manifestation of Enlightenment principles, the republican democracies (France was a dramatic example) recognised that aristocratic titles were a barrier to the goal of opening up the positions of influence to all. Unlike, for example, the European monarchy or the Japanese feudal system, the position that one is born into has no bearing on the political heights one can scale in a true democratic system. (This is not to ignore the real restrictions in our democracies. The design philosopher Victor Papanek (1972) points out that in the United States, the country where "anybody can become president", the only prerequisites are that they be white, male and middle class.) In other words, gaining power- the political equivalent of the philosophical state of enlightenment- is not reliant on the non-rational prejudices associated with inherited titles.

In economic terms, modernism coincides approximately with the era of monopoly capitalism, the roots of which lie in the Industrial



Revolution (O'Brien, 1989). Cartesianism privileges such a secular economic system– one under which, theoretically, anybody has a chance of achieving financial success. In the world of business, if we translate the Cartesian principle of losing ones preconceptions into the capitalist 'equality of economic opportunity', then Cartesian 'enlightenment' translates into capitalist 'financial success.' Both examples just given– politics and economics in a democratic society– illustrate the Cartesian attitude that success is achieved by leaving aside prejudices and relying purely on reason.

Crucially, however, even when modernism was rebelling against the prevalent economic ethos, it almost always looked toward a system equally symptomatic of a Cartesian mindset. The obvious examples are the Avant- gardists mentioned above, who favoured Marxism, and the Italian Futurists of the early twentieth century (and the American writer Ezra Pound), who extolled Fascism (O'Brien, 1989). Cartesianism believes in universal systems which apply to all rational thinkers, as reason transcends cultural barriers. Therefore, theories like Communism and Fascism, which purport to provide final and universal answers to our problems are perfect examples of this style of thought.

The strongest connection between modernism and the Marxist regime came during the short-lived highly creative phase in the Soviet Union during the early '20s. In this 'golden era,' the Russian Constructivist movement achieved a beautifully successful combination of Marxist political morality and modernist forward thinking through their posters and other printed works. The Fascist regimes hated modernism, but Hitler's architect, Albert Speer, was happy to use modernist techniques and cover them with a pseudo-Classical veneer. More ironically, the Nazis used principles of Bauhaus design in building the death camps (Harvey, 1989). When the State supposedly embodies Reason, the result is a government that cannot be argued with. Descartes had a vision of a unitary universal science, and totalitarian governments were the warped offspring of his idealism.



(ii) Postmodernism

For better or for worse, the modern era is unarguably over. All that we are certain of is that the established philosophies of modernism and Cartesianism are no longer adequate to help us to understand the world in which we now find ourselves. Instead, we look to more radical, anti- Enlightenment philosophies in order to find a historical precept. Martin Heidegger (1889-1976) is a philosopher who was little understood in his lifetime but who is being freshly considered by new thinkers. There is some controversy over the possibility that Heidegger was an enthusiastic member of the Nazi party in the early '30s, but no significant element of Fascism can be found in his philosophy. The man was a ruthless careerist and it seems highly unlikely that he was a Nazi for more than reasons of convenience. If we look at Heidegger's philosophy rather than at his (unproven) political beliefs, then we will see much of interest to the postmodernist thinker.

Heidegger felt that Cartesianism was an inadequate basis for knowledge. Through its creation of opposites, he considered it to be a cause of war and conflict. He saw the world as a rich texture which is there before and after every person, and of which people are an integral element, not a separate entity. People find their identity through their language and society; one understands the world through experiencing the various forms of thought that it offers (Waugh, 1992).

Heidegger, in his philosophy, echoes Friedrich Nietzsche (1844-1900) and his belief that life is an aesthetic challenge and one's experiences in the world are a sensory panorama first and foremost. To cut oneself off from this by believing oneself to be separate from the world by virtue of one's rationality is utterly negative. To live one's life constantly gathering experience and understanding could offer, if not a universally transcendent truth like Kant's Reason, then certainly a truth great enough for one's own transcendence (Durant, 1962).

The philosophers of the present day look back to thinkers like these in



forming theories of our postmodern world. Susan Sontag rejects the idea of taking a divisive, deliberately intellectual approach to art which prevents one from experiencing its sensuous nature. She sees the opposition between subject and object as an artificial barrier to understanding.

Michel Foucault denies that the nature of humanity can be understood through dry theory, as humans are highly resistant to being encompassed by theoretical systems. In his History of Sexuality, he expresses his belief that a perfectly repressive mechanism cannot exist, since any power mechanism is in reality a network of power relations. Furthermore, any system of power inherently implies a series of resistance efforts which fight against the ruling mechanism at various points (Foucault, 1981). (This may help to explain the failure of Communism and Fascism as ruling mechanisms in the twentieth century.) Foucault summed up the main argument of Kant's essay, An Answer to the Question: What is Enlightenment?, as follows: "Humanity will reach maturity not when it is no longer required to obey, but when men are told, 'Obey, and you will be able to reason as much as you like.' " (Waugh, 1992, p98) Foucault's own response to this attitude is, "...the historical event of the Enlightenment did not make us mature adults, and we have not reached that stage yet... The critical ontology of ourselves has to be considered not, certainly, as a theory... it has to be conceived as an attitude, an ethos..." (Waugh, 1992, p107/108.)

Other important names in developing new theoretical perspectives are the American economic philosopher Fredric Jameson whose crucial work, *Postmodernism: Or, the Cultural Logic of Late Capitalism* traces the relationship between global corporate capitalism and the fragmented culture that is the hallmark of postmodernism. Jean Baudrillard and Umberto Eco both consider postmodernism from the standpoint of semiotic theory and its successors, structuralism and poststructuralism. Baudrillard tends to be concerned with the constantly multiplying information in the world. His theory that present-day capitalism is



geared to producing signs- representations of ideas- will have some importance later in this essay. Eco's fascination with popular culture and kitsch have led him to some interesting theories on how the signifier is constantly retreating from the signified in the all-devouring mass market. (In a good example of how he sees kitsch as a random reassemblage of established forms, he describes the decor of a Californian motel thus: "Let's say that Albert Speer, while leafing through a book on Gaudi, swallowed an overgenerous dose of LSD and began to build a nuptial catacomb for Liza Minelli." [Eco, 1987, p24.])

If we are truly experiencing such a great change in our style of thought, then where is the impetus coming from? What is bringing about the postmodern condition? Since the Second World War, Western society has undergone a number of enormous changes in practically every field of study. In politics, economics, sociology, art, literature, science, technology, architecture, education, communications, transport, leisure activities, and many more areas, we have seen so many changes that it is hard to imagine how we could rely on a philosophical structure that largely predates the Industrial era. To express it more concretely, André Gorz, the iconoclastic Marxist, writes in the mid-'80's that "...our lifelong hopes and values are crumbling. The future ceases to be a continuation of past trends." (Gorz, 1985, p1) Gorz considers the cause of the crisis to be the collapse of the industrial society in the West. From the viewpoint of demographics, Victor Papanek, talking specifically about the population explosion, says that "nothing in human experience, no technique adopted in the past, is relevant to the kind of problems that arise when one considers the future's population densities." (Papanek, 1972, pp232-233.) The economist John Kenneth Galbraith, surveying the post-war consumer society, claims that "our economic attitudes are rooted in the poverty, inequality, and economic peril of the past," and, more urgently, "[Ideas] yield not to the attack of other ideas, but to the massive onslaught of circumstance with which they cannot contend." (Galbraith, 1958, pp 14, 27.)



Other observers have similarly noted the necessity for changing our whole structure of thought in order to keep up with the pace of change in the world. One of the important fields of development has been that of science. The Zen-influenced physicist-philosopher Fritjof Capra believes that clinging to the mechanistic world view of Newton and Descartes has brought us close to destruction. The American physicist David Bohm has also been heavily influenced by Buddhist figures, including the Dalai Lama and Krishnamurti, in his rejection of reductionistic science (Wijers/Pijnappel, 1990).

Other important figures in defining and popularising the science of the postmodern era include Stephen Hawking, the charismatic physicist, and James Gleick, author of *Chaos*, a very widely-read book on the new Chaos science. New ideas in physics should not be underestimated as a vital element in defining the Postmodern condition. Some of these discoveries, in the field of quantum mechanics especially, may challenge our established conceptions of life as much as Darwin's discoveries stirred Victorian society. Another historical analogy is the great influence that Einstein had in inaugurating the the Modern era. His discoveries overthrew the stability of Newtonian mechanics and gave a scientific precedent to radical artists such as Joyce and Picasso.

In the area of cultural theory, Charles Jencks calls the period from the 1450s to the 1950s "the modern period" and claims that the "uncontested dominance" of this era is definitely over, and that it is time that we defined a direction for a new era (Jencks, 1992, p11.) The historian Arnold Toynbee has expressed similar feelings (Waugh, 1992). *Newsweek* magazine, quoting Apple Computers' ex-CEO John Sculley, says, " 'I believe that we're at a turning point in the world economy today', not unlike the transformation early in the last century that became known as the Industrial Revolution." (Underwood, 1993, p34.) David Harvey quotes the architectural journal PRECIS 6 in his superb study of postmodernity: "The culture of the advanced capitalist society has undergone a profound shift in the *structure of feeling*." (His italics) (Harvey, 1989, p39)



This introduction has attempted to show in brief the circumstances that led to modernism, and the failures of modernism which led to postmodernism. It is clear that in this current stage of early postmodernism, there are no adequate philosophical structures to deal with the massive changes in every aspect of life in the West in the last few decades.

One of the fields of development causing these changes is that of interactive communications technology. I will now begin to examine how this field is affecting the Western economy, how it will develop in the future, and what philosophical structures we might use to gain a better understanding of it.


Chapter 2 Creating Cyberspace

Radio, television, film and publishing have been the dominant forms of mass media in the twentieth century. They have one common characteristic: the person on the receiving end cannot help to recreate what is distributed. Certainly, one could write to a newspaper, or telephone a radio chat show, and consider that to be a form of interaction. But one needs to use another medium- the telephone or the postal system, for example- in order to communicate with the radio station or newspaper. The mass media are aimed at the public, but they have no inherent way for the public to respond to them, other than by switching channels, boycotting a movie, or choosing a different newspaper. Interactive media will, I hope, become the media of the people, by the people, for the people. The term 'interactive media', therefore, refers to the international media network, currently in its infancy, which attempts to involve the consumer in active decisions about the information that they receive, and the form in which they receive it. Consumers may also input their own contributions and communicate with each other.

The potential applications are numerous. Shopping from home and 'videoconferencing' of business meetings are just two of the less imaginative proposals. As stated, it is still largely at the planning stage but developments in interactive media have attracted such a vast quantity of investment from multinationals such as Time-Warner, Sony, and Microsoft that its failure to become as much a part of our everyday lives as television would be almost unthinkable. John Malone, head of Tele-Communications Inc., believes that interactive technology will blur the distinction between the computer industry and the communications industry. Gerald Levin, CEO of Time Warner, envisages a future where viewers will use a television screen and a controlling device to interface with the world (Kantrowiz, May 1993). Some possibilities are that viewers could do their shopping, decide on the type of programme they want to watch, keep up with news, distribute their



home-made movies, check their finances, choose their favourite camera angle for sports events, play games, take educational courses, and talk to colleagues or friends through a single screen (Meyer, 1993).

There are a number of developments that are now happening or that we might expect to see in the near future which are worth examining. Interactive media are based on the concept of data transfer, where any data are expressed in the form of binary figures. This data might ultimately be 'read' as a Rembrandt painting or Beethoven's Ninth Symphony or Eisenstein's Battleship Potemkin, but as far as the computer is concerned, it consists of a series of on-off pulses, expressed numerically as a collection of ones and zeros. Anything which can be recorded can be expressed in this form. These electronic pulses have traditionally been transmitted by copper wire, but the development of hair-thin fibre-optic cables which carry bursts of light has broadened the sphere of possibilities considerably. Fibre-optic cables can carry one million times more information than wire. Twenty gigabits (i.e. twenty billion bits, a bit being a single unit of computer information) of data transfer per second are possible with fibre optics. The information travels at the speed of light (Rucker, 1993).

It is now essential for the world to create an international network of fibre-optic cables in order to capitalise on the communications possibilities. The race to create this fibre-optic infrastructure has now begun, especially in the United States. The technophilic Clinton–Gore administration is adding momentum to the struggle by both multinationals and entrepreneurial individuals to ensure their future in the technology of interactivity. The importance of such a 'data superhighway' is a favourite issue of U.S. Vice President Al Gore: he has described it as "the most important marketplace of the 21st century" (Kantrowitz, May 93, p36) and proposes taxpayer money to help build it if necessary. It probably will not be necessary. Tele-Communications Inc., the largest cable television company in the United States, is putting two billion dollars into building a fibre-optic cable network across the country. Time Warner, the massive entertain-



ment and publishing conglomerate and the second largest cable television company in the U.S., has created an alliance with the telecommunications company US West and is investing five billion dollars in fibre-optic cabling. Pacific Telesis is concentrating on the West Coast and will spend sixteen billion dollars.

Any digital communications network that will be established in the future will be heavily influenced in its structure and character by the Internet. The Internet is a collosal international computer network which was created during the Cold War atmosphere of the '60s by the US military. It was felt necessary to give the United States a computer network that had no centre and was therefore virtually invulnerable to attack. The Internet mutated into a worldwide communications medium and now has well over twenty million people regularly interacting with one million new subscribers per month. It is owned by nobody, ruled by nobody, and has no laws (but it has a strong code of ethics, on which, more below). Its anarchic structure consists of numerous 'bulletin boards' on subjects ranging from breakfast cereal nostalgia to leather fetishism. One goes 'online' to input one's contributions and to converse with other users by typing sentences on one's computer and reading their reply on the screen. It is also possible to leave 'e-mail' (i.e. electronic mail) at another user's workstation. Each user has an 'address,' which takes the form of a single line with no spaces and no capital letters. (Bill Clinton's, for example, is president@whitehouse.gov). It can also be used as a source of free 'public domain' programs which can be 'downloaded'- copied from the network onto a computer terminal (Rucker, 1993).

The Internet also has its own established rules of 'netiquette'. This includes a clever shorthand system which one can use to indicate emotions in their messages. Irony, for example, is indicated by this symbol: ;) . (When turned sideways, it serves as a winking face.) A very interesting feature of the rules of 'netiquette' is a ban on using the network for advertising and junk mail. Doing so will result in the advertiser receiving hate e-mail and possibly their customers as well.

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Due to the relatively low capacity of the wire-based cable network, it is impractical or very slow to send information other than in word form. However, with the impending fibre-optic revolution, it should soon be possible to use the Internet for communicating with video and stereo sound, which will be heard and viewed on ones computer. This will increase the range of possibilities exponentially, although when the commercial interests create this fibre-optic revolution, it will probably spell the end of much of the Internet's anarcho-syndicalist charm.

New forms of technological communication are of interest to the postmodernist thinker for a number of reasons. Interactive technology will represent the infrastructure of our future economy in the same way that road and rail networks were the infrastructure of the industrial economy. It is still at a very early stage in its development, but already the technological network carries information in the same way that steam trains carried coal, steel and workers. This information is the basis of economic value in the post-industrial society of the capitalist West. In Marx's industrial society, the unit of value was labour, the ability to manipulate raw materials (and Marx's inability to see beyond that era may have doomed his system from the start). This new economic base is generally considered to have emerged during the early 1980s, with the rapid spread of networked computers. The result of this new technocentric economy was the emergence of the stockbroker, the manipulator of economic information, as the single most important figure in the capitalist economy. By comparison, Marx focused on the business manager as the key figure in the industrial economy. The stockbroker who is the central figure in Tom Wolfe's exquisitely perceptive novel of the Eighties, The Bonfire of the Vanities, thinks of himself as a "Master of the Universe", and this is a recognition of fact as much as an arrogant boast.

One of the key characteristics of the information-based economy is that, by its very nature, it features constant change. What is traded is information which is constantly becoming obsolete. Charles Newman

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considers this postmodern economic structure to be a natural consequence of the inflationary economies of the twentieth century. The information-based economy is the result of inflation becoming an established element in the financial system instead of being regarded as a temporary quirk. He writes, "The Post-Modern era represents only the last phase in a century of inflation– when [inflation] became structurally permanent in the longest sustained economic rocket ride since the industrial revolution, [which was] arguably the most explosive period of sustained growth in human history" (Newman, 1988, p6.)

David Harvey (1989, p49) considers the way that postmodernist theorists have seen information-based capitalism:

Lyotard... drawing upon Bell and Touraine's theses of the passage to a 'postindustrial' information-based society, situates the rise of postmodernist thought in the heart of what he sees as a dramatic social and political transition in the languages of communication in advanced capitalist societies... There is more than a hint in Lyotard's work, therefore, that modernism has changed because the technical and social conditions of communication have changed.

This supports my belief that the developments in communications technology are inextricably linked to a change in the structure of the economy, and that the result will be a cultural change.

Apart from the economic implications of interactive media, why else are they of interest to the postmodernist theorist? Possibly because they represent one of the most exciting fields of development in the world today. Information technology is becoming an essential influence on the way that we think. Charles Newman rates it highly as a part of the postmodern condition: "The overwhelming sense not merely of the relativity of ideas, but of the sheer quantity and incoherence of information, a culture of inextricable cross-currents and energies– such is the primary sensation of our time." (Newman, 1988, p9.) Harvey (1989, p49) states, "Most postmodernist thinkers are fasci-



nated by the new possibilities for information and knowledge production, analysis, and transfer." I believe that interactive technology will affect our style of thinking about the world and will have profound implications for any new philosophy, now or in the future.

There are difficulties involved in looking at the future developments in technology. The popular theories of how interactive technology will develop are a form of science fiction, espoused by Sunday supplements and computer magazines. Reading science fiction as prediction is an unconstructive practice. True science fiction is never about the future, but always about the present. Blade Runner, for example, is set in the early twenty-first century but its themes are those of the '80s. The current fashion for *Star Trek* is part of a broader nostalgia for the '60s and has little to do with looking forward to the twenty-third century (Bukatman, 1993). If I were to claim that we would spend our leisure time in the future acting out our fantasies in a computer-generated virtual world, I would undoubtedly end up like the scientists who, in the euphoria of the early '70s, claimed that many people would be living on the moon inside twenty years' time, and the colonisation of Mars would have begun. The Vietnam War put an end to NASA's momentum by absorbing a lot of its funding. Meanwhile, the corporate concerns saw the attractive financial future in computers that space travel did not possess. The result is that computers have developed in the past decade far beyond most predictions, while other once-hyped technologies such as space travel, androids and holography have languished. Prediction by extrapolation is, at best, unreliable, although it can make for wonderful science fiction. If one tries to understand how things will develop in the future, one must take account of the influence of the present day on any predictions. Therefore, my references to the probable future in technology are tentative, and must be seen in the context of what we already have nowadays- the technological world that currently exists.

It is safe to suppose that the cyberspace of the future will be a much more complex version of the established computer network.



'Cyberspace' is a term originally coined by William Gibson, the contemporary science-fiction writer who is arguably the most influential conceptualist to come from the genre since Arthur C. Clarke invented the communications satellite. Gibson extrapolated from certain technological trends that he saw around him in the late '70s, and produced the short stories collected in Burning Chrome (1988), and later the novels Neuromancer (1984), Count Zero (1986), and Mona Lisa Overdrive (1988). Gibson's cyberspace matrix is a computer-generated three-dimensional universe that forms a graphic representation of all the computer data in the networked human system. In an influential prediction of what would become known as Virtual Reality, he has his computer operators actually enter this space by having their brains linked directly to their computer by electronic interfaces. The nonexistent space then feels entirely real, and one can look around and move without changing position in the real world. What one then sees is an infinite black space full of solid geometrical forms, linked together. Each form represents a separate computer system and the data that it contains. The inaccessible corporate and military systems appear like distant spiral galaxies. In Burning Chrome (1988, p197), Gibson describes it thus:

The Matrix is an abstract representation of the relationships between data systems...Towers and fields of it ranged in the colourless nonspace of the simulation matrix, the electronic consensus-hallucination that facilitates the handling and exchange of massive quantities of data.

The combination of an innovative, Burroughs-influenced style and some intriguing, highly-developed ideas have caused Gibson to receive a lot of critical attention from postmodernist theorists. His relevance to this study is spelt out by Fredric Jameson: he describes Gibson's writings as "the supreme *literary* expression, if not of postmodernism, then of late capitalism itself" (His italics) (Jameson, 1991, p419). Gibson's significance at this point is that he reveals the most comprehensible and most satisfying way of representing something as abstract as data: that is, by treating it as something solid, with a real presence. Gibson's cyberspace probably contains many design flaws,





Figure 1

Part of a Macintosh 'desktop'



but his information-liberating attitude is valid and important to the further development of computer interfaces.

A milestone in this field of design is the Apple Macintosh operating system, undoubtedly one of the best designs of the twentieth century. The Macintosh represents data and computer processes with a virtual 'desktop,' which includes cartoon symbols of folders, dustbins, fizzing bombs and stop signs. (See Figure 1.) In another example, computer "viruses" are widely known even among technologically unaware people because they are described by a signifier that everyone is familiar with. For us to comprehend the utterly alien nature of abstract data, it is crucial that computer information be formed into a world of fourdimensional representation.

This is emphasised by the authors of *Understanding Hypermedia* (Cotton/Oliver, 1993). Referring to studies by Shosana Zuboff, they point out the sense of alienation and powerlessness that results from the work process becoming too abstracted from a real sense of material achievement. This is nothing new; Marx's basic aim was to give the worker a contribution to the whole process of production rather than restrict him or her to the status of a human gearwheel. But Cotton



and Oliver update this human concern and apply it to the work of data processing. Mere numbers offer little sense of satisfaction to the average worker, and little of appeal to the consumer. The trend ,therefore, in technological interfaces is toward forms of representation that depict data with a sense of solidity, realism and four-dimensional existence. This is the quality that leads to technology being interactive because it gives the consumer the feeling that his or her computer can be used as an extension of his or her lifestyle rather than as a machine for processing binary data.

In this chapter I have shown how the network of interactive technology is the infrastructure of the postmodern information-based economy. When this network is structured on the medium of fibre-optic cables the expanded possibilities for data transfer may offer consumers a technological interface that will be based on representations of the real (non-technological) world. In the next chapter I will study the form that this network may take and the implications for our understanding of space.

22



Chapter 3 Navigating Cyberspace

Interactive technology as it is currently being developed may require the consumer to possess a television set of considerable sophistication, which will have the data-processing capabilities of a computer. It would, in fact, be neither a television nor a computer but would have characteristics of both. Consumers may use the screen to interface with the information environment to which they would be connected by fibre-optic cables. They might indicate their decisions to their computer possibly by talking to it (voice-recognition capabilities are constantly improving) or possibly by using a remote control device. Consumers may, for example, initially be shown a shopping street, along which they might travel. On seeing a shop that interests them, they may enter it and browse through a selection of goods on the screen, and order things that they choose. Entering a library might enable one to look up reference sources and view the information. The bank may be the centre for financial transactions. Computer games could be 'rented' and played on the screen, in the same manner that home computer games are currently played. Films could be chosen in the same manner, and the cost would be automatically deducted from the consumer's bank account. The machine may be used to telephone people and one might see the other person as they talk; a visual equivalent of voice-mail would be an extension of this (Kantrowitz, May 1993).

This is just a view of how things might develop for consumers. The possible wider applications of such a technology, when funded by consumer investment, are more challenging and more radical in their imagination. The general trend is, as I will discuss further, toward the creation of a new space which has no quantifiable material existence. The field of science is currently using this concept to research the patterns of life. The Massachusetts Institute of Technology is engaged in creating a fully functional environment containing imaginary creatures that interact and reproduce, all of which exist inside a computer.



Potential applications include prediction of population movements and changes, disease control and the development of artificial intelligence.

In another field, the sculptor William Latham creates lifeforms that are born, breed, evolve, and respond to stimuli, but do not 'exist' in any normal sense of the word. The videos of his computer-created lifeforms are compelling, strangely beautiful and somehow deeply disturbing. If one tries to rationalise the lifeforms, they might resemble

Figure 2

Plant Centre by William Latham



Figure 3

Mutation Y1 by William Latham





certain creatures from the ocean floor, or invisible dustmites that the electron microscope makes us aware of. (See Figures 2 and 3.) This is to ignore the genuinely disturbing nature of his creations, as they move and rotate in black space. The truth is that they have nothing whatsoever to do with life as we know it. Confronting Latham's work is confronting something utterly alien. They have all and none of the hallmarks of life.

The Mandelbrot set is similar in effect: it is a fractal, a conceptual landscape that is created by causing a computer to display the numerical results of a simple equation and to represent the results with colours. What is created is an intensely detailed abstract form that one can travel through by constantly zooming in on particular areas, travelling deeper and deeper into its world. (See Figures 4, 5, and 6.) Its detail is, in fact, infinite- the same forms are developed over and over again. One can travel in it forever and go nowhere. Part of its purpose is to demonstrate the phenomenon of fractals in nature, which describes the way the same forms appear at different levels of scale. The twig of a tree resembles the whole tree, for example. Ironically, like Latham's work, the aesthetic impact of the Mandelbrot set is precisely that it has no connection with nature. Yet interacting with it gives the strong feeling of travelling through a world. It is an infinitely complex landscape that occupies no real space. This points towards the philosophical challenge at the heart of this essay. Latham's lifeforms have the characteristics of something alive, so where do they live? Where is the virtual street where the future consumers do their shopping? Where is the computer-generated ecological system?

"In cyberspace" is the only answer. This, then, is what cyberspace actually is: an apparently four-dimensional world that does not exist. The Latham sculptures and the laboratory projects are just a hint at the possibilities in a computer-generated conceptual world. What the financial giants of the communications industry are preparing for is an international network that consumers will use as a purchasing, entertainment and communications medium, like the Internet. The



Figures 4, 5, 6

Views of the Mandelbrot set









network of the future may be able to carry such great quantities of information that it may be a virtual four-dimensional universe in which the consumer might rove, instead of the text-based communication system that the Internet currently handles. 'Cyberspace' is the term that I will use from here on, where previously I referred to 'interactive technology'. What I am using the term to mean is the world with which one can interact through technological systems that present data in four-dimensional terms.

The philosophical-economic significance of cyberspace lies in the new conception of space that it creates. Since the Renaissance, space has been viewed in the West as something conquerable and containable. Compare, for example, Medieval maps with those of the Renaissance. The former show local detail with pictures rather than symbols and are intended to give a sensual rather than a rational representation of a place. Renaissance globes give a universal view without localised features, which rely on a language of generic symbols. This Renaissance view was the groundwork of the Enlightenment (Harvey, 1989). The consequent progression from Descartes to modernism always made use of space as a form of barrier. For example, the perceived universal divisions of Cartesianism (such as those between subject and object) suggest a belief in some kind of materially or conceptually spatial barrier that prevents both from unifying. The difference between mind and body to Descartes lay in the fact that the body occupied space while the mind was defined by the fact that its existence was conceptual rather than spatial.

However, one of the major technological progressions since the Enlightenment has been that of reducing space in order to aid the development of capitalism. Examples of this movement include semaphore as an early medium of communication, the telegraph, and the television. There is an inherent paradox in this system of thought. It relied on a concept of space as a divider and simultaneously attempted to bring space under control. "Innovations dedicated to the removal of spatial barriers...have been of immense significance in the



history of capitalism." (Harvey, 1989, p232.) The telephone, car and jet aircraft are all landmarks in the improvement of communications and distribution systems, and have had a great impact on streamlining the capitalist system. As I will now argue, cyberspace is the ultimate stage in this progression, because it eradicates all spatial barriers, and exposes this paradox in Cartesian thought.

What needs to be considered is how cyberspace fits into the existing conception of space. Here, we should turn to Michel Foucault, whose life work tended to revolve around space and power. Foucault saw space as the container of social power, and power as a complex network of relations– "the multiplicity of force relations immanent in the sphere in which they operate" (Foucault, 1981, p92). By corollary, the reorganisation of space leads to the reorganisation of the dominant system– at present, corporate capitalism. This dominance is exercised through economic and intellectual power. However, there is not a perfect relationship of domination and submission in the economic sphere, or in any sphere.

Power is not to be found in a single monolithic entity because it is a force that cannot be centred anywhere. "Power is everywhere, not because it embraces everything, but because it comes from everywhere." (Foucault, 1981, p93.) Whenever power is established it is challenged by a network of resistance movements that are inherent in the power system itself. These resistances are also not guided by a common purpose. Resistance takes many forms, from those that are solitary and uncompromising, to those that are concerted and relatively unradical. There is a constant interplay of relationships between power and resistance in any system.

One might automatically criticise this belief on the evidence of totalitarian governments. However, no system has yet been discovered which is immune to the challenge of resistance. Totalitarian systems will attempt to reduce the capabilities of a resistance movement by cutting off their communications structure. This has the effect merely



of slowing down certain aspects of the process of resistance. The speed of change in a power system is related to the efficiency of its communications infrastructure. Napoleon feared unfriendly newspapers more than he feared enemy generals (Mc Luhan, 1964). In the anti-Boris Yeltsin coup in Russia in 1992, the rebels in Moscow began by taking over the television station. Suppression of the press– the containment of discourse– is a hallmark of a totalitarian system.

Perhaps the most radical feature of cyberspace is the fact that it is, at present, practically uncensorable. Copyright and protection of the public interest are almost meaningless. My own discoveries on the Internet have included instructions for home-made nitroglycerine; a friend was offered the complete pirated text of a forthcoming Steven King novel. Discourse in cyberspace tends to be very rapid and energetic, as it instantly brings together unmodified opinions from all parts of the world. Using Foucault's model of power, this means that nobody can own or rule cyberspace to any significant extent. Power may be rapidly invested and rapidly taken away, with no facility for the suppression of dissent.

One might optimistically hope that cyberspace will become the world's most flawlessly democratic institution. This is the opinion of Mitchell Kapor, chairman and co-founder of the Electronic Frontier Foundation, a public interest organisation founded to explore the democratic potential of new computer and communications technology. He writes:

Life in cyberspace is more egalitarian than elitist, and more decentralised than hierarchical. It serves individuals and communities, not mass audiences, and it is extraordinarily multi-faceted in the purposes to which it is put. In fact, life in cyberspace seems to be shaping up exactly like Thomas Jefferson would have wanted: founded on the primacy of individual liberty and a commitment to pluralism, diversity and community. (Kapor, p 53)

29

It may sound ironic, given the transnational nature of the technology,

to talk of communities in cyberspace, but it is also a natural result of a technology that encourages person-to-person communication. Kapor's communities are groupings of minds which are not bound by their physical proximity. It is encouraging to see that, given a new space to conquer, people naturally form communities.

Cyberspace is a new space created by late capitalism, but it has implications which may make it not entirely governable by the system that created it. This system is founded on the hierarchical power structure of the corporation, whereas cyberspace has the potential to precipitate the constant shifting of power and the collapse of hierarchical structures. Cyberspace is simultaneously a space through which power is exercised and a communications system which is open to the public. Therefore, the network of power and the network of communication are coincident, potentially symbiotic. No single entity may have a monopoly on the medium of communication. It may be impossible to suppress dissent without suppressing the dominating power.

The system consists of information, and its purpose is interaction: cyberspace invites the consumer to take part in constantly recreating the system. Consumers are able to take the information that they want, and also to input their own information. The result may become a giant carnival of signs open to all. Everybody with access to the system may be simultaneously a consumer and a producer of information and signs.

This move towards the production and consumption of signs has already begun, by the reckoning of some commentators. Baudrillard argues that capitalism is now predominately concerned with the production of signs and sign systems (Jencks, 1992). David Harvey's 'flexible accumulation' has similar characteristics: it is the explanation that he gives for information-era capitalism as the fragmentation of the centralised 'Fordist' system, with a move away from the production of goods and towards the production of more abstract commodities such as services.

The logical result of this economic development may be the creation of a universe that consists purely of signs in the form of information: cyberspace. This may signify the end of corporate capitalism since the centralised, monolithic power structure will be unlikely to survive the shifting power networks that may prevail in cyberspace. Its replacement might be a form of capitalism where a corporation consists of largely autonomous separate groups with a strong communications structure. Such a system might take better advantage of the economic possibilities in cyberspace. Since the consumer will be directly involved in both the consumption and production of information, this stage might be considered a form of anarchic capitalism. It may be characterised by decentralised power and the direct involvement of the consumer in the capitalist process.

The social structure that may result has been anticipated by anarchist thinkers in the past, long before the current phase of cyberspace technology. George Woodcock (1986, p21), surveying the anarchist politics of Bakunin, Proudhon, Mallatesta and others, describes the common aim:

...we should begin again from the smallest practicable unit of organisation, so that face-to-face contacts can take the place of remote commands, and everyone involved in an operation can not only know how and why it is going on, but can also share directly in decisions regarding anything that affects him directly, either as a worker or as a citizen.

When one examines the writings of the great European anarchists of the nineteenth and early twentieth centuries in the light of cyberspace technology, one may be struck by how much more realistic and practical their aims might have seemed to be, had they had access to or been in a position to predict a far better communications structure than they could have dreamed possible. Many of their beliefs, principally the economic ones, appear more naive than ever, such as proposals for abolishing money as a means of exchange. However, their suggestions for recreating society on the basis of many small, decen-

tralised social groupings, which would maintain good communications with their counterparts, take on new significance in the context of the economic development of cyberspace. William Godwin calls this social grouping the parish, Proudhon terms it the commune, and anarcho-syndicalists speak of the workshop (Woodcock, 1986, p22). These structures are similar to Mitchell Kapor's observations on the formation of communities in cyberspace. For late capitalist organisations to make the most of cyberspace's potential, recreating themselves on this local, community level may be the way forward.

Finally, Fredric Jameson, perhaps the most distinguished Marxist critic in the field of postmodernism, reveals an aspiration towards this situation in his critique of the capitalist market system. He writes, "What is wanted is a great collective project in which an active majority of the population participates, as something belonging to it and constructed by its own energies." (Jameson, 1991, p278) It is possible that a creation of capitalism may be the realisation of a left-wing dream.

32


Chapter 4 Mapping Cyberspace

In forming a philosophy of cyberspace, I will draw on certain post-Freudian and postmodernist ideas on what comprises the identity of the individual. The modernist ideal was a person who could approach, for example, a painting and have no preconceptions in forming an opinion of it. Certainly since Marshall Mc Luhan wrote *Understanding Media*, it has become increasingly doubtful whether such a person could exist in today's Western world. Any active member of post-war Western society has since birth been bombarded with media information. Umberto Eco notes, "...the younger generations have absorbed as elements of their behaviour a series of elements filtered through the mass media..." (Eco, 1987, p213.) It is a central tenet of postmodern theory that the modern human subconscious is loaded with media images and cross-references are constantly being made in the human mind between the information that has been absorbed since childhood and any new information that is perceived.

What is the place of the human mind in cyberspace? What are the implications for our sense of identity? Michel Foucault believes that the body of an individual is their final and irreducible level of privacy which can not be violated. While in the real world, one's body signifies the boundary between subject and object. But in cyberspace, one is effectively leaving the body behind and travelling purely with the mind. Many observers including Mc Luhan and Baudrillard have foreseen or described a state of mind in the communications infrastructure that involves the human identity being blurred or lost entirely when surrounded by information. Mc Luhan's famous description was of the nervous system being extended to cover the world. Baudrillard, more technophobically, claimed that in this 'new era', "our own body and the whole surrounding universe become a control screen." (Foster, 1983, p127.) Jaron Lanier, high-tech inventor and the foremost pop philosopher of virtual reality, describes how "in virtual reality the



whole world is your body" (Rucker, 1993, p257). As Bukatman says, "What is demolished in paraspace... is any vision of...subjectivity" (Bukatman, 1993, p166).

It should be noted that the concept of the individual self is a relatively recent one: Richard Harland (1987, p9) sees it as a cultural construct, created by seventeenth century bourgeois ethics. It is associated with the Age of Reason by many postmodernist theorists, and since we have seen a number of other Cartesian beliefs fall to postmodernism, there may be little future for the current notion of the individual. Fredric Jameson (1991, p189) suggests that the Cartesian idea of "self" and "identity" are "rather old-fashioned" and "very specifically high-modernist."

The self-styled 'cyberfeminist' Sadie Plant offers a holostic explanation for the loss of the human identity in cyberspace: she sees the information universe as something closer to nature than to humanity.

Nature itself is a cybernetic organism; a self regulating system of which man is merely a function... [Man] was always only a mystified subroutine in a larger system of control...It is as though humanity was simply the means by which the global system, the matrix, built itself... (Plant, ???, p17)

It seems that the technology is playing an important role in one of the trends of postmodern theory. This trend is signified by a move away from ideas of the identity as something separate from society, and toward new conceptions where the individual is understood in a social context. Postmodernism tends to define things in terms of relationships and contexts rather than as isolated objects: this is applied, perhaps most obviously, in architecture, but also, for example, in economics, industrial design and psychology. For this latter field, Jacques Lacan is relevant.

Lacan considers the individual identity to be an illusion of centered-



ness produced by an image of the Other. The child first forms a sense of individuality at the age of six to eighteen months, on seeing his or her reflection in a mirror. The image is seen from an external point of view: "Like Narcissus, they fall in love with themselves... as seen in the gaze of the 'other' " (Harland, 1987, p39.) This mirror image seems more coherent and unified, more distinctly separate from the rest of the world, and the child aspires to become what he or she sees or seems to be.

This separate identity is confirmed from the age of eighteen months on, when the child starts to learn language and its place in society. Pronouns such as 'me', 'myself' and 'I' cause the child to attain a sense of self, but it is not defined by some internal urge. It is the society's language, the external system, from which the sense of the individual derives. This sense is untrue to the real nature of the subconscious: it is an extraneous, unnatural growth, which the psychoanalyst needs to overcome. It can be seen that Lacan's beliefs are relevant to an understanding of the egoless 'cyberspace condition' described by the communications theorists.

It seems that cyberspace causes the individual identity to dissolve or to be fused with its surroundings. As we have seen, the first stage of Lacan's identity development involves the child seeing his or her body as a whole and unified image, and forming an identity to fit this perception. The body, therefore, is associated with the individual identity. However, in cyberspace, one travels just with the mind, and overcoming this physical aspect to one's interaction with the world may be an important element in bringing about this condition where there is no distinct dividing line between the person and their surroundings.

We need to find a philosophical model for this condition. One established philosophy that readily suits these conditions is that of Zen Buddhism. This is a system of thought that has already had some direct influence on anti-Enlightenment and postmodern thought



since its arrival in the West in the late nineteenth century. Rudolf Steiner was one early student, and Heidegger came under its influence (Waugh, 1992). The scientist-theologian David Ray Griffin has compared Heidegger's concept of 'Being' (*Sein*) with the Buddhist 'Emptiness'. Perhaps the best-established link between Zen and postmodernism, however, comes from the Austrian physicist-philosopher Fritjof Capra, in his books *The Tao of Physics* and *The Turning Point*.

One of the main discoveries in physics that led Fritjof Capra to find links with Buddhism was that at a fundamental level, all particles are part of one interconnected whole. The behaviour of certain particles can influence other particles even when there is no apparent link between them. This suggests that the Buddhist conception of life as an infinite continuum from which the person is not truly separate may be factually correct at the level of particle physics.

Cyberspace, similarly, is an interconnected system in which there are no clear dividing lines between people and their environment. Recalling Baudrillard's quote that, in a media environment, "our own body and the surrounding universe become a control screen", one twentieth century Zen master states that "your mind can be compared to a mirror which reflects everything that appears before it." (Blackstone/Josipovic, 1986, p58.) Baudrillard is talking about the human identity becoming fused with the media environment in which it lives. The Zen aphorism suggests that a person does not have a separate identity but is in fact defined by the surrounding universe. The parallel between Zen and cyberspace philosophy is clear: there is no dividing line between the person and his or her environment.

Mc Luhan foresees this state when he claims, "...the creative process of knowing will be collectively and corporately extended to the whole of human society." (Mc Luhan, 1964, pp3, 4) One of the more important theories of Mc Luhan is that television is a non-linear medium, and thus forms a challenge to the traditional, Cartesian style of Western thought. Television does not move through a logical develop-



ment in the manner of a film or a novel. It is, rather, a sea of information in which one floats. In this manner, Mc Luhan associates television with the blurring of subject-object outlines, and, as a result, with Zen. The Buddhist philosophy "carr[ies] the mandate of the TV mosaic into the world of words and perception" (Mc Luhan, 1964, p325.) His thoughts on television apply more readily to cyberspace technology, a medium even less linear than television, as it is not geared to communicating narratives but to absorbing and disseminating information in any form, as Claudia Springer (1991) has noted.

The sculptor William Latham, mentioned in the previous chapter, has been heavily influenced by Japanese culture in his creation of cyberspace-dwelling creatures. He feels that cyberspace offers a great challenge to the linear style of Western thought and that a more Zeninfluenced style is appropriate in dealing with the technology (Mc Mullin, 1994).

The universe of cyberspace is an illusory one. It occupies no space outside of the hardware required to support it, but it behaves as if it possesses a four-dimensional reality. The idea of the real world also being an illusion is a common one in both Western and Eastern philosophy. Starting with the West, Plato made early developments on that theme, but we might look to Berkeley for a thorough explanation of the theory. He argued that it is impossible to gain an objective perspective on the things that we observe, since we always have to rely on our senses of sight, hearing and so on. These senses in turn are a product of the mind, and therefore mind is the only reality that we know directly. There are certain similarities between this and the frequently misunderstood Zen Buddhist model of the world-as-illusion.

In the Buddhist system, it is the ego rather than the world that it inhabits that is illusory. The world might as well not exist until one is capable of seeing it as a part of oneself, and thereby experiencing its nature rather than analysing it obliquely. The perceived world is an illusion, but only because the 'mirror'– the mind– that reflects it is dis-

torted by egotism. A parallel might be drawn between this and Lacan's model of the individual self as a construction predicated upon the 'other.' "Falsely seeing oneself confronted by a world of separate existences, this is what creates antagonism, greed and, inevitably, suffering." (Blackstone/Josipovic, 1986, p59.) It is possible that a sufficiently rich interaction with cyberspace could prepare ones mind for a better understanding of the Zen view of the world.

When one realises the illusion of the ego, one can attain *kensho*. The divine Zen Buddhist state of *kensho* or *satori* is a seemingly paradoxical combination of complete self-awareness and a sense of unity with the universe. To resolve this paradox, one might consider that the conscious mind remains aware while the subconscious mind expands beyond the body. I do not suppose that anyone will achieve automatic bliss when the technology is sufficiently advanced, but this explanation of *kensho* is helpful in clarifying certain aspects of the cyberspace experience.

Specifically, the *kensho* state can be applied to the argument that in cyberspace, the subconscious of the individual blurs into the surrounding information sea. The Zen/technology parallel becomes closer when one considers cyberspace not as a dead mass of information but as the collective unconscious of the society that created it. As previously noted, the Internet already contains discussion groups on highly offbeat subjects. The complete anonymity (if one desires it), the potential for communicating with people on the other side of the globe, and the fact that censorship of information networks will be difficult if not impossible, means that in cyberspace people can be honest about their opinions to an unprecedented extent. If used to its full potential, cyberspace may become the storehouse of all the information concerning every trait, quirk, aspiration and delusion of the people that use it. The comparisons with Carl Jung's 'collective unconscious' are striking. Buddhism does not talk directly about a 'collective unconscious', of course, but Buddhist descriptions of the spiritual nature of the world are closely related to Jung's concept (Fordham,



1953).

The possibility of Western society creating a technological database that might be compared to the collective unconscious apply not so much to the present, but more to a period in the near future, when the technology is slightly more sophisticated and the public more receptive to new media developments. As Eco has noted, the children of the information age are a reflection of all the media elements that they have absorbed since they were old enough to focus on a television screen. Media information is as much a part of their style of thinking as real life, and conceptual spaces are almost as real as actual spaces. A child psychology text states, "Television is an 'early window' on the outside world, conveying information and values from the broader society in which children live long before they are exposed to formal schooling or to peers" (Mussen, 1990, p542.) It seems possible that the children of this current media explosion may be the technological fulfilment of the Zen state: their minds may be capable of floating in a sea of information. In effect, the human mind might become a microcosm of the cyberspace that it inhabits.

This leads us to another ancient philosophical/spiritual concept that attains relevance in the light of this new understanding of cyberspace. This is the 'Astral Plane' which appears in a wide range of Western mystical traditions. Its best-developed form may be in the 'Tree of Life' from the Hebrew Qabalah. The Astral Plane is generally described as a purely spiritual state of being, but one which can be accessed by people, given sufficient training or an inbuilt ethereal nature. As will be seen, the Astral Plane is another manifestation of Jung's collective unconscious. The descriptions that emerge of it are as though it were an actual land with which one can interact. Being there is similar to dreaming, but one's conscious mind is in full control of the experience. It is not 'dreamland' by any means because two separate people, given sufficient spiritual capabilities, can interact with each other in the astral plane and report back the same experiences. This plane is reached through a form of deep meditation when the person feels his or her 'spirit' apparently leaving their body. This is the 'out of the



body experience'. When in this disembodied state, the earthbound trappings of consciousness such as gender identities tend to be reduced to a symbolic level. Once again, we have the image of the conscious mind adrift in the sea of the collective unconscious (Wilson, 1988).

The Astral Plane is the collective unconscious, as Colin Wilson concedes. He quotes Jung's own mystical experiences and prophetic visions, which fall into the general pattern of how such things have traditionally been experienced in the Western world. This pattern involves the sense of leaving the body and entering an alien land, where the visionary encounters apparently sentient beings. The difference lies in Jung's interpretation of how everything had happened: "He believed, in effect, that he had walked out of his own personal 'unconscious' and had met [certain entities] in the common ground of the collective unconscious." (Wilson, p194.) Clearly, the Astral Plane offers another philosophical precursor to the cyberspace experience: a person interacts with the collective unconscious and uses it as a source of knowledge.

The astral plane is developed into a detailed and complex map of the human and collective mind in the Qabalah (or Cabala or Kabalah, meaning tradition or reception), the essence of the Jewish mystical tradition. It is a philosophy centred around the early part of the Old Testament, and is rooted in Gnosticism, but was defined as it is now known in writings from Spain and Southern France in the twelfth and thirteenth centuries AD. The Qabalah uses the diagram known as the Tree of Life as a model of both the spiritual universe and man's soul. This diagram consists of ten spheres arranged in two columns of three spheres surrounding one of four, connected together by twenty-two paths. The spheres are normally referred to by their Hebrew names (Kether, Tiphareth, etc) and refer to qualities such as love and power. (See Figure 7.)

The uppermost sphere, Kether, refers to the divine state which creates





Figure 7 The Tree of Life from the Qabalah

the other nine qualities. The lowest, Malkuth, is the Earth– the material manifestation of divinity. The map on the whole was described by Paracelsus, the sixteenth century Swiss scientist and philosopher as a "geography of consciousness" (Wilson, 1979, p394). Paracelsus was a devotee of the Hermetic view that one cannot separate the human spirit from that of the rest of the universe, and not surprisingly



described the Tree of Life as having similar qualities to Jung's collective unconscious. It is simultaneously a map of the collective unconscious and that of the individual psyche, because the Qabalah expounds the ancient principle of microcosm and macrocosm. This system considers the soul of the individual to be a miniature copy of the collective unconscious. The mystic explores the Tree of Life through a form of meditation called pathworking, walking its conceptual paths as a way of exploring the nature of humanity. Once again, parallels appear between mysticism and technology. The Astral Plane is sometimes known as 'the Ether', and this is also another name for cyberspace (Rucker, 1993, p188). Conveniently, the Tree of Life resembles a diagram of a computer network, and there is a certain similarity between pathworking and exploring cyberspace. Both involve exploring a conceptual universe which functions as a map of the collective unconscious.

The Mandelbrot Set, the fractal discussed and illustrated in the previous chapter, offers a good visual analogy to the microcosm/macrocosm model of the person and their universe which the Qabalah expounds. Each part of the fractal contains the entire fractal, in all its complexity but at a much smaller scale. The relationship of the person to the universe in the Qabalistic model could be described in the same way. As media information becomes more and more an integral part of our identities and our style of thinking, each of us becomes more and more a microcosm of the far greater macrocosm that is cyberspace.



Conclusion

At the heart of all of my comparisons between ultra-modern technology and ancient mysticism lies the question of whether it is not pointless to draw any comparisons between a materialistic creation and the ongoing human attempt to transcend materialism. In a purely theoretical sense, cyberspace technology does transcend materialism because it creates a non-material world. But the creation of this world is financially sanctioned by its main purpose, which is to assist the flow of material commerce.

The spiritual experiences of Zen and the Qabalah require a high level of mystical devotion whereas cyberspace will be accessible to anyone with enough money to afford the hardware. People, social classes, even whole nations, may be divided into those who can afford the technology and those who cannot. This will prevent it from being regarded as a transcendent or mysterious state, and its spiritual significance, if any, may go largely unappreciated. Cyberspace is far too closely connected to its materialistic origins to truly represent the capture of the spiritual world by technology. It will not offer any substitute for genuine spiritual discipline.

The communications theorist Philip Hayward also points out the fact that cyberspace emerged from capitalism rather than as a public service. He goes on,

The medium of cyberspace [has] much to offer artists and cultural practitioners. There may yet be profound communicative and philosophical engagements with the form in ways which we can now only begin to grasp. Whatever these might be, however, cyberspace will clearly not inaugurate a New Age of consciousness through its technology alone, nor through the capacity of its programmers to conjure fantasy worlds– virtual or otherwise. (Hayward, pp201-202)



Hayward's key point is that the technology is useless on its own. The system is only as effective as the minds of the humans who interact with it. If those minds do not question the potential of the new technology, then cyberspace will be another name on the list of technologies which have done nothing for the human race. Its psychological impact will be no more than as a form of technological escapism.

My hope is that cyberspace will be used for the purpose of unrestricted communication between people, and that then it may have a great philosophical influence on our view of the world. I do believe that cyberspace technology will offer a considerable expansion of the process of human perception. It will raise a number of philosophical issues, even if only by virtue of its impact on the structure of the economy. It will have triumphed if it serves to lead our social structures and our style of communication towards something more community- and person-based. It may sound paradoxical, but technology may lead to a rediscovery of the process of face-to-face communication as the basis for commerce, even if that communication is conducted through a screen.

One thing seems beyond doubt: cyberspace will lead us to discover new styles of thought and new perceptions of technology. It will require a new structure of Western thought to replace an inadequate Cartesian structure. The principles of Zen Buddhism and the Qabalah, as I have outlined them, might be retrieved to help form a system of fresh, post-Cartesian thinking on the nature of humanity in a more fully interactive world.



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51







