

The University of Manitoba

**The Reification of Knowledge and Commodity Fetishism in
the 'New' Economy**

A THESIS SUBMITTED TO:

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BY

Christopher Quinn Nash

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**THE REIFICATION OF KNOWLEDGE AND COMMODITY
FETISHISM IN THE 'NEW' ECONOMY**

BY

Christopher Quinn Nash

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of**

MASTER OF ARTS

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**“Technological progress has
merely provided us with
more efficient means for
going backward”**

- Aldous Huxley

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PREFACE

We are led to believe that advanced capitalist societies are entering a qualitatively new environment. One where traditional models of production and consumption are giving way to quantum shifts in the way we will work and consume in the coming years. The locus of this change is in computer and communications technology and their ultimate embodiment, the Internet. Also crucial to this transformation is the central place of knowledge and information in the 'new' economy, especially how we think about these concepts. Are they public assets that should be shared and easily accessed by the community who develops them, or are they for sale to the highest bidder? The trend is towards the latter, and we have only begun to see the consequences.

The purpose of this thesis is to introduce a critique of the commodification and valorization of knowledge and information in the 'new' economy. In order to do so I will draw upon two major theoretical schools: phenomenology and Marxism. Phenomenology is important because it is within this theoretical tradition where the sociological study of knowledge emerges. Indeed, phenomenology is concerned with the social nature and origin of knowledge. In this tradition we also find the concept of reification, the notion that confronted with a socially-produced world that seems to be beyond our understanding, we tend to invest it with thing-like qualities. Instead of recognizing it as the product of human action we see it as a rigid structure that appears unalterable and inevitable.

Marxism allows for the addition of an economic critique. In many studies of the 'new' economy, knowledge is seen to exist independent of the labour that produces it.

Marx and his theory of commodity fetishism allows us to reintegrate the knowledge labour into the information commodity. That is, it allows us to de-fetishize the commodity and to reconstruct the ways in which labour is subsumed by things.

With the mutually reinforcing concepts of reification and commodity fetishism I will analyze the changes taking place in production and consumption in the 'new' economy, focusing primarily, but not exclusively, on electronic commerce, the "new frontier" of global capitalism. Finally, I will articulate the implications of a reified and fetishized understanding of the 'new' economy on elements of the state including education, copyright and patent laws, the forces of globalization, the effects on workers and consumers, and the resistance that has sprung up to counter these forces.

Chapter one is an introduction to the Internet and the 'new' economy. I will provide a brief history of the Internet, from its humble beginnings as an academic and computer hobbyist creation for the free dissemination of research and ideas to the current state of the global information superhighway. I will also define what is the 'new' economy and its characteristics as well as the role of electronic commerce in it.

Chapter two discusses the theoretical foundations of the thesis. A literature review and critique of previous key studies on the societal effects of technological change will be presented. Afterwards I will introduce the theoretical concepts that will guide the rest of the study. Phenomenology and reification will be used to introduce the different 'types' of knowledge in a market economy. The most important process will be how socially produced knowledge is appropriated by capital to produce proprietary knowledge and

information. Marx's concept of commodity fetishism will then be explained and used to dereify this process.

Chapter three deals with commodity fetishism in two separate sections. In section one I will discuss commodity fetishism and reification in production. This is done to refute the suggestion that knowledge is a factor of production separate from labour. Concepts such as the ideology of information technology, the automation and computerization of factory and office work, and the knowledge worker as the owner of the means of production will be discussed. In the second section the focus will be on consumption, how the retail experience is changing the commercial relationship between the salesperson and the customer. Both sections will stress the disembodiment of labour in the computer hardware and software that replaces the living knowledge of the skilled labourer.

The final chapter concludes with implications of the thesis on elements of the state, as well as policy changes that can be made to alleviate some of the worst of them.

My thesis argues that human knowledge and information has been appropriated by capital, resulting in its commodification and valorization. It is this shift, from viewing information as a public to a private good, that has become the prime site of expansion for the global economy. It is the penchant of capitalism to continually commodify the products of human labour while denying the benefits to the larger society. By dereifying and de-fetishizing the information commodity it becomes possible to recognize the social nature of knowledge and to argue for the return of the intellectual commons to the community that gave rise to it.

ABSTRACT

This thesis seeks to provide the theoretical background and critique of the emergence of commodified knowledge and information in the 'new' economy. The premise is that these concepts have been reified. By divorcing knowledge from its source, the individual and the community of origin, it is treated like any other input to production - as a commodity on a quantitatively evaluating market. Drawing on both phenomenological and Marxist theory, I present an argument for an alternative understanding of the 'new' economy and the reification of knowledge inherent in discussions about it.

The role of information and knowledge as commodities in the 'new' economy has been spoken of before, but they have yet to be analyzed within the framework provided by the mutually reinforcing concepts of reification and fetishism. This thesis will illuminate some of the myths associated with the 'new' economy, and their implications for the rest of society.

CHAPTER 1

THE INTERNET AND THE 'NEW' ECONOMY

"The linking of the world's people to a vast exchange of information and ideas is a dream that technology is set to deliver. The information society will bring economic progress, strong democracies, better environmental management, improved healthcare and a greater sense of shared stewardship for our small planet"

- Al Gore, Vice-President of the U.S.A., 1995

"The commercialization of cyberspace may ultimately impose a kind of systematic de facto regulation and pecuniary sensibility that will stand the current notion of cyberspace as some sort of decentralized and anarchical information resource on its head"

- Nicholas Burbules and T. Callister, 1998

The impact of the Internet on all of our lives can be summarized by the quotes cited above. They speak to the immense potential that the Internet, and information technologies in general, seem to bring. The Internet can be conceptualized as a globalizing technology, shrinking time and space, and bringing people together in a McLuhanesque 'Global Village'. It can also be conceived as a powerful commercial tool to be used for the generation of private profit. In the early 21st century it appears that both trends are continuing simultaneously. However, it is the latter that proves to be the most important, for we are told that traditional models of production and consumption are

giving way to quantum shifts in the way we will work and consume. To understand these changes we must first understand the historical roots of the technology.

The purpose of this introductory chapter is to provide the context for our discussion. This will occur in three parts. First I will discuss the history and development of the Internet. This will include both the technological history and the content changes that spurred on its commercial development. The second section will define what characterizes the 'new' economy. And finally I will discuss the role of electronic commerce in the 'new' economy.

1.1 The (Brief) History of the Internet

In order to adequately understand some of the issues that arise from the commercialization of the Internet, it would prove beneficial to undertake a discussion on how it was developed, and for what purposes¹. The details to follow came from three main sources: Kristula (1997), Marson (1997) and Jordan (1999).

The Internet was conceived of in 1957, when in response to the launching of Sputnik, the United States Department of Defense (DOD) established the Advanced Research Projects Agency (ARPA) to propel the US into the lead in military applications of science and technology (Kristula, 1997:1). The first project was to develop a system from which the US military could maintain control over its missiles and bombers in the case of a nuclear attack. The idea was a decentralized communication system that would survive if

¹Since some of the language we will use in the discussion of the history of the Internet are technical, a glossary is included at the end of the paper for easy reference.

a portion of it was destroyed. In order to complete this task it was necessary to develop a network, but how would information flow across it?

In 1962, Paul Baran of the RAND Corporation was commissioned to work on this problem. In the end he came up with a system known as a packet-switched network. It works by breaking down data into small pieces and assigning values that indicate where the packet belongs in the larger chain and also where the final destination of the packet was. With this information encoded on the packet, it was theoretically possible to move the packets from one computer to another, until it finally reached its destination where it would be recombined into the original data. The brilliance of this system is that the packets can be routed across any number of computers, in a non sequential order, and the data would still be reconfigured properly at the end point. If any of the packets were lost, one needs to simply resend the message. It also increased the security of the transmission, since full messages were unlikely to be intercepted, only individual packets.

It was not until 1969 that an appropriate network could be set up to test Baran's theory. Called ARPANET, a team of hardware and software engineers from Bolt, Beranek and Newman Inc. (BBN) configured four computers as an experimental network (Marson, 1997:36). The computers were located at the University of California at Los Angeles, the University of California at Santa Barbara, the Stanford Research Institute and the University of Utah. The network consisted of four hosts (the computers through which a user is directly served) with a backbone of 50 kilobytes per second (kbps). BBN then went to work at developing the first form of file transfer protocol (FTP) called Interface Message Processors (IMP). They met with intermittent success.

By 1972 attendees to the first International Conference on Computers and Communities witnessed the initial public display of ARPANET using an e-mail program created by Ray Tomlinson of BBN (Kristula, 1997:2, Marson, 1997:37). By now the network had grown to more than 23 hosts. It had now become necessary to create a system of "open architecture, in that any computer, no matter what its peculiarities, could, in theory be connected to the network if it could be made to work with a server" (Jordan, 1999:37). All computers were not using the same operating systems, so that many computers were incompatible and therefore could not communicate with each other. By introducing a third computer, a server, it was believed that it could act as a 'translator' between the two communicating hosts. This resulted in the development of Transmission Control Protocol and Internet Protocol or TCP/IP². The benefit was that "if a network implemented TCP/IP then it would be able to send packets to any other network that had also implemented TCP/IP" (41). With its successful implementation, 70% of traffic on the ARPANET was e-mail (38).

The technology continued to be improved. In 1976, the packet satellite system went into practical use. An Atlantic packet Satellite network, SATNET, was born. This allowed computers in the United States to be connected with those in Europe. Thanks to satellite and radio connections, the number of hosts increased to more than 111. By 1981 it was 213 hosts, and only two years later it had increased to 562, a leap of 164%.

²This software was developed by a public institution and given away free as open-source code. Had it been privatized there is little doubt that the Internet as we know it today would have never been realized. Furthermore, because U.S. taxpayers paid for the research and development of the code, the Internet should be considered public property.

Because of this immense increase in traffic, ARPANET was split in two in 1983. The two networks became devoted to two different types of traffic. MILNET was specifically for military applications, while ARPANET remained to support the advanced research component.

It was also around this time (1983) that standardized protocols were required for any computer to have access to the ARPANET. Thus TCP/IP became the core Internet protocol and replaced the old system entirely. As Marson points out, “these standardizations laid the ground work for the successful commercialization of the Internet” (Marson, 1997:37). But for commercialization to take hold, there was the need to develop, first, a system for easy recollection of server and host addresses (up to this point consisting of a string of numbers) and second, broader bandwidth in order to increase the speed at which information could travel over the network.

The first criterion was met later in 1983, when the University of Wisconsin created the Domain Name System (DNS). “This allowed packets to be delivered to a domain name, which would be translated by the server database into the corresponding IP number” (Kristula, 1997:3). This made the task of finding the information on the network much easier. Paul Mockapetris, from the University of Southern California, proposed an international system composed of seven “top-level domains”:

- com (commercial)
- edu (educational)
- gov (government)
- mil (military)
- net (networking organizations)
- org (noncommercial organizations)
- int (international organizations)

It was not until two years later, in 1985, that the second criterion was beginning to be met. A contract for the upgrade of the existing backbone was awarded to MCI. The new circuits would be T1 lines, which would be almost twenty-five times faster than the old ones. IBM agreed to supply the advanced routers, and with the cooperation of the National Science Foundation, the NSFNET was born. This network would become crucial in "order for researchers to share their ideas in a more user-friendly environment" (Marson, 1997:37). The one "problem" with the ease of use is that once again, the network experienced a huge growth in the numbers of hosts, so that, by 1987, the numbers had grown to 28,174 (Kristal, 1997:4), an increase of 1337% in only two years! Again, the network needed to increase the speed of the connection lines, and in 1988, the T3 line was in use, thirty times faster than the T1 and more than seven hundred and fifty times faster than the original backbone of the network. This sounded the death knell for ARPANET, and once the T3 lines were in place, the Department of Defense replaced it by the NSFNET (Kristula, 1997: Jordan, 1999).

Up to this point the Internet was a communications medium, involved simply in sending messages back and forth on a monochromatic screen, with little more than numbers and letters on it. It was an inherently social activity, with people interacting with others of similar interests all over the world. Indeed, the Internet began as a community endeavor that was built on the work of academics and hobbyists alike.

To illustrate this point we need to simply look at the kinds of software available for download off the Internet. They fall into three main categories: freeware, shareware and

what I call 'profitware'³. Freeware means exactly that. Software available for download, for free. It costs nothing, and the end users, the people who download the software, are free to change it, to make it better, as they see fit⁴. They then have the right to distribute their new incarnation of the original software. It was this kind of sharing on which the Internet was developed. The most well-known freeware is an alternative to the Microsoft operating system DOS, called LINUX. The LINUX operating system has many differences from DOS, the most important of which is that it is being continually upgraded by users themselves.

The other important type of software involved in the development of the Internet is shareware. Shareware is very similar to freeware in that it is free to be used by anyone, but users cannot modify the source code, or the software program itself. The best example of shareware in the development of the Internet is a program called Mosaic. Written by two students (Marc Andreessen and Eric Bona) at the National Center for Supercomputing Applications in 1993, it was what the computer world was waiting for. Developed to run with a system released a year earlier, called the World Wide Web (developed by the Corporation for Research and Educational Networking) it was the graphical interface for the Internet that Windows was for Apple and IBM. By using

³This is the software that we are all familiar with. You must pay to use it, you cannot alter it, and you must continue to upgrade either your computer system or the software on a semi-periodic basis in order to take advantage of the latest features.

⁴This is known as open-source, because anyone can access the program code and improve on it.

Mosaic, users could see images on their screen, and would eventually lead to the ability to download audio/visual material of all kinds.

Mosaic was so popular that in the first Graphic, Visualization and Usability Center's World Wide Web Survey in January of 1994, just more than 97% of the 4,700 respondents used Mosaic to browse the Web (Pitkow and Recker, 1994:8). This had two major repercussions. First, the popularity of the software spun-off to create a company called Netscape and became the basis of their browser, Navigator. Netscape Navigator was then copied by Microsoft and packaged with their upgrade to Windows 3.1, called Windows 95⁵. Windows Explorer then became the dominant Web browser.

The second repercussion has far more impact on the way the Internet has come to be seen by people using it. As Douglass Rushkoff (1999) makes clear, the Web altered the mediascape of the Internet forever. Rather than being a tool for communication, the Web altered our online experience from an active to a passive one. Because, "unlike the bulletin boards or chat rooms, the Web is - for the most part - a read-only medium" (Rushkoff, 1999:237). You no longer socialize online, you surf, a not so veiled reference to our habit of channel surfing when watching TV. We are being broadcast to online, and the broadcasters want viewers in the form of an audience, not as a participant. The Web

⁵This decision by Microsoft was a brilliant business move, since almost all home computers ran on their operating system. This meant that the massive amount of new users to the Internet and World Wide Web would browse it using Microsoft software, effectively eliminating its main competitor Netscape and, from some accounts, their better browser. However it also created a virtual monopoly which initially forced the US Supreme Court to consider dividing Microsoft into two companies, but which has since been dismissed.

can now become a commercial tool, indeed, by compromising its communicative functions, the Internet is turned into a shopping mall (237).

This change in content (from active creation to passive consumption) has driven the explosive popularity of the Internet. Tables 1 and 2 highlight this sudden increase in Internet use. In the United States, the percentage increase in people using the Internet grew by 123% in four years (1997-2000). This amounts to almost 100 million users' online. Of course there are many who still don't have access, that is, there is definitely the existence of a 'digital divide' between the information haves and have-nots. It should come as no surprise that the traditional factors that have led to stratification in society are reflected in the digital divide. Income, education, ethnic origin and age are all factors that may influence whether one has Internet access or not. Typically those with above median income (>\$35,000), a postgraduate education, between the ages of 25 and 54, and who are ethnically White or who designate themselves as 'other' but not Hispanic (this group includes Asian-Americans, Pacific Islanders, etc.) have access⁶.

The same can be said for Canada. Although the two sets of data aren't suitable for direct comparison (they were collected in different years) general comparisons are possible. In Canada, at least in 1996, the digital divide was well demarcated. We see similar trends as the ones occurring in the United States.

⁶For tabular data and exact percentages, the author suggests visiting <http://www.ntia.doc.gov/ntiahome/net2/charts.html> pp.10, 19, 20, 23, 24, 25 and 26.

Table 1 - Percentage of U.S. Households with a Computer, Modem, Phone, Internet Access and E-mail					
<i>Year</i>	<i>Computer</i>	<i>Modem</i>	<i>Phone</i>	<i>Internet Use</i>	<i>E-Mail</i>
1994	24.1	11	93.8	-	3.4
1997	36.6	26.3	93.8	18.6	16.9
1998	42.1	-	94.1	26.2	-
2000	51	-	-	41.5	-
Percentage Increase (1994-2000)	112%	139%	-	123%	397%

Source: Table constructed using data available at <http://www.ntia.doc.gov/ntiahome/net2/charts.html> pp. 1 (Accessed 9/22/00). For 1998 and 2000 data, NTIA and ESA, US Department of Commerce using August 2000 US Bureau of the Census Current Population Survey Supplement.

Table 2 - Percentage of Canadian Households with a Computer, Modem, Phone and Internet Access				
<i>Year</i>	<i>Computer</i>	<i>Modem</i>	<i>Phone</i>	<i>Internet Use</i>
1986	10.3	-	98.1	-
1991	18.5	-	98	-
1994	25	8.4	99	-
1995	28.8	12	98.5	-
1996	31.6	15.5	98.7	7.4
Percentage Increase (1986-1996)	207%	85%	-	-

Source: Statistics Canada, Cat. No. 63-016-XPB, 1st quarter 1996 and 1st quarter 1997.

Variables such as income, education and age greatly impact access to the Internet in Canada. Unfortunately, no data were available on ethnic origin although it would be safe to say that Canada would more than likely follow U.S. trends. Because, like the United States, Canadian Internet users tended to be in the top quartile in income (>\$64, 280), have a university or postgraduate degree and were between the ages of 35-54⁷.

Although there were great increases in the number of Internet users following the development of the WWW and a graphical user interface, many people remain offline. In fact, recent data suggest that in the United States the majority of the population (58.5%) still does not use the Internet at all. And this is only in the rich, North American countries; we have to remember the fact that “more than half of the world’s population at present has no access to a telephone line, to say nothing of a computer to connect to it” (Koch, 1999:29). Be that as it may, the speed at which the Internet is being disseminated throughout the population makes it an important issue - “to reach 50 million North American users, radio took 38 years and television took 13. *The Internet reached 50 million people in only 5 years*” (Feather, 2000:37, my italics).

⁷Again, if the reader would like the actual numbers, the author suggests referring to the Statistics Canada catalogue no. 63-016-XPB, 1st quarter 1997.

1.2 Defining the 'New' Economy

As the Internet has gained in popularity as a site for commercial activity, terms such as the 'digital,' the 'nude,' and the 'weightless' economy have been used to describe it.

Each prefix describes a certain aspect of the emerging 'new' economy.

Beomsoo Kim defines a digital economy as "a special economy where all goods and services are traded in digital format" (1999:5). This definition would include only those goods and services which can be digitized and transmitted over the Internet to the buyer. Such products would include software (i.e., programs like Netscape Navigator) and entertainment media (i.e., music or movies). However, this definition proves too restrictive. He neglects the use of the Internet to purchase material goods such as computer hardware (one of the most popular purchases over the Internet), in fact he neglects anything that cannot be reduced to bits and transferred over a network. The US Department of Commerce (USDC) expands on the definition slightly to include the "process of creating value from information, throughout and across the economy, [as] the ultimate basis of the digital economy" (2000a:18).

However, the description of the digital economy does not seem to incorporate all the important features of the 'new' economy. The term 'nude' begins to touch on some of the characteristics that serve to distinguish exchange in cyberspace. The concept of the 'nude' economy is an important one because the Internet is conceived to make transactions more transparent and exposed. That is, "the Internet makes it easier for buyers and sellers to compare prices. It cuts out the middlemen [or intermediary] between firms and customers. It reduces transaction costs. And it reduces barriers to entry" (*The*

Economist, 2000:64). When we combine the characteristics of the 'nude' economy with the 'weightless' economy, the picture becomes even clearer. For the Internet and the networks that form its backbone makes it possible for corporations to operate with maximum efficiency, never producing what they can't immediately sell. It is similar to the notion of just-in-time production, which "reduces inventory overhead, forges a stronger alliance between a firm and its suppliers, [and] makes it easier to change production specifications" (Krahn and Lowe, 1993:222). Only it is taken to the extreme in the 'new' economy. For retail operations do not ever have to carry material inventory (as in the case of digital products), or may not even exist outside of their online storefront⁸. They may simply serve as an intermediary, making the sale and submitting the order to a distributor. The 'weightless' economy also refers to the "growing chunk of production . . . [that] is in the form of intangibles, based on the exploitation of ideas rather than material things" (Woodall, 2000:27).

We can therefore identify several important characteristics of the 'new' economy. First is **digitization**, the notion that the goods exchanged may be digital in nature, composed of nothing but bits that travel the Internet to their destination. They may never take a material form. Second, it is supposed that the Internet allows for **disintermediation**, bringing producers and consumers together in a similar way as the marketplaces of old. This is presumed to make the market more efficient because consumers are assumed to have greater access to information about pricing. They can

⁸The 'storefront' is a term used to describe the web site of an online retailer. It is the page that opens and allows you to navigate through the site.

therefore, theoretically, seek out the lowest price available. Third is **knowledge**; with production being focused increasingly around ideas and not material goods, there is the possibility for portions of the economy to become completely 'weightless,' trading information not material, commodities. The corollary to knowledge is its 'product,' information, especially the private appropriation of it. The Internet and the proliferation of information technologies force us to critically examine the role of knowledge and information in the 'new' economy. Fourth is **convergence**; "the dominant sector in the new economy is the new media, which are products of the convergence of the computing, communications, and content industries" (Tapscott, 1996:58-9). Perhaps the best example is the recent mega-merger of ISP America Online (AOL) and Time-Warner. The ramifications of such convergent trends will only be played out in the not so distant future. And finally, there is the characteristic of **globalization**. Pam Woodall argues that "information technology and globalization are intimately linked" (2000:8), and I agree. In fact globalization would not have been able to proceed as it has without the innovations in information technologies. The ability to coordinate production across continents, to send money electronically from one corner of the globe to another, and to communicate instantaneously with anyone at anytime are all products of information technology, and all necessary for the globalization project.

The 'new' economy is thus an amalgam of old-style capitalist tendencies (convergence and globalization) combined with the new characteristics that can only be manifested with the development of information technologies (digitization, disintermediation and increased knowledge and/or information content). What is

important to understand is that at the root of the 'new' economy are the historically extant categories of capitalism. Thus what it purported to be 'new' is really simply the expansion of capitalism into cyber (uncharted) territory. This new territory may be conceived of best through the process of online commercial transactions: electronic commerce.

1.3 The Role of Electronic Commerce in the 'New' Economy

\$187,563,168,130. That is, more than \$187 billion US dollars have been spent in Internet Commerce since 1998 (Internet Indicators, 2000:1). And the amount is growing⁹. According to the United States Department of Commerce, retail e-commerce sales are increasing quarterly, from \$5.198 billion in the fourth quarter of 1999, to \$5.518 billion for the end of the second quarter 2000 (though as a percentage of total sales, the numbers remain similar, from 0.63 to 0.68 percent) (USDC, 2000b:1). In Canada, e-commerce sales accounted for \$7.2 billion in 2000, or 0.4% of total operating revenues during the year, this was an increase of 73.4% over the previous year's (1999) \$4.4 billion total (*The Daily*, 2001b:1). The growth in the Internet economy can be attributed to the growing commercialization of cyberspace. In 1995, it was reported that just over "50 percent of subscribers to the worldwide Internet [were] commercial bodies" (Johnston, Johnston and Handa, 1995:20). This amounted to approximately 2,000 commercial sites, which ballooned to "more than 400,000 in 1998" (Rifkin, 2000:34).

Although the dollars spent on commercial activity on the Internet have yet to rival the offline economy, it is crucial to understand the nature of this activity. E-commerce is

⁹Follow this link to see how much it has grown since the writing of this section (11/21/00): <http://www.internetindicators.com/facts.html>.

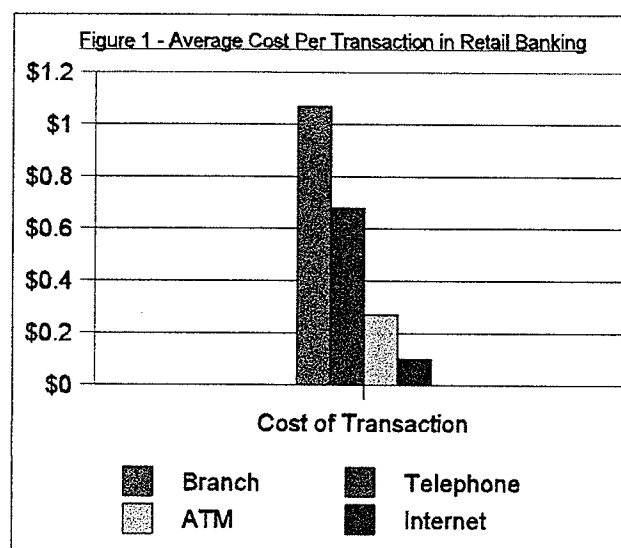
defined as the sale “of goods and services over the Internet, an extranet, Electronic Data Interchange (EDI), or other online system” (US Census Bureau, 2000:1). Koslur (1997) has a more expansive definition that incorporates not just the transactions “that center on buying and selling goods and services to directly generate revenue, but also those transactions that *support* revenue generation” (4, italics in original). Of course the goods and services sold over the Internet include not just their material embodiment (for example computer hardware), but also their immaterial embodiment (computer software, or information more generally).

There are essentially three models of e-commerce. These include the traditional Business-to-Consumer (B2C) model, the Business-to-Business (B2B) model and the Consumer-to-Consumer (C2C) model. C2C e-commerce is something akin to a global auction block. Anybody can place items on the Net and attempt to sell them. The Net can then act like a giant flea market. The most common sites to participate in C2C transactions are the auction sites (one of the better known is www.ebay.com). Here, an individual posts an item for sale, and surfers bid on the item. The winning bidder pays the amount bid by the second highest bidder. Filling a niche market, C2C e-commerce ranks the lowest in terms of current and projected economic impact.

The model that represents the biggest economic impact may be B2B e-commerce (*The Economist*, 2000:65). The incentive for companies to become involved with B2B e-commerce is the cost savings. Costs can be cut in three ways. First they can be cut in terms of procurement costs, or the costs incurred in purchasing supplies. The Internet is supposed to make it easy to find the cheapest price on a variety of items. It also cuts the

costs involved in processing the transaction. A simple example will prove informative. If we take the average cost per transaction in Retail Banking (Fig. 1). We can clearly see that as the transaction moves

progressively closer to being completed over the Net, the price goes down quite drastically, almost to zero. This is due to the fact that infrastructure and labour costs decline as the use of information technologies increase. In our example then, the move from using a branch office to conduct transactions to one conducted



Downes and Mui, 1998:45

on the telephone eliminates the need for a physical building, i.e., no branch. Moving transactions from the telephone to an automated banking machine (ABM) eliminates not only further physical infrastructures but now begins to displace employees. It also gives the customer the requisite training to allow for home banking, because now transactions can be completely automated. Finally moving transactions online completely eliminates the need for paid labour, replacing it with computer hardware and software programs.

As the transaction costs fall, "one of the remaining advantages a firm has over [brick and mortar] market transactions is the advantage of scale - the ability to outperform the market by saving money through repetition" (Downes and Mui, 1998:44). This has led to mergers, acquisitions and partnerships, as large corporations attempt to dominate the

market. An example of this B2B behavior is that of the Worldwide Retail Exchange (WRE). This is a global B2B exchange that includes “retailers, suppliers and distributors operating in the food, general merchandise and drugstore sectors” (Shelftalk, 2000:5). The goal of the WRE is to increase buying power through consolidation, and greater economies of scale. This form of B2B e-commerce has been identified as ‘strategic relationship’ based, and will offer the best chance at maximizing competitive advantage. There are two other forms of B2B e-commerce identified by Carayannis and Alexander (2000). These include the transaction based, where a single company uses a common method to undertake transactions with a number of its suppliers, and the process based, where “two companies establish a common business process to conduct business efficiently and effectively between the two firms” (2).

Establishing a B2B business strategy saves money in two other ways. It allows for better supply-chain management, and it makes inventory control easier, both are possible because data can be exchanged freely and easily between the two businesses (*The Economist*, 2000:65).

Perhaps the model that gets the most media attention is that of B2C e-commerce. The Business-to-Consumer model is closer to “actual store shopping, where viewing and buying are combined, as opposed to catalog or T.V. shopping where the process is spread over several media” (Macdonald and Tobin, 1998:204). Although it is predicted that B2C transactions will not be as economically important as B2B, it is my position that the social ramifications of B2C e-commerce will far outweigh those of B2B.

We can see changes in several areas. The first is in terms of location. For the consumer, the existence of an online retail site is supposed to be the best of both catalog and television shopping (in fact, those companies who already have a presence in these areas are making major inroads, for example www.sears.ca). But for those merchants who find themselves in the position of having to establish a Web presence, the move online can mean that their physical location is reduced to warehouses and showrooms, where people can come to get a better idea of the dimensions of merchandise. However, the actual purchase will occur online. The second change comes in the expansion of the marketplace. The consumer is assumed to benefit because of expanded horizons, in fact, as long as the site exists in a language the consumer can understand, the market becomes global. And, just as the consumer can buy anywhere, the merchant can sell anywhere.

Marketing information also changes in the online world of shopping. The consumer may find herself in an environment where the merchants know even more about her than she knows of them. Essentially, merchants are able to use the customer as a database, using the process of data mining to learn how to best market products to consumers. Data mining allows companies to “target a select group of consumers with products and promotions that emulate the concepts of the [shopping] community” (Smith, Speaker and Thompson, 2000:195). For example, the book retailer www.amazon.com records the purchases of all customers in a database and when you buy a book, they are cross-referenced with those of others who bought the same item. The Web site then shows you other products that you might be interested in (based on the buying habits of others with similar tastes). This form of marketing is made possible due to push technologies, those

that “automatically bring selections to customers, in contrast to ‘pull’ technologies which require the user to search the online bookstore or Web anew for each desired selection” (Levinson, 1999:129). This relates to the fourth point of purchasers. The consumer receives e-mail messages tailored to his/her buying patterns, which benefits the merchant since they can target only the people they want to see the ad. However, the merchant is not the only one who wins with new technology. With the development of shopping ‘agents’ or ‘bots,’ consumers can input a description of a product and let the agent comb through the net searching the sites that have it. To finish the transaction the consumer has to choose who to buy from, and since the agents include pricing in their comparisons, it becomes easy to find cheap goods. However, this only works if the merchants allow agents entry into their site for “to be of any use to a consumer, they [have] to scan as many sites as possible” (Napoli, 2000:E7).

We may also see a change in the goods themselves, as we move from mass production to mass customization, where customers can customize their goods to meet their specific needs. This may give rise to what Toffler (1980) called the “Prosumer”. This is the idea that people will want to do more things by themselves, including participating in the design of the commodities that they will eventually consume. It also means outsourcing some tasks to the consumer¹⁰. The ultimate gain lies with the merchant, who gets customers not only to do “their own product design, [but who also]

¹⁰The idea of outsourcing to the customer has been alive for some time. The most obvious example is the use of ATM's to do banking. The improvement in technology allows the banks to ‘hire’ customers to do the labour of traditional tellers. But instead of paying the customer (through reduced service charges), they actually charge you to do your own banking.

willingly part with marketing information that most organizations would kill to get their hands on” (Downes and Mui, 1998:97).

Finally, we can discuss the shift in payment. Since the retail experience over the Internet is supposed to be made more transparent, it is assumed that the consumer will be more informed than they might be through traditional exchange. The access to increased information, specifically on prices, means that value should become evident to the consumer. The consumer only will pay what he wants to for the product, and this in turn is seen to make the market more efficient since companies must engage in fiercer competition to attract business.

In Canada, we can discern several economic sectors that are embracing the Internet. Table 3 highlights some of these sectors. What becomes clear from the table is the large percentage of companies in various economic sectors that are moving online in some respect or another. The information and cultural industries have embraced B2C e-commerce the most (20.1%). At the opposite end of the spectrum we find retail trade (10.9 %) and arts, entertainment and recreation (10.1 %). In terms of B2B e-commerce the trend continues. Once again we see that the information and culture industries are leading the way with almost half of their total purchases of goods and services (49.6%) occurring via the Web. Meanwhile, the retail sector is still trailing (10.8%). Overall, businesses use the Internet more for purchasing goods and services than they do for selling them. This tends to reinforce the conclusions we drew that B2B e-commerce will have more of an economic impact than B2C.

Table 3 - Canadian Use of the Internet, Web Presence and Use of the Internet to Purchase and Sell.				
<i>Economic Sector</i>	<i>Percentage that use the Internet</i>	<i>Percentage with a Web site</i>	<i>Percentage that use Internet to purchase goods or services</i>	<i>Percentage that use Internet to sell goods or services</i>
<i>Utilities</i>	82.4	27.3	24.7	9.2
<i>Manufacturing</i>	63.7	31.7	18.9	14.9
<i>Wholesale Trade</i>	63	26.1	13.9	13.6
<i>Retail Trade</i>	40.5	16	10.8	10.9
<i>Information and Cultural industries</i>	89.1	61.7	49.6	20.1
<i>Finance and Insurance</i>	65.9	27.2	12.7	14.7
<i>Arts, Entertainment, and Recreation</i>	51.0	29.7	12.1	10.1
<i>All private sector</i>	52.8	21.7	13.8	10.1
<i>All public sector</i>	95.4	69.2	44.2	14.5

Source: The Daily, <http://www.statcan.ca/Daily/English/000810/d000810a.htm> (Accessed 11/6/00), pp.6-8.

Some of the reasons Canadian businesses aren't migrating online include, (1) their goods do not lend themselves to Internet transactions (56.4%)¹¹; (2) they would prefer to maintain their current business model (35.6%); (3) security concerns (13.9%); (4) the cost of development and maintenance is too high (11.8%); and (5) a lack of skilled employees (10.3%) (*The Daily*, 2001b:4).

It is interesting to note the differences between the public and private sector in Canada. For all the media hype about private companies and the possibilities for huge profits, it may come as a surprise that the public sector is more connected than the private. In fact, the public sector in Canada has a higher percentage of Web sites, and conducts a greater percentage of e-commerce activities. What is most striking is that where cost savings are supposed to be highest, the public sector does 3.2 times more business than the private sector.

As far as the actual demographics of the people buying online, we would assume that they reflect the overall demographics of Internet users in general. Remember that they were concentrated in higher income groups, and were highly educated. The Household Internet Use Survey (HIUS), administered to Canadian households reports that of those making online purchases 75% had an income more than \$45,000 and 55 percent had at least one member with a university degree (*The Daily*, 2001a:1). So that assumption seems to hold true. However, it must be noted that households that buy online represent only 7% of the households in Canada.

¹¹Percentages indicate the percentage of enterprises that do not buy or sell online.

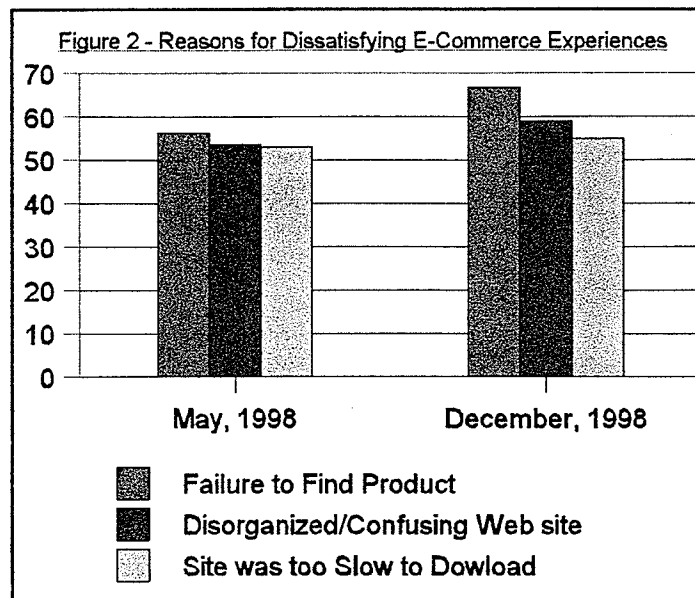
It is unlikely that the percentage will stay that low, as long as security and privacy concerns are addressed. A recent Manitoba survey (conducted by Probe Research/Jory Capital) indicates that "36 percent of Internet users say they have not bought products over the Internet because they don't trust on-line credit card transactions. Thirty-two percent said they have concerns over privacy" (Rosborough, 2000:B3). Furthermore, the segment of the market that was assumed to be comfortable with the net and all that it offers, namely 14-18 year old's, is not flocking to online retailers. In fact, "91 percent of those surveyed would still rather shop at the mall than on-line" (Buckingham, 2000:B3). Biannual surveys conducted by the Graphic, Visualization and Usability Center (GVU) at the Georgia Institute of Technology¹² also point to problems in Web site design that lead

¹² The GVU surveys highlight a problem inherent in much of the research that is conducted over the Internet. Since there is no centralized registry of all users of the Internet, and the users are spread out all over the world, a random sample of the population is impossible (for now). Thus most surveys conducted via the Internet use self-selection as the means of gaining research participants, and the GVU surveys are no exception. This means that it is impossible to generalize the findings to the entire population because of inadequate representation of some groups and over-representation of others. This necessarily decreases the confidence of the results.

The GVU surveys use a process of non-probabilistic sampling where respondents are solicited through a variety of means, including: announcements on related newsgroups, ad banners rotated through high exposure sites (like search engines), as well as announcing upcoming surveys through traditional media (<http://www.gvu.gatech.edu/user-surveys/survey-1998-04>, pp.8,9, accessed 10/13/00). The biases that arise from this type of sampling include differences in the "experience, intensity of usage, and skill sets of the users, but not the core demographics of the users" (9). Other researchers have also come to the same conclusions (Coomber, 1997).

For our purposes this highlights an important point; namely that as experience with, and skills related to, the Internet increase, so will the acceptance of B2C e-commerce.

to a dissatisfying e-commerce experience (Fig.2). These include the obvious: a disorganized or confusing Web site and the failure to find the product wanted; and the less obvious: the site takes too long to download. These problems intensified toward the Christmas shopping season in 1998, when



Source: <http://www.gvu.gatech.edu/user-surveys/survey-1998-04> and <http://www.gvu.gatech.edu/user-surveys/survey-1998-10>. (Accessed 10/13/00).

the American populace was beginning to test the e-commerce waters. Like retail shopping in the brick-and-mortar world, it is the lack of supply that most often turns an e-shopper off of e-commerce.

People are gradually accepting the Internet as a viable marketplace. Again, it must be stressed that we are examining a phenomenon in its infancy. Only “twenty-nine percent of all Internet users have made a purchase on-line in the last year” (Rosborough, 2000:B3). And I would tend to agree with the notion that the true impact of Internet commerce will only be felt if and when it achieves the same level of significance as other market spaces (McKnight and Bailey, 1997b:18).

But the trend is undeniable. As the number of people making purchases online increases, sales will begin to increase as well. And this is exactly what is happening. An article published by *The Cyberatlas* reports that US consumer e-commerce sales will reach

\$37 billion by the end of the year (2000), which would double it from last year, and predicts growth by a factor of 13 between 1998 and 2003 (2000:1). The question, then, is why and what are people buying online?

There are any number of reasons why people choose to do shopping over the Internet. The most popular reason people gave in both the late 1997 and early 1998 Gvu survey was convenience (<http://www.gvu.gatech.edu/user-surveys/survey-1997-10> and <http://www.gvu.gatech.edu/user-surveys/survey-1998-04>, Accessed 10/13/00). This was followed by a lack of pressure from salespeople, saving time, and the increasing amount of vendor information available online. It is really the convenience and time savings of not having to travel to malls that seem to entice people to shop online.

Once one chooses to do so, the decision becomes what to buy. Table 4 highlights some of these trends. The two biggest categories in 1998 were software that cost less than fifty dollars and books and magazines. This should come as no surprise. The very early years of e-commerce focused almost exclusively on downloadable software programs called shareware, where the consumer could sample the program for a certain period of time and then pay a small fee for continued use. Table 4 also reflects the popularity of www.amazon.com, and the e-tailing of books.

While these two purchase categories were the most popular in 1998, they weren't the categories that were seeing immense increases in growth. From 1997 to 1998 it was the music and low-cost computer hardware that led in this category. They saw increases of 96.2 percent and 78 percent growths respectively. Online music purchases moved from the sixth most popular e-commerce purchase in 1997 to the third in 1998.

Table 4 - Percentage Increase in Online Sales by Purchase Category			
<i>Purchase Category</i>	<i>1997</i>	<i>1998</i>	<i>Percentage Increase</i>
<i>Investments</i>	10.4	14.7	41.4
<i>Hardware < \$50</i>	17.4	31.0	78.0
<i>Hardware > \$50</i>	20.3	32.9	62.2
<i>Travel Arrangements</i>	26.1	36.0	38.0
<i>Software < \$50</i>	29.8	50.0	67.8
<i>Software > \$50</i>	23.2	38.0	63.9
<i>Music</i>	19.5	38.3	96.2
<i>Books/Magazines</i>	29.9	51.0	70.5

Source: GVU's WWW User Surveys, http://www.gvu.gatech.edu/user_surveys/survey-1998-04/.

People were no longer buying just books online. The popularity of books, music and software may lie in the fact that they are easily digitized and downloaded. That is, there is no material good to wait for, it is simply a matter of downloading your purchase directly to your computer. This 'leap frogs' the supposed problem of the lack of instant gratification online.

The difference between online and offline shopping is the perceived need to possess the commodity when you are finished a transaction. When shopping online, one tends to play a 'waiting game'. In fact, there is no guarantee that the product will *ever* arrive. However, with digitized information commodities that outcome is diminished, making products that can be downloaded an attractive alternative and area of potential growth for e-commerce sales.

It is not just the growth in online sales that are important, but also the percentage of all purchases made that show the growth in B2C e-commerce. That is, if one were to buy 20 compact discs in a year, how many would be bought online and how many offline? Table 5 shows the percentage of products bought online by total frequency for 1998. Here we see that people who use the Internet to conduct e-commerce are buying larger percentages of their total purchases in certain categories of goods online. Thus, for example, people who purchase software online buy 58 percent of it there, and only 42 percent from brick-and-mortar establishments.

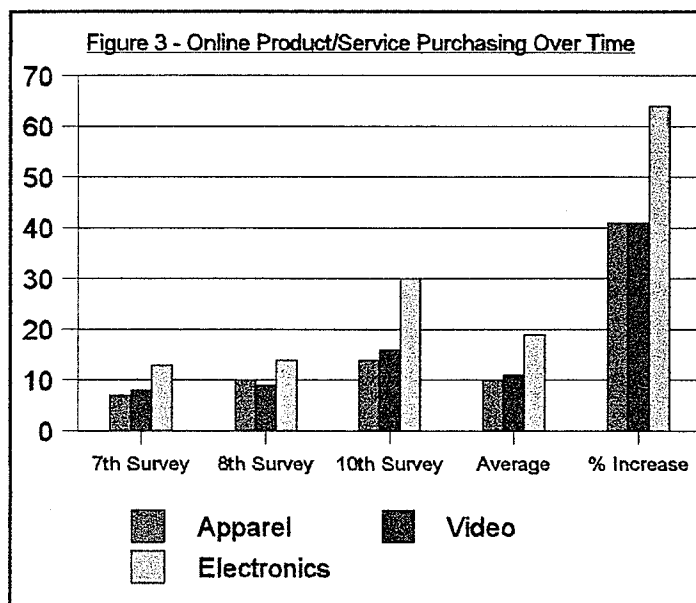
Table 5 - Average Online Shopper Purchases by Frequency (1998)	
<i>Product/Service</i>	<i>Percentage Bought Online</i>
<i>Software</i>	58.0
<i>Hardware</i>	48.5
<i>Books</i>	52.6
<i>Music</i>	41.4
<i>Travel</i>	30.2
<i>Electronics</i>	30.2
<i>Video</i>	15.8
<i>Magazines</i>	14.9
<i>Flowers</i>	13.3
<i>Apparel</i>	13.6
<i>Banking</i>	12.1

Source: GVU's WWW User Surveys, http://www.gvu.gatech.edu/user_surveys/survey-1998-10/.

The only other category to be above 50 percent is books. Again, these data are two years old, and we would expect to see increases in the percentages of other categories, based on past data.

For example, Figure 3 shows product and service purchasing over time for apparel, video and electronics.

Each category doubled its percentage of purchases over time, with overall increases of 41, 41 and 64 percent respectively. Once again we see that the potential growth of B2C e-commerce is large, even for the retail categories that one may not traditionally associate with the Internet.



Source: http://www.gvu.gatech.edu/user_surveys/survey-1998-10 (Accessed 10/13/00).

To the question posed at the beginning of this section (“What is the current extent of e-commerce?”) we can now respond. Although encompassing a small percentage of overall retail trade, e-commerce has accounted for over US\$187 billion since 1998. This coincides with an explosion of commercial sites which has already grown past the half-million mark. There can be no denying that the Internet is increasingly becoming a market space of tremendous commercial importance.

In Canada, both the public and private sector are slowly embracing the Internet as a viable alternative to traditional retailing. It is still the case that businesses use the Internet more for making B2B transactions, than they do for selling goods and services. This lends credence to the argument that B2B e-commerce will have more of an economic impact than B2C. We illustrated the interesting point that in Canada, it is the public sector that is making the most of e-commerce. Not only do they have a higher percentage with a Web site, but also conduct a greater proportion of both B2B and B2C transactions.

Some possible reasons why certain economic sectors are not embracing e-commerce can be ascertained by looking at the survey data regarding consumers opinions about online purchasing. Security and privacy concerns still plague the 'new' economy, as well as the aesthetics of the Internet. The connection speed, and the organization of the Web site both act to make some shopping experiences dissatisfying. But as we have shown, the more people that have online experience and the longer they participate in B2C activities, the more their purchases move from the offline to the online arena.

Our next task will be to outline how knowledge, information and the 'new' economy have been treated by various theoretical schools. In doing so, we will lay the theoretical groundwork for more extensive study.

Now that the history and commercial development of the Internet has been introduced, I can begin to deal with the issues surrounding e-commerce and the 'new' economy. In order to do so it is necessary to engage in a discussion about the role of knowledge in the 'new' economy. It will be important to pay special attention to how it is conceived by those who would trumpet it as the next embodiment of wealth creation.

We must also address the extent to which information as an exchange-value has been commodified and valorized. By engaging in such a discussion we seek to illuminate the fact that when we speak of the 'new' economy it is not as a qualitatively new phenomenon but rather an economy that holds fast to the historically extant categories of modern capitalism.

CHAPTER 2
THEORETICAL FOUNDATIONS

*“We suffer not only from the living, but also from
the dead. Le mort saisit le vif.
... Perseus used a magic cap as protection from
monsters. We draw the magic cap down
over our eyes and ears, so that we can
deny the existence of the monsters”
-Karl Marx*

The rapid rate of technologically driven social change has been dealt with before (Ellul, 1964, Bell, 1973, Toffler, 1980, Luke, 1989, Mosco, 1989, Postman, 1992, Drucker, 1993, Baudrillard, 1999, Castells, 2000) . The question that has been asked most often is whether advances in information technology will lead to a ‘post industrial’ society based on a ‘knowledge’ economy. That is, is there a qualitative shift in the direction society is moving due to the introduction of advanced computer and communications technology? While there is no doubt that the impact of computer and information technology has changed certain aspects of society, whether or not those changes represent a paradigmatic shift in the structure of society is still very much open to debate.

The theoretical bias of many of these studies is their reliance on structural functionalism. Using largely structural functionalist, and recently postmodernist theoretical points of view, these research projects (specifically Bell, 1973, Toffler, 1980, Drucker, 1993 and Baudrillard, 1999) have raised the issue of the increased importance of knowledge and information in advanced capitalist societies. However, in doing so, their discussion reifies knowledge. That is, they divorce knowledge from the individual, effectively objectifying it. The result is that it is treated as a thing, and it inherits thing-like qualities. When knowledge is objectified, and is treated as a thing, then it becomes possible to assign it a value (or price) and to therefore have the capacity to privately trade and own it. Commodified knowledge resembles commodified labour in this respect because social relations appear material.

The proceeding sections will highlight the theoretical framework that has been previously used to study the impact of computer technology on society. In the process it will become clear that knowledge and information are becoming important resources in the 'new' economy. But, by reifying these concepts, these studies lose some of their explanatory power. Thus I will attempt to provide an alternative framework, drawing heavily on phenomenology and Marxist theory. Two of the most important concepts will be the mutually reinforcing ones of reification and fetishism.

2.1 Structural Functionalism, the Computer Revolution and the Knowledge-Based Information Economy

Early literature on the impact of technology in late capitalist societies has used structural functionalism as its base. Therefore, it would be appropriate to provide a very brief overview to provide some background before delving into the substantive analysis. Following this overview we will examine three main ideas in substantial detail. The first is that of the 'post industrial' society introduced by Daniel Bell. He argues that in industrial society the 'axial' institution is private property, but that institution recedes as we move to a post industrial society, in which theoretical knowledge and its technological products are placed at its center. But these are still property, only they are intellectual rather than physical. Next is Peter Drucker's view of a 'post capitalist' society where, again, knowledge overtakes the production of material goods as the center of the economy. He argues that the traditional resources of the capitalist economy (land, labour and capital) are superseded by knowledge. *It becomes the definitive resource in a 'post capitalist' society.* And finally, we will introduce Toffler's notion of the information society and his concept of 'waves' of change. What will emerge from our review is not just the importance of technology, information and knowledge in late capitalism, but also how the process of change is conceptualized and how knowledge and information themselves are understood.

The impact of technology on society has been a topic that has been a concern for sociology for some time now. While there have been numerous changes in the theoretical traditions that dominate sociology, structural functionalism is still the theoretical base of

choice for many interested in the relationship between technology and society. Indeed, “sociological research related specifically to technology remains faithful to its *functionalist* roots” (Katsikides, 1998:ix, emphasis in original).

Broadly, structural functionalism explains social structure (stable patterns of social behaviour) in terms of the functions (positive consequences for the operation of society) they perform. Herbert Spencer and Emile Durkheim are considered the ‘fathers’ of structural functionalism, basing their theory on the structures and functions of the human body. Their use of an organic analogy posited that just as structures in the human body perform indispensable functions for life, societal structures perform important and necessary functions for the maintenance of society. Expanded on by Talcott Parsons in the 1950's, structural functionalism views society as an organism that requires certain institutions to perform certain functions so that society can operate normally. Institutions (like the family, education and legal systems) exist because they are functional prerequisites for the operation of society and therefore are *always* necessary for the proper functioning of the system. In this framework the institutions themselves are left unquestioned; it is enough that they exist, for in their existence they reinforce their functionality.

However, this bias led critics to argue that structural functionalism could not adequately deal with social conflict and realistically handle the process of social change. Because social change is viewed as progressing in an orderly fashion, notions of conflict are excluded from analysis. To correct this perception, functionalists presented an

explanation of change through the concepts of differentiation, reintegration, and adaptation.

Differentiation simply means an increase in complexity. As societies mature, differentiation is an *inevitable* outcome. Smith (1973) argues that this conceptualization brings functionalism in line with a 'neo-evolutionary' view of social change. What the concept of differentiation brings to the discussion of social change is a characteristic of inevitability. That is, an increase in complexity is an inevitable attribute of the system. Therefore, "the trend to increasing differentiation cannot be halted" (Smith, 1973:17).

To deal with the tensions of differentiation, it was necessary for some sort of reintegration. Essentially it is argued that should the system fall into disequilibrium that reintegration would restore the system. In effect, "disequilibrating anarchy throws up it's own antidote" (Smith, 1973:23). Once equilibrium is restored, the process of adaptation can begin; the system becomes orderly and functional once again.

To the structural functionalists then, the increasing reliance on technology, knowledge and information is a natural phenomenon. It is inevitable as capitalist societies mature, and therefore an inherent part of the development of advanced capitalist societies.

Perhaps the most influential study on the way technological change was shaping American society during the computer revolution was written from a structural functionalist perspective by Daniel Bell. The Coming of Post-Industrial Society (1973) became one of the most often cited works when dealing with the historical changes brought about vis-a-vis computer and information technology. In his book, Bell attempts to explain the pattern and trajectory of social change. Using census and labour force data,

Bell illustrated a pattern in employment changes. People were migrating from industrial production jobs in heavy manufacture (or, blue collar jobs), toward office work and the processing of information (or, white collar jobs). Bell argued that these employment changes were symptomatic of larger societal changes - most notably a move from goods-producing to a service economy. Bell believed that the current trajectory would lead to what he called the 'post industrial' society, one which "emphasizes the centrality of theoretical knowledge as the axis around which new technology, economic growth and the stratification of society will be organized" (Bell, 1973:112). Education and technical skill will be the access points to positions of power in the 'post industrial' society.

And in the post industrial economy, information becomes of utmost importance. Bell foresaw the emergence of a new class of worker, the knowledge worker. These were the technicians and engineers whose knowledge would lead to the development of more efficient production techniques. As these techniques matured and were adopted by the population at large, it would create demand for further change. The result is a shift in three main areas: "in the economic sector, it is a shift from manufacturing to services; in technology, it is the centrality of the new science-based industries; [and] in sociological terms, it is the rise of new technical elites and the advent of a new principle of stratification" (487); the information haves and have nots.

Indeed, what Bell predicted close to thirty years ago has now come to fruition. Traditional industries associated with the production of material goods, while still important, become less so in an information economy where information processing and knowledge services become the supposed engine driving capitalist growth. Furthermore,

advances in bio-medicine, specifically the manipulation of genes, have become an important generator of new technologies. However, his assumption that these give rise to a 'post industrial' economy needs critical reflection. Indeed, as the 'new' economy is heralded by both government and the business community, it is important to question whether we are seeing the emergence of a truly new economy, based on principles and organizations significantly different from the 'old' economy, or is capitalism creating a new market - a case of an old system advertised in a new package?

Another author who sought to highlight the changes taking place in modern American society was Peter Drucker. He argued that the shift taking place was more than simply a movement from one type of capitalist economy to another (i.e., from the production of material goods to the consumption of information services), it was actually a move toward a 'post capitalist' society.

He defines capitalism not in terms of the mode of production, but rather in the classes that make up the society. Drucker argues that a capitalist society is one made up of two classes, the bourgeoisie and the proletariat. Since we can no longer strictly define people in these two categories (at least in the rich capitalist economies of the North), Drucker contends that we must therefore be moving to a 'post capitalist' society, marked by the rise of a new class, managers. Drawing from the work of Frederick Taylor and his notion of scientific management, Drucker believes that the productive capacity of workers has increased to the point where everybody has been enriched. Combined with the increased use of automation, more and more people are moving from blue collar jobs (traditionally

manual labour) to white collar jobs (management or information services)¹³. With this shift comes the realization that “knowledge is fast becoming the sole factor of production, sidelining both capital and labor” (Drucker, 1993:20). Knowledge becomes the resource through which all others can be obtained. Using Drucker’s framework one would conclude that with an adequate amount of knowledge, any and all obstacles for the further development of wealth in the society can be overcome.

Here we see echoes of the inevitability of change and adaptation so prominent in a structural functional analysis. We can also see the evidence of a reified conception of knowledge in Drucker’s analysis as well. By arguing that knowledge sidelines labour as a factor of production, he is explicitly divorcing knowledge not only from its source, but also fails to acknowledge that knowledge production is itself a form of labour.

This problem is not specific to Drucker’s analysis. Indeed it is a problem associated with capitalist conceptualizations of knowledge production generally. By distinguishing the labour of the hand from the labour of the head, capitalists are given a rationale to pay manual labourers less than management. As overseers and planners, managers are deemed to have more skill than the manual labourers who only produce what, when and how they are told to. The rationale is further strengthened and legitimized because much of the skill that used to be embodied in the human labourer is now in the machinery. Thus, manual labour becomes nothing more than tending to the machinery itself. This devaluing of labour has been the historical trend of the last century. It is precisely this dichotomized thinking that leads some proponents of the ‘new’ economy to suggest that knowledge

¹³The parallels in Drucker’s and Bell’s analyses are very evident.

workers are actually not workers in the traditional sense, but rather entrepreneurs who own the means of production - the knowledge in their heads.

Finally, there are the ideas of Alvin Toffler, articulated in two works, Future Shock (1970) and The Third Wave (1980). Toffler directly compares the rate of technological change with the concomitant societal change, which is slightly different from the above two perspectives. Rather than focusing simply on the growth of the knowledge economy or the service sector, Toffler attempts to incorporate the changes directly brought about vis-a-vis the computer revolution. His conclusion is that we are moving toward an 'information' society.

As human technology has progressed, the time between innovations has become shorter and shorter; the lag between the idea, the practical application, and its diffusion through society is increasingly shortened. With the introduction of computer technology and the silicon chip, the rate of change has sped up exponentially. The most common example of this is Moore's law.

Gordon Moore, the founder of the silicon chip manufacturer Intel, theorized that every 18 months chip processing power would double, while the costs of producing that chip would stay the same or fall. This would allow for increasingly more complex mathematical formulas to be computed, which would then allow more innovation in the areas of information technology. Technological innovation becomes an upward spiral, speeding up as it goes.

For Toffler, the result is that society undergoes 'waves' of change. Again, we can see the conceptual framework of functionalism. These 'waves' are actually periods of

differentiation, reintegration and adaptation. As the speed of technological change increases, other changes follow throughout society. In his analysis this means that society is moving beyond the second wave of industrial production, toward a third wave, characterized by the processing of information. The third wave would be fully realized when every home had a personal computer and were “linked to banks, stores, government offices, to neighbors’ homes *and* to the workplace” (Toffler, 1980:140, emphasis in original). Here we see the roots of the Internet revolution.

Though less than an exhaustive review of the enormous number of studies on the centrality of knowledge and technology in advanced capitalist economies, Bell’s, Drucker’s and Toffler’s work does reinforce the belief that knowledge is an increasingly important factor of production. However, one very important question arises from our analysis: Whether or not the ‘new’ economy based on knowledge and information is something truly different. With that said, we must now define knowledge and information more precisely, and how they are treated in a market economy.

2.2 Types of Knowledge in a Market Economy

As the literature review suggests, knowledge, information and technology are taking a prominent place in production and consumption activities in the early 21st century. But how do we define and study knowledge? And how is it treated in a market economy? These are two of the questions I will address below.

The study of knowledge in sociology has been undertaken within the broader study of phenomenology. It is based on the work of German sociologist Alfred Schutz, and is the study of the way “people grasp the consciousness of others while they live within their

own stream of consciousness” (Ritzer, 1996:75). More broadly, phenomenology is concerned with the social nature of knowledge¹⁴.

One of the most important works on this topic is written by Peter Berger and Thomas Luckman (1966), The Social Construction of Reality. It is a study of the knowledge that guides our everyday life, our knowledge of the social world and of the norms and mores of the society in which we live. This is the first ‘type’ of knowledge, one whose utility is “determined by a set of social and cultural criteria” (Curry, 1997:3). We will distinguish this as cultural knowledge.

Through face-to-face social interaction we begin to learn from others what is required of us. It is through this process of social learning that we first acquire the knowledge we need to survive in our social world. Schutz calls this type of knowledge recipe knowledge, it provides us with directions so that we can handle “things and men in order to come to terms with typified situations” (Schutz, 1967:13). Individuals aren’t born with this type of knowledge, and we gain only a small part of it through our own personal experiences. The majority of cultural knowledge is taught to us, by our parents, teachers, and community. This led Schutz to conclude that “the greater part [of knowledge] is socially derived” (13). Knowledge, therefore, is a social product. And just as society and

¹⁴ The stream of sociological theory known as symbolic interactionism also understands knowledge to be socially produced based on shared meanings. Its intellectual roots lie firmly in the philosophical position of pragmatism, which suggests that reality is “actively created as we act in and toward the world” (Ritzer, 1996:190). The capacity for thought and therefore the development of knowledge must be shaped and refined through social interaction. However, Berger and Luckman’s theory of knowledge provides a more useful framework for this analysis because of their discussion of the objectivation and reification of socially constructed meanings.

cultures continued generations after the originators, useful knowledge, once disseminated, is very rarely lost.

In a very real sense then, phenomenology argues that we create our own reality through the learned schemes of others; “society is a product of human activity that has attained the status of objective reality” (Berger, 1972:160). These schemes, and the “objectivated meanings of institutional activity are conceived of as ‘knowledge’ and transmitted as such” (88).

However, a problem arises when we cease to understand that social reality is our own creation. The result is the reification of our knowledge of the social world. Because we perceive the social world as “such a massive, real and coercive fact” (Abercrombie, 1980:149) we tend to invest it with thing-like qualities. The result is that our creation becomes a constraint on us. Thus the first aspect of reification, as described by Berger and Pullberg (1965), is the “automization of objectivity in unconnectedness with the human activity by which it has been produced” (199). Reification, then, can be conceived as a moment in the process of alienation in which the “*characteristic of thinghood becomes the standard of objective reality*” (200, emphasis in original). The ramifications of a reified social reality are that the possibility for change is no longer visible and humans are left with a rigid social structure that appears to be unalterable and inevitable.

This aspect of reification becomes particularly acute when dealing with another type of knowledge, practical knowledge. Practical knowledge is knowledge that is “applied to production and which infuses the technical essence of most commodities” (Curry,

1997:3)¹⁵. We can further differentiate between proprietary and non-proprietary practical knowledge.

In a market economy, we must make this distinction. Non-proprietary knowledge is part of “the general pool of knowledge available to anyone willing or able to go out and get it. It is not *directly* controlled by any specific economic interest” (Curry, 1997:5, emphasis in original). For example, knowledge that the structure of DNA, the heredity molecule, is made up of base pairs of adenine and thymine and guanine and cytosine, and that they form a structure known as a double helix, are publicly available forms of social knowledge. *No one owns it*. I don’t have to pay royalties to describe it here; it is non-proprietary.

But the knowledge of how the base-pairs align to produce a specific gene is a different type of knowledge. That is, the broad knowledge of what DNA is differs from the application of that knowledge to solve a specific problem. For example, what makes one woman more susceptible to breast cancer than another. It is the application of general or non-proprietary knowledge to a specific problem that produces proprietary knowledge. Proprietary knowledge can then be applied to the production of specific information which is then used in the production of a specific product. Proprietary knowledge is thus conceptualized as private information. A flow chart delineating the relationships between the different types of knowledge and information can be found on page 49.

¹⁵We have now made a distinction between two types of knowledge: cultural and practical. However, that does not mean to imply that cultural knowledge is not practical, because it is, its only that it is rare for cultural knowledge to be made directly into a commodity. Thus it may be useful to think of cultural knowledge as decommodified and practical knowledge as commodified forms of knowledge.

So to continue the DNA example, there is a need to answer the specific question of what makes one woman more susceptible to breast cancer than another. In a market economy, a firm interested in the profit potential of developing an early detection test for breast cancer would bring together people with a non-proprietary knowledge of DNA. A stipulation of hiring them may be that any proprietary knowledge produced through experimentation belongs to the firm. That is, *the information produced through the implementation of non-proprietary knowledge becomes the private property of the firm.* The result is that once a test is developed, the firm could patent (or own the exclusive property rights to) the base-pair sequence of the breast cancer gene, and charge women to test and see if that gene is part of their DNA. In this way a corporation could then own the fruits of the intellectual labour of the human genius which created it!

Another example of the appropriation of non-proprietary knowledge for profit involves indigenous knowledge. This type of knowledge is different from practical knowledge because in many cases it is passed from generation to generation; it is an intrinsic part of the cultural life of a community. That is, there is no special training or education needed to possess the knowledge. Rather, cultural tradition defines who knows what.

In Asia and Africa there are many indigenous communities who have known about the medicinal and pesticidal properties of the neem tree. However, it has only been recently that the rest of the world has learned about this natural wonder. One of the first steps taken to gain control of this tree was to apply for patents. WR Grace (one of the world's largest chemical companies) applied and received two patents related to the tree.

While the patents do not inhibit local use of the plant, the indigenous communities cannot share in the potential economic windfall (UNDP/CSOPP, 1995a:6). Indigenous peoples developed this intellectual property and the patents deny them the right to share in the wealth created by the use of their discoveries.

It has been conservatively estimated that pharmaceutical companies earn a quarter of their yearly profit directly from traditional medicines. At the beginning of the 1990's this amounted to \$32 billion (U.S.), a year. Of that, less than 2 percent (\$550 million) found its way back to developing countries who were responsible not only for the raw materials, but also for the knowledge of how to use them (UNDP/CSOPP, 1995b:4). It is also estimated that by consulting with indigenous groups, pharmaceutical companies can increase their "success ratio from one out of 10,000 samples to one out of two" (5). These points, among many others, have led to two arguments from those sympathetic to the needs of indigenous communities. The discoveries of the beneficial properties of either the neem tree, or other medicinal plants, are regarded as old (and therefore not eligible for patenting) or that the rightful owners of the intellectual property rights should have possession of the patents - indigenous communities, not private corporations.

Curry summarizes the transformation of non-proprietary knowledge into an information commodity most succinctly:

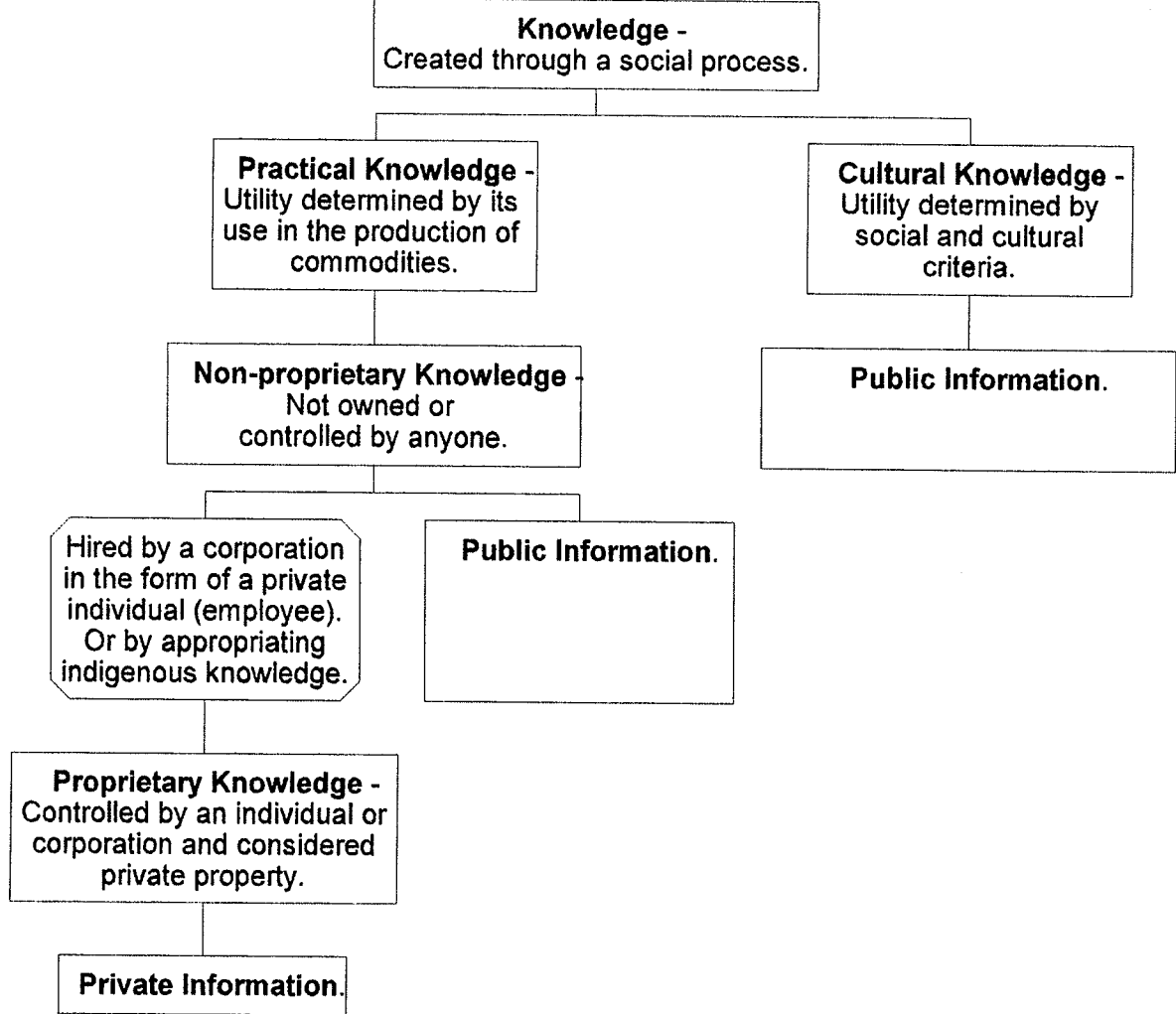
"Knowledge is a general abstraction outside the nexus of capital. When it is subsumed under or within capital, i.e., put to work by capital, or more concretely, utilized for the purpose of producing a given commodity by a particular firm, knowledge becomes information. Information then 'splits off' from knowledge becoming an input to production" (5).

This process illuminates how the social nature of knowledge, conceived through the work and experience of social actors, can be transformed into the private property of individuals or, more correctly, corporations. And this is exactly the second aspect of reification proposed by Berger and Pullberg, namely that knowledge becomes “not the world-producing realization of the *human* faculties of man, but a thing, a power to be bought and sold on a qualitatively evaluating market” (1965:199, emphasis in original).

In essence there is a twofold reification taking place. On the one hand there is the reification of knowledge that divorces it from its social origins. By hiring individuals with non-proprietary knowledge, firms are hiring socially produced knowledge in the form of private individuals¹⁶, employees. Thus it appears as though their product, proprietary knowledge, is private as well. But then this form of knowledge is divorced yet again from the producers in the commodification of information. Proprietary knowledge becomes objectified in the form of the information it creates. That is, the information is divorced from the producer, objectified, and becomes a thing that belongs to the firm. As we will

¹⁶While I use the term ‘private individual’ to reflect the common sense understanding of individuals in capitalist society, it should be understood this is not sociologically accurate. No individual is a truly private being, i.e. a product of his or her own making. Instead the system of knowledge shapes and makes possible the intellectual powers of the individual who applies these intellectual tools to solve the problem at hand. This is the other part of Berger and Luckman’s formulation: knowledge is a human product which in turn shapes the producer. Or to alter Berger’s notion of society (1967:3), knowledge is the product of humans, humans are a product of knowledge.

Figure 4 - The Knowledge Tree



see below, this is a similar phenomenon that Marx articulated in *Capital* nearly one-hundred and fifteen years ago.

2.3 Anticipation and Explanation: Marx and Commodity Fetishism

The notion that any form of knowledge can be viewed as private rather than the public product of a social community is sociologically uninformed (and naive). As a critique of the process of e-commerce and the false reality that arises from it, my purpose will be to illuminate the ways in which capitalism rests upon the productive activity of wage-labourers, and to show how the social nature of knowledge has been reified. In order to complete this task it is crucial that we “analyze the new configurations of capital, work and class relations” (McNally, 1998:105). I simply cannot agree with the functionalists (Bell, 1973, Drucker, 1993, and Toffler 1970, 1980) who regard the appropriation of knowledge and the valorization of information as the adaptive response to the differentiation brought about vis-a-vis technological change. Rather, I seek to peel back the layers of technology to uncover the labour involved in the creation of value in the ‘new’ economy. This is not unlike the methodology used by phenomenologists who argue that “sociological understanding ought always to be humanizing, that is, ought to refer back the imposing configurations of social structure to the living human beings who have created them” (Berger, 1967:8). In effect, information technologies, like the machines involved in mass production, serve as a veil, not only to capitalists and economists but also to labour, that hide the reality of the origin of value. Thus the process of de-reifying the ‘new’ economy “involves a labor of remembrance, a determined effort to reconstruct the

processes by which labor is subsumed by things in order to remind ourselves that none of these are possible without the laboring activity of wage-laborers" (McNally, 1998:101).

Our tool to complete this task will be Marx's concept of commodity fetishism.

There is a definite need to de-reify proprietary knowledge and its product the information commodity, so as to better understand the structure of the 'new' economy. In order to accomplish this, I will ground our discussion in Marx's theory of commodity fetishism. As I will show, Marx has anticipated the problems of the reification of knowledge and has provided an explanation for it. Given the broadest discussion in Volume 1 of Capital (1992), Marx outlines his notion of the labour theory of value, and the reification of commodities.

There is a common thread that runs through Marx's examination of Capital. This commonality is the constant reminder that value is created by labour-power, by the labourer him or herself. The idea of the labour theory of value is an attempt by Marx to critique the bourgeois political economists of the nineteenth century. He argues that, by failing to look at the historical circumstances out of which commodity production has grown, they mystify the objects themselves and fetishize the commodity. In effect, they give the commodity a life and will of its own. In broader terms, commodity fetishism is the simplest and most universal example of the way in which the economic forms of capitalism conceal underlying social relations. It does so in three ways. First, our social relations are made into things, commodities. Second, our social world appears to us as natural and permanent instead of socially constructed, and therefore unalterable. Concomitantly, the social world also appears as dominating and ultimately outside of

human control. Thus, we can see the parallels between Marx's concept of commodity fetishism and phenomenology's reification. Indeed, commodity fetishism is really all about reification.

Before we begin an analysis of commodity fetishism as a theoretical concept, it would prove beneficial to first define some of the common terms used in the discussion. First, a commodity is a thing, something that can exist outside of us (in terms of the physical product of labour) or can exist within us (the actual process of creation, labour itself) and serves to satisfy needs and wants. A commodity is defined by the capitalist mode of production and private property. That is, a commodity can only exist in an economy where the notion of private property exists, and where money, a universal equivalent of all goods, can be exchanged for a product.

A commodity can have two types of value attributed to it. Use-value, which exists in all commodities, is the needs satisfying component of the commodity. The producer or purchaser of the commodity obtains it for its use and eventual destruction. This form of value, Marx argues, "constitute[s] the substance of all wealth, whatever may be the social form of that wealth" (Marx, 1992:44). The second type of value attributed to a commodity is exchange-value¹⁷. That is, private property suggests that the producer of a commodity may do with it as he or she pleases. Thus a commodity may be produced not

¹⁷It is important to note that other economic systems would also include an exchange-value component to the product. What differentiates the capitalist economic system is the way commodities are exchanged and distributed. That is, instead of being exchanged in a social context between producer and consumer, commodities are sold for profit using wage labour (a 'market' system). And access becomes mediated through the capacity to afford commodities, not through social obligation.

to satisfy the direct needs of the producer, but rather to satisfy someone else's need. This form of exchange value becomes manifest only when compared to *another* commodity.

The difficulty with commodities is that the equality of human labour becomes objectified through its products which are of equal value. It becomes hidden in the commodity, so that "the measure of the expenditure of labour-power by the duration of that expenditure takes the form of the quantity value of the products of labour" (77). It goes even further in that the mutual relations of the producers, in which one can see the social character of the labour, becomes hidden. They take "the form of a social relation between the products" (77), between the commodities themselves. We begin to see how commodities are injected with an independent existence of their own. The commodity has a mysterious character, therefore, because "the relation of the producers to the sum total of their own labour is presented to them as a social relation existing not between themselves, but between the products of their labour" (77). It is no longer possible to recognize the social nature of labour; all we see are the social relations of commodities.

The social nature of labour becomes hidden in a second way as well, namely when labour-power itself enters the sphere of circulation and becomes a commodity, to be bought and sold like any other. Taken to its logical conclusion, we would expect the commodified labourer to present himself to us as a slave, owned entirely by anyone who may wish to buy him. Lefebvre (1968) argues that this is not in the interests of capital, for a slave has no right to his own property. Thus while he would enter the realm of circulation on one hand (as a commodified labourer) he would exit it on the other (losing his ability to own private property).

It makes it more palatable, and therefore more easily legitimated, to allow the labourer some 'freedom' so that he "becomes a part of this continuous circulation as seller and buyer on the one hand, and, on the other hand, as an element in the contractual relationships linking the owners and exchangers of commodities" (Lefebvre, 1968:98). Labourers thus become buyers of commodities on the one hand, and sellers of commodities (in the form of their capacity for labour) on the other.

However, for this to occur, certain conditions of 'freedom' must first be met so that the capitalist will find labour-power for sale as a commodity. These 'freedoms' include, 1) the freedom to dispose of his/her labour-power as his/her own commodity (that is, freedom to commodify oneself); 2) the freedom from the means of production (I don't own the tools required to produce what I need); and its corollary 3) freedom from the means of subsistence (without selling myself, I cannot live). These illusory 'freedoms' are required for the commodification of labour-power.

Of course, the capitalist must also become 'free' in certain respects as well. He must be free of the social cost of reproducing labour and all that it implies. That is, a slave-owner has certain responsibilities. These responsibilities include providing food, clothing and shelter (no matter how poor), to provide the training necessary to do a satisfactory job, etc. But when labour-power becomes 'free' it also frees the capitalist from the costs of the reproduction of that labour-power. The costs become socialized, borne by everyone in society. The state becomes responsible for the propagation of the working class and its preparation for the labour market. The commodification of labour relies on this privatization.

Although the concept of commodity fetishism does not hold exclusively to those objects produced simply for their exchange-value, these objects are our focus. More specifically our focus is on the fetish associated with objects that originate out of the development of private property, for they must be “products of labour of private individuals or groups of individuals who carry on their work independently of each other” (Marx, 1992:77). When people produce privately, they see their production as their own, not as part of the labour of society. It is only by the means of exchange, when individuals bring their property together to trade that the social process asserts itself. However, it does so primarily between the products and only indirectly between the producers. The social relations of the producers become mediated by their commodities. It appears as though there is a social relation between the commodities and a material relation between the producers. The process of exchange obscures the truth, we see a “false reality”; what we see, what we recognize are “material relations between persons and social relations between things” (78). We see things upside down, as if peering through a *camura obscura*. Only it is our reality that has been mystified, not the image. That is why the notion of a fetish is such a powerful metaphor. In it we see the concrete material object, the commodity, that obfuscates reality.

This process is accentuated by the introduction of machines into the production process, for a machine replaces human labour power with mechanical power. The machine is created by a human being(s) and its operation replaces that human labour which

it was designed to eliminate¹⁸. The result is that the labourer ceases to be the subject of the labour process, work becomes alienating because the labourer is no longer an active and creative participant, rather she becomes merely objective, a living appendage of the machine. She becomes ruled by the machine; the speed at which she works, when she can eat, when she can go to the bathroom. Her entire work day is controlled by the needs of the machine, not her own. Marx argues that machines put to use for the generation of capital further exploits the labourer and mystifies how commodities are attributed value. Machines function to further reinforce the belief that value is something inherent in the commodity. This is because 'living' labour becomes replaced by 'dead' labour. It appears that labour isn't involved in the production of commodities on a fully automated production line, even if real people are employed as overseers. *But labour is involved only it is 'dead' labour, labour that has already been expended in the production of the machines.* For Marx, machines are nothing but a mass of congealed human labour-power. When this mass produces a commodity, value is being transferred not created anew. *Only human labour has the power to create value, machines merely transfer it.*

With the introduction of computers into the workplace, we see that "fixed capital [the means of production] appropriates not only *living* labour, but in its sophisticated forms (computer hardware and software) appropriates the scientific and intellectual output of the white-collar workers whose *own intellects* oppose them as an alien force" (Cooley, 1981:46-7, emphasis in original). And just as the industrialization of physical labour was

¹⁸This is important because accounting software like Quattro was designed by a human to replace human intellectual labour.

subjected to rationalization and control, so it is with mental labour, the production of knowledge. The promise of creative and meaningful work that the computer was supposed to bring disappears as the techniques of mass production are transferred to the information economy. Instead of a craft-based system of production where a programmer or small teams of programmers work on the production of a piece of computer hardware or software, we see a division of labour, with largely unskilled and poorly paid labourers working to finish a piece of the total program - much like working on an assembly line, completing the same task over and over, *ad nauseam*. We will expand on this in the upcoming chapter.

For the time being, we must always keep in mind that commodity fetishism and reification are similar, or derivative, concepts and that therefore they represent similar processes. Namely, a fetishized or reified point of view has the capacity to minimize “the range of reflection and choice, [automatize] conduct in the socially prescribed channels and [fixate] the taken-for-granted perception of the world” (Berger and Pullberg, 1965:208).

The role of knowledge and information as commodities in the ‘new’ economy has been spoken of before, but has yet to be analyzed within the framework provided by the concepts of reification and fetishism. Using these two concepts, this thesis will allow the broaching of two of the most important ideas for the understanding of our social reality in the 21st century: commodification and globalization.

CHAPTER 3

COMMODITY FETISHISM AND ELECTRONIC COMMERCE: ELEMENTS OF THE FETISH IN THE 'NEW' ECONOMY

*“The future of commodity fetishism is not just a debate
within critical theory, but rather an issue that goes to
the heart of the sociological imagination”*

-Steve Sherlock, 1997, p.7

*“Mass consumption remains a key element of
informational socio-economies that may have
created even more productive ways of
generating commodities than under Fordism”*

-Tim Jordan, 1999, p.154

It should be clear that the capabilities of the Internet are changing the ways we live and consume in the late 20th and early 21st century. As introduced in the last chapter, knowledge and information are becoming key components of the economies of late capitalist societies. Many writers on the topic argue that knowledge products will overtake the production of material goods, placing power in the hands of the owners of knowledge and therefore rearranging forever the relationships between workers and owners. However, as we pointed out, the incorporation of knowledge into the production process invoked the specter of reification and the fetish. Structural functional theorists are

too apt to treat knowledge as something that exists outside of us. The result is that human creativity is divorced from the products of its labour. To help with the understanding of this process I have suggested the related concepts of reification and commodity fetishism.

These concepts will allow us to peel back the layers of technology to uncover the labour involved in the creation of value in the 'new' economy. Along the way we will come to understand that when we speak of the 'new' economy, it is not something qualitatively new, but rather the extension of the historically extant categories of modern capitalism. Information has become a commodity and appropriated for profit. The Internet and e-commerce allow for the elimination of employees and infrastructure, replacing them with software programs and computer hardware.

A dual process of fetishism is at play. On the one hand is the process of commodity fetishism vis-a-vis production. Here we must analyze the interplay between knowledge, technology, information and human labour. How does the Internet change the relationships between these concepts? The other side of the process involves the activity of consumption. We must focus on the technological changes that conceal the social reality of labour. This is crucially important in the 'new' economy, especially in terms of computer-mediated electronic commerce.

The following sections will deal with the processes and implications of a fetishized view of the knowledge and information in terms of both the production and consumption process.

3.1 Commodity Fetishism in Production

Traditionally, the definition of labour has encompassed people doing *manual* work for wages (Drysdale, 1995:233). In the 'new' economy, when we speak of labour, we speak of not just manual labour, but knowledge work as well. Of course, that is not to say that this is a new phenomenon. Just the contrary, all material products of human activity consist of knowledge of some kind. Indeed, the knowledge composition of all commodities has been gradually increasing. It has increased to the point that today the knowledge and information content of commodities is seen to be an inherent property of the commodity itself, not created by the human labour that produced it. And of course, this is the very manifestation of commodity fetishism; human labour is hidden by the commodity.

Examples of the reification of knowledge abound in management texts concerned with the 'new' economy. Alf Chattell (1998) writes about the knowledge owned by firms as something that can be accumulated, created, exploited, grown, and regenerated (263). This general abstraction is echoed by Drucker who concludes that "knowledge is fast becoming the sole factor of production, sidelining both capital and labor" (Drucker, 1993:20). Knowledge is conceived as the *sin qua non* of commodities because all others can be obtained through *it*. Because of this conception of knowledge, Drucker erroneously argues that the 'knowledge worker' owns the key means of production - the knowledge in their head - and that therefore traditional dichotomies between the owner of the means of production and the wage-labourer are no longer relevant in the 'new' economy. Toffler (1980) appears to be the first to suggest the emergence of this

phenomenon when he studied telecommuting in the early 1980's. Tapscott (1995) concurs, "the means of production shifts to the brain of the producer" (48). This argument reflects the postmodern position. Essentially we are led to believe that we exist in an "epoch beyond capitalism and its crises, and beyond the class conflicts these once generated" (McNally, 1998:99). This is patently false (which we will argue below), and serves to reinforce the ultimate conclusion of the fetish, that we live in a 'natural' economic system.

In the proceeding section, I will examine both claims. I will begin by attempting to de-reify knowledge in order to refute the suggestion that it is a factor of production separate from labour. I will introduce Birdsall's concept of the ideology of information technology, and discuss the impact of a commodified view of knowledge and information on production. Once done, I'll turn to the issue of the knowledge worker as both owner of the means of production and labourer.

The notion that knowledge and information can be owned privately is not a new concept, as we mentioned above. However, there is a distinct ideology that underpins this belief. William Birdsall calls it the 'ideology of information technology' (1996).

The role of ideology in capitalist society is already very well documented. It would suffice to simply present a short summary here. Ideology has been defined as "any system of ideas underlying and informing social and political action: [or] more particularly, any system of ideas that justifies or legitimates the subordination of one group by another" (Jary and Jary, 1991:226). When this system of ideas becomes incorporated into our taken-for-granted reality, and is reflected in our cultural forms and major institutions, then

the ideology has become hegemonic. That is, "capitalist or 'liberal' knowledge appears to be 'natural' rather than produced, 'the way things are' rather than the ideas constructed by institutions within a particular political, economic, and ideological system" (Skirrow, 1979:29).

As I have explained previously, the 'new' economy places information as the prime site of consumption and accumulation. Information becomes a consumable commodity. We can say, then, that the *economics* of information is changing, from being considered a public to a private good. By commodifying information (placing it on the market for sale to the highest bidder) we are witnessing the accentuation of a process of *intensification* that drives the expansion of the capitalist economy. Mosco describes it as growing "by converting material whose value is determined by its use, into commodities whose value is determined by what it can bring to exchange" (Mosco, 1989:26). *Information is the ultimate embodiment of use-value*, if the information is of no use to you it is worthless. But if it is of great use to you it may be very valuable, in fact it may be worth more than just its utility, it may have some monetary worth attached to it. According to the ideology of information technology, this information can no longer be kept public, it has to be open to commodification and valorization. Someone should be able to profit from it. It is the same logic that has driven the capitalist economic system from infancy; it is the need to "generate and accumulate capital through a free-market economy" (Birdsall, 1996:3).

When we speak of the 'new' economy, therefore, it is not that the economic relations that underpin it are new, but rather that the old economy has extended into a realm that has yet to be exploited. We must agree with Birdsall when he concludes that "the

ideology uses information technology to preserve that culture's dominant characteristic: commodification of products and services in a free-market economy" (1996:4). It is the purpose of the ideology to convince people that the right to information should be a privilege mediated by the market. The ramifications are that information should be regarded as private property, patented or copyright protected, and removed from those who do not have the necessary resources to access it.

To address the changes taking place in the realm of production in the 'new' economy, we must begin by de-reifying knowledge. In order to accomplish this we must first understand two things: First, that knowledge is a social product; second, that knowledge is a part of the labour power expended in production. I have dealt with the first point in Chapter 2. The second point will be dealt with below.

The fact that knowledge is a part of the human labour power used in production should be obvious were it not for the ways it manifests itself in the 'new' economy. If we distance ourselves from the information economy for a moment and take a historical look at the role of knowledge in capitalist production, we can identify two very unique roles the creator of knowledge may play. First, as inventor, labour is expended to create something new from one's own ideas¹⁹. If the product is useful to others, the creator will first want

¹⁹Again, the notion that an individual has original ideas that do not draw upon the history of the community one finds oneself in is sociologically naive. In reality, these are the ideas of the language group which created and preserved them over the eons. Language is by its very nature social and public; a collective product of a community's attempts to think and communicate about the nature of reality. We should consider it a shared public resource as "all interpretation of this world is based on a stock of previous experiences of it" (Schutz, 1967:7).

to ensure that the ownership of the idea remains her own. This is achieved through patenting the idea.

Once a patent is granted, it allows the bearer exclusive rights to the design for a period of seventeen years. Originally, a patent was only granted to innovative machines or processes, mathematical formulas or obvious processes could not be patented. However, this stipulation has been amended in recent years. It is also now possible to copyright software programs (nothing more than mathematical algorithms) and patent biological processes and products (like the breast cancer gene).

When a patent is granted, the holder may profit directly from the use of the process by making and selling the products that embody it. Another option would be to sell the patent, whereby the original creator receives a lump sum payment and, effectively transfers the rights to someone else. In this situation the capitalist can profit from the implementation of an idea that is not of his own making. He has bought the rights to them with his wealth. Any improvements on the original process can be patented separately, and the original inventor need not be compensated.

The second, and most common role, is when the labourer works for a corporation or firm. This is the traditional labour relationship that most of us are familiar with. We sell our capacity for labour (either physical or mental) in return for a salary and access to equipment; to the very tools necessary to create. In this type of relationship there is no need for copyrights or patents. It is an intrinsic component of the relationship that all discoveries uncovered while being employed by the corporation become the sole properties of the employer (usually the employee signs a transfer of rights to the employer

as a condition of employment). By selling his capacity to do work, the labourer also sells the rights to the products of that labour. A machinist at General Motors does not own the part she has just created out of a block of steel, just as the programmer at Microsoft does not own the string of code she has just created.

Of course, this relationship can also be seen in the very centers of knowledge production, dissemination and preservation: the university. Whether it is the graduate student signing over the rights to commercially valuable research when she registers, or the professor who agrees to sell ownership of research for private corporate funding, the results are the same. Knowledge becomes privatized and commercialized for profit. Corporate control of research has intruded into many of the professional faculties and will continue to do so as long as they can reap the benefits of this "partnership".

These two relationships, between the creator of knowledge and their products, have one thing in common, they will not necessarily have an impact on the productive capacity of others. That is, they do not directly eliminate the need for labour. In the 'new' economy there exists relationships that *do* affect how human labour will be put to use by capital. These are shifts in the structure of capitalism more generally, but are exacerbated by the advances in computer technology. Essentially it is a process that uses social knowledge to create technology which can process information and thereby eliminate human labour. It truly becomes a process of alienation; human labour is used to eliminate the future need for that very labour.

The pattern began with the automation of labour, with the creation of robots which perform tasks previously undertaken by humans. This is the extension of the introduction

of machines into the workplace. Now these machines have the ability for the articulation of more complex movement, and have computers housed within them; the technology of the machinery has been improved upon. This development is positive when robots are used to do dangerous jobs, and when workers are given the ability to have more control over the labour process itself. However, it is critically important to understand that the tasks these robots are manufactured to complete are those normally filled by blue-collar workers who have "managed to acquire high wages, good benefits, and 'middle class' lifestyles" (Perrolle, 1987a, 8), and who are also members of unions. The jobs that capitalists often destroy by automation are those that benefit the worker the most.

From a manager's perspective, robots are more productive and profitable than humans. Robots do not have sick days, are never late, and never strike. Robots can work long hours without rest, and can be easily reprogrammed without the retraining necessary for humans (thus making changes in the production process easier to facilitate). Perhaps most important, robots pay for themselves in a short time. There is only the initial cost of the unit, and any maintenance that it may require, whereas employees must be paid for the length of their career (as well as pensions upon retirement). For the owners of the means of production then, it makes economic sense to replace workers with robots. A fully automated assembly line where production is completed without any living human labour, which was science fiction 50 years ago, is now a reality.

As computers have become incorporated into the working lives of more and more office workers, we see a similar move toward the automation of office labour. Much like the automation of factories, computers in office work create an environment in which the

computer embodies the complex skills necessary for the job and either requires less of the human or eliminates the need for that worker completely. The computer, rather than becoming a tool for the worker, becomes her replacement.

And just as the introduction of robots has economic benefits for the factory owner, so too does the introduction of computer software. Above and beyond the profit that is generated for the company publishing the software (or manufacturing the robot) is the value created for the purchasing company. The initial purchase price of the software or hardware is the direct cost to the company, but if that company can then eliminate the wages of three, four, or more employees (at an average salary of \$30,000 to \$50,000 a year) the company can come away with quite a reduction in overall costs.

Of course, this is not specific to computer technology, but the scale and depth of it, and the reification of artificial intelligence and expert systems, is of a new order of magnitude and sophistication.

The elimination of living labour with dead labour, the substitution of human workers with machines, computers and software is an ongoing process. While the industrialization of society brings the use of technologies of mass production, the 'new' economy accentuates the process and expands on it. The introduction of machinery or technology into the workplace was the means that capitalists used to gain control of their workforce. By taking the skills of the worker and transferring it to the machine, the capitalist was no longer bound by the supply of highly skilled craft workers. The job, to use Braverman's (1974) term, becomes "deskilled," anyone with a few hours of training can do it.

However, machines in and of themselves still required the knowledge of the human

operator. When computer software is combined with the machine, the human is no longer required to be an active participant in the creation of the commodity. Instead she becomes an appendage, looking after the machine.

When that same degree of technological expertise is introduced to knowledge work, like the software programmer, the complete elimination of human labour is possible²⁰. Indeed this proves to be an important example because these jobs are seen to be the future of work in the 21st century. However, even in this romanticized occupation, the logic of rationalization seeks to change how work is performed, and by whom. The myth of the individual being responsible for an entire program, of having absolute control over the entire labour process, is being destroyed. We are witnessing a shift that has occurred in every area of production over the last century, the disembodiment of human labour. Human labour is being cast by the wayside as capital finds more and more ways to replace living with dead labour. Computer-assisted machinery and sophisticated software programs are replacing operations that previously could only be completed by highly skilled and knowledgeable humans. Human skill (employed in the present) is becoming unnecessary (because it can be imported from past use) in all kinds of work on a scale which is unprecedented.

An extremely important example is that of computer programming and structured programs. We will focus on computer programming for the moment because it is an area of growth in the 'new' economy. In Chapter One we highlighted that online sales of

²⁰This is an extremely important point, the level of skills that can now be replaced by machines and artificial intelligence is far beyond anything that has previously existed.

computer software and hardware are growing by approximately 65 and 70 percent a year respectively. Thus it is of interest to us how the labour process is changing in the production of these commodities. Of course, it is also of interest because this profession was heralded as the 'next big employer' and thus what is happening in this sector of the 'new' economy is important.

The main attributes of structured programming are that it is "easy to understand, fix, modify and (most importantly for routinization purposes) to divide up into separate parts" (Perrolle, 1987a, 13). Just as factories can produce several models of cars by building separate components that can be used interchangeably, and just like a corporation can set up offices all over the globe to handle specific areas of its business; software programs can be written in interchangeable segments, all over the globe. Curry illustrates this point succinctly: "In the same way that hundreds of workers build lots of little pieces and eventually you have a 747, software builders build lots of little pieces and eventually you have Windows NT" (Curry, 1997:17). Programmers do not need to see the "big picture," because they are responsible for only a small part of the entire program.

The real impact of structured programming is that it sets the stage for artificial intelligence, and ultimately the development of expert systems (like IBM's Supercomputer Deep Blue). These expert systems are involved in application generators that do not require the labour of the programmers to develop a software program. Instead, as the name suggests, the computer itself, using a set of choices given to it by its human programmers, can actually develop an application out of all the smaller chunks of preprogrammed code.

Labour becomes disembodied in this process because unlike a material commodity, which needs materials to be produced anew for every new commodity, information-based commodities only require the initial product - the initial labour. Once a working segment of code is generated, it need never be created again. It can replicate itself indefinitely. We can now summarize the entire process, and de-reify the role of knowledge in the production of information commodities.

All knowledge is rooted in the social context in which it is created. It begins as the rules we use to understand the things that are going on around us. This form of 'general' knowledge is available to all, and it is intrinsic for the operation of human societies. However, there is also a type of 'specialized' knowledge, which only culturally appropriate people have direct access to. It is only these people who can transmit this type of knowledge. At first, this might have been given to a shaman, or priests, and now is often embodied in teachers and professors. This form of specialized, non-proprietary knowledge is theoretically available and accessible to all. When that knowledge is put to work by capital, it becomes information. Modern capitalist societies have allowed these ideas to be converted into private property²¹. And this information is ultimately appropriated by business. This is the same process that has continued since the dawn of the industrial revolution. Marx described it then and it still holds true, "*capital proper does nothing but bring together the mass of hands and instruments which it finds on hand. It agglomerates them under its command. That is the real stockpiling; the*

²¹From the vantage point of the sociology of knowledge, it is not inevitable that it be typified as property and there is no reason why, essential discoveries of immense public good could not be viewed as "public" rather than "private" property.

stockpiling of workers, along with their instruments” (Marx, 1978:271, emphasis in original). It is this *collective knowledge* of the organization, brought together vis-a-vis capital, that becomes its *intellectual capital*. And since information is value in the ‘new’ economy, it is the knowledge work of labour that creates value, becoming the intellectual capital of the firm.

This intellectual capital asserts itself in the production of commodities by infusing them with information content, in effect, creating information commodities. These commodities have a peculiar property that separates them from traditional commodities. That is, once the information commodity has been produced, it can be reproduced infinitely with almost zero cost. An information commodity can be produced once, proliferate, all without further production costs. This turns the law of diminishing returns upside down. For the ‘new’ economy and the information commodities that make up the bulk of it, are characterized by increasing returns, where “once up-front investments are made, each unit sold costs no more than the last to deliver and, in the case of purely digital products, the costs approach zero” (Feather, 2000:65). Labour becomes further displaced, since it is involved once in the creation of the product, and then need not be employed again. It becomes easy to lose sight of the labour that produced the commodity under these circumstances. In fact, “the new technological work-world thus enforces a weakening of the negative position of the working class: the latter no longer appears to be the living contradiction to the established society” (Marcuse, 1964:31).

As far as the notion of the knowledge worker owning the means of production, we must remember that it is the collective knowledge of the organization that becomes

intellectual capital. It is impossible to purchase something with 'knowledge'. It must first be converted to its money form. And this can only occur with exchange, and commonly this means selling labour in the form of knowledge work to a firm in exchange for wages. Thus a good idea may become profitable with the right support, but on its own a good idea remains simply that, an idea. Put another way, "without the knowledge possessed and controlled by the firm, and embodied in the organization of the firm, the knowledge possessed by most 'knowledge workers' is useless" (Curry, 1997:13). While it is true that the production of 'pure' knowledge is always possible without the resources of a large corporation (i.e., art, literature, philosophy, etc.), increasingly knowledge production is being 'spun-off' from the overall production process to be handled by specialist firms. It is these firms and their products that are the leaders of the 'new' economy.

Perhaps the best example of this trend is to consider the railways of the 19th century. According to an article in *The Economist* (2000), "Britain's railway mania of the 1840s certainly had much in common with Internet fever" (66). Essentially, too many players entered the fray too early because of the ease at which one was able to acquire venture capital from investors interested in a quick return. This is precisely what was occurring in the 'new' economy at the end of the 20th century. Thus it is not surprising to see a large number of entrepreneurs enter the Internet economy because it was so easy to find investors.

However, as the fever broke, and the reality of billions of dollars spent without any return set in, it became harder and harder to secure the needed investment dollars to stay afloat. The result is the demise of a large number of dot.com companies, but for those

who remain, they command an even larger presence. For knowledge workers, the ramifications are that it is harder to convert an idea into a profitable venture, because there are fewer venture capitalists interested in the risk. So the knowledge worker must find employment with the dot.com survivors, becoming integrated into the wage-labour force²².

A poignant example of just such a cycle is documented by Chris Hegedus and Jehane Noujaim in their film Startup.com (2001). We are provided an inside look into the lives of two high school friends, Kaleil Isaza Tuzman and Tom Herman, and their trials to raise capital for their website: gOVWORKS.com. The idea for the website came from a perceived need to cut through the 'red tape' of government and allow citizens direct access to its services. It began as a resource to pay parking tickets online. It is mentioned early in the film that in the 'new' economy speed is king. It is important to have a product in the market as soon as possible, because, as an astute observer remarked: Only two or three companies make it - one gets half the market, while the other two splits the other half. Everybody else loses.

So the founders of gOVWORKS.com rushed into the market. In the period between May 1999 and May 2000, gOVWORKS.com grew from eight employees to 233 and raised \$60 million from venture capitalist firms like the Mayfield Fund. Kaleil and gOVWORKS were heralded as the 'next big thing,' until their competitor, ezgov.com, went live online first. Although gOVWORKS had signed on 45 countries internationally,

²²Because the dot.com firms are fewer in number, the employee may agree to less attractive employment conditions as well as exhibit an increased "willingness" to turn over their inventions for very little personal benefit than when they had more employment opportunities.

and won the New York City parking ticket contract, and although the company and the CEO were all over the e-business magazine covers and mainstream financial media, launching their site four months behind coupled with the severe downturn in the market, spelt the end. By December of 2000, the company was running out of cash and unable to get more funding because of the likelihood of a small return. With a downsized company (now employing just fifty people), gOVWORKS was acquired by an unnamed multinational corporation, New Year's Day, 2001.

The example of the firm documented in Startup.com highlights a number of the issues we have discussed in this section. At the most basic level, we see the disembodiment of labour vis-a-vis software programs. While the founders describe gOVWORKS as a tool to access services, it is really an attempt to replace real people with artificial intelligence. Both low-skill minimum wage jobs (such as the telephone receptionist) as well as highly paid government positions would be cut, not necessarily red tape. We can also see that the idea is not enough. There is a need to convince those people with money to lend that the idea is a profitable one. Venture capitalists are not philanthropists. They lend money to make money. And, perhaps most obviously, the story of gOVWORKS is the story of so many small Internet firms. It is the money that disappears, not the idea. The idea is simply purchased by a larger company.

Therefore, the strength lies not in the ideas of the individual knowledge worker, but rather in the corporation that can sustain years of loss only to reap the benefits at a later date. It should not be surprising then that the monoliths of the offline economy may come to dominate the online world in the near future.

Thus what we are experiencing is not a shift toward a post capitalist society, but rather a reconfiguring of the historically extant categories of capitalism. For the knowledge worker is no more free to exploit his/her own knowledge than the manual labourer who does not have access to the means of production. It still becomes crucial for labour to sell its labour power, and for capital to exploit it. The difference is that “the hourly wage relation and individually segmented division of labor are replaced by salary and stock options” (14) which hinge on the performance of the company, not on the worker. It has become common in the world of e-commerce for workers to work long days and nights for expensive stock options, only to see them devalued while they sleep, effectively working for nothing.

By ignoring the role of knowledge in the value creation process, it is reified and appears as a commodity that can be created and accumulated at will. This is the manifestation of commodity fetishism in the production of information commodities. What we have attempted to do is de-reify this notion of knowledge and lay bare the true origins of value, namely in the expenditure of labour power. Because it is so often mediated by computers and information technology, it may appear to capital and to labour alike that value is an inherent quality of the commodities produced. However, information commodities would not exist without the labour of the knowledge worker, just like common material commodities are not possible without human labour. The technology of the ‘new’ economy serves just as the simple machinery of the industrial revolution, through it the labourer becomes further removed from the production of the commodity, and thus the fetish can take hold.

3.2 Commodity Fetishism in Consumption

Now that we have some idea of how the reification of knowledge has an impact on the realm of production, we will examine the role of consumption in magnifying this phenomenon. In order to do so we will focus not only on the technological changes that conceal the social reality of labour, but also the way the market is organized. We will expand on the discussion of advertising from Chapter 2, and also examine how consumption occurs in the 'new' economy, not only the commodities themselves but how they are being consumed. That is, we will examine how the retail experience is changing the commercial relationship between the salesperson and the consumer. Since advertising can be said to be the starting point of consumption, and the lifeblood of most media, we'll begin with it.

To understand this process we must understand that the very nature of capitalism has been changing in the twentieth century. We have been witnesses to a shift from a production to a consumption-centered economy, from an economy characterized by individual production for individual consumption to mass production for mass consumption, a consumer culture. By defining modern society as one dominated by consumerism, we recognize a shift from consumption as a reflex of production to consumption as central to social reproduction. Thus, in a consumer society "the meaning of life is to be found in the things we possess. To consume, therefore is to be fully alive, and to remain fully alive we must continually consume" (Sklair, 1991:41).

Society became dominated by the notion of consumerism because of the need to sell surplus goods created by overproduction. In order to create the need for these products,

“the modern manufacturer has to ‘educate’ the masses in the culture of consumption” (Lasch, 1979:72). It is the role of the advertising industry to teach us this lifestyle, and North American and European consumers have proved to be prodigious learners in this respect. Through the inculcation of wants, advertising diverts capitalism from the problem of ‘realization,’ that is, “of making sure that the huge number of goods produced beyond [a] minimal level are consumed” (Leiss, Kline, and Jhally, 1997:20).

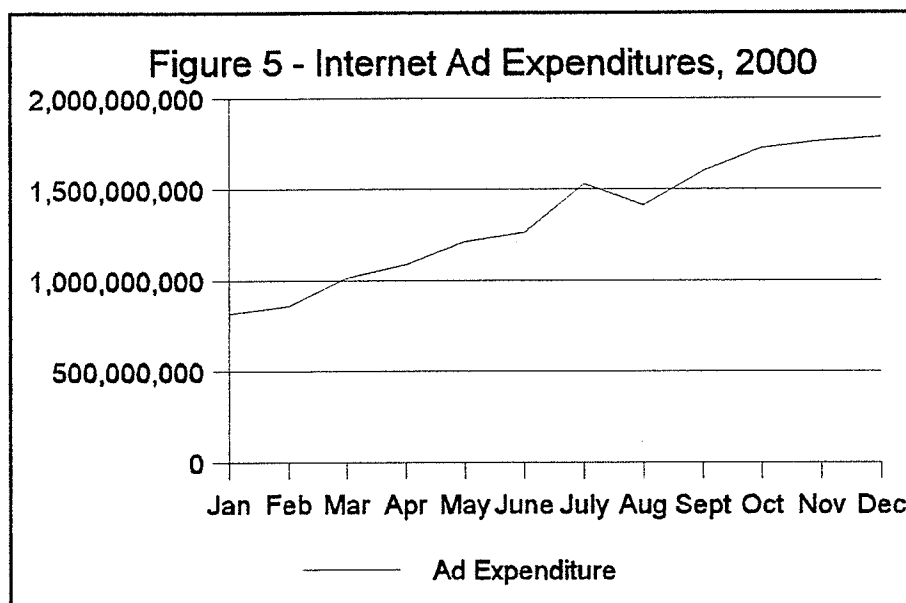
Advertising’s main goal, then, is to create artificial needs, “those which are superimposed upon the individual by particular social interests in his repression: the needs which perpetuate toil, aggressiveness, misery and injustice” (Marcuse, 1964:5). While it is erroneous to suggest that advertising’s main socio-cultural function is to sell us particular goods, it is to persuade us that *only* in consumption can we find happiness and satisfaction. The result is that “‘natural’ satisfaction of needs is replaced by the ‘artificial’ mediation of commodities” (Leiss, Kline, Jhally, 1997:29). This is a clear example of reified thinking, making something that is a social creation appear natural.

Advertising completes its task by associating products with images and symbols of well-being. Thus it is the position of some postmodern philosophers that when we buy a product we are really buying the feelings associated with it. Jean Baudrillard, for example, has proclaimed the age of the virtual economy, where signs and symbols supersede traditional commodity production (Baudrillard, 1999). This virtual economy is based “simply on our desire for (and identification with) commodified images” (McNally, 1998:100). These images further veil the social origins of the products.

The relationship between the Internet, e-commerce and advertising is an important one. So important, in fact, that Bill Gates (1996) predicted that “the most promising source of eventual revenue from the Internet *is* advertising” (278, emphasis added). This hypothesis has not fallen upon deaf ears. Figure 5²³ highlights the monthly total ad expenditures for the year ending December 2000. Clearly there is a trend toward increased spending, with figures more than doubling from January (\$818,543,000) to December (\$1,785,397,900). Total spending amounted to more than sixteen billion dollars. In turn, the revenue generated from the expenditures amounted to \$500 million in 1997 and is

expected to climb to \$6.5 billion by the end of this year (2001) (Rifkin, 2000:179).

While Internet ad expenditures



do not even begin to approximate that spent on traditional media, it is an important trend that suggests the further commercialization of cyberspace. Moreover, as we will see

²³Source: http://www.amic.com/scoreboard/Top10_200012.html (Accessed 1/25/01),

below, advertisers receive a lot more from their online advertising expenditures. Key to this phenomenon is the way ads are delivered vis-a-vis the Internet.

On the Internet, ads take a variety of forms. Not only does it allow a corporation to target a very specific audience, but in many cases, the actual content of the net is related, in one way or another, to the consumption of material and/or immaterial goods. Whether it is visiting the site of your favorite television show, keeping up with the latest movie and music releases, or discussing pet issues on a Purina Web site, the primary activity, while not directly involving consumption, serves to obscure the secondary, or latent functions of the Web site. These are to provide information about products and services in the hopes that their consumption is not far behind. The technology of the Internet makes the targeting of this material more and more precise. It serves as an electronic or virtual panopticon.

The idea of a panopticon originates in the thoughts of Jeremy Bentham, a 18th century utilitarian philosopher. He envisioned a prison in which prisoners would police themselves, thus eliminating the need for guards. Its basic design is a tower in the center of a circular prison. Guards would be positioned temporarily at the top of the tower with a large searchlight. The prisoners would be kept in total darkness, except for the light shone upon them from above. By removing the guards, but maintaining the light, prisoners would have to assume that there are guards watching them, when in fact, there may be no one there at all. This is an extremely effective design because prison officials are given "the possibility of total surveillance" (Ritzer, 1996:468).

Computer technology, using trace programs and identifiers (called 'cookies'), allows advertisers and content providers to track and monitor the traffic of individuals, giving them the power of total surveillance. What this means is that every web site that is visited and every click of the mouse results in information being gathered about the user. The technology is such that ads can be streamed into the surfing experience that have a direct relevance to the user, based on past surfing experience. This increases the possibility that they will be better received and remembered. Or, at the very least, they may be 'clicked' on to further entice the consumer.

The ultimate result is the amplification of the "potential for workplace and consumer surveillance, producing a substantial increase in opportunities for social management and control" (Mosco, 1989:105). An unseen force, and usually unknown, is monitoring all activities - a virtual panopticon. According to Gates (1996) "this will benefit all parties: the consumers because ads will be better tailored to their specific interests and therefore more *interesting* to them; and the producers and on-line publications because they'll be able to *sell* advertisers focused blocks of viewers and readers" (194, emphasis added). While this may seem to be mutually beneficial, it is worth noting that it is the people running the website and not the consumer that has a monopoly on the information. Thus "a company knows far more about the customer than he or she will ever glean about the company" (Rifkin, 2000:101).

Just as in the offline world, online advertising's strength is to create an image of a product, to give it a personality distinct from its material properties, divorcing it from the manufacturing process and the labour that creates it. For example, it's easy to find

information on TV shows, movies, computer software, sex, etc. This information is usually promotional - the latest movie releases, the improvements over last year's version of Windows, the new style from the Gap or Levi's. It is a rare thing to find information on the physical reality of their production. Do the people who make your T-shirts or jeans earn a living wage? Do they get paid overtime? Are they allowed vacation time and sick pay? Are working conditions safe? I would argue these are *extremely* useful forms of information, and yet it is precisely this type of information that is not available on the Web²⁴. Indeed, it is a paradox of the process of globalization that just as it seems the world is becoming smaller (through communication technologies such as the Web), and we are experiencing an information overload, we know less than we did a hundred years ago about the people who manufacture the products we consume. Thus in this sense online advertising has the same fetishistic characteristics as does offline advertising. The manifestation of commodity fetishism in the realm of consumption vis-a-vis advertising is to focus "attention on the product to the neglect of the activity creating it" (Scitovsky, 1976:90).

It is important to note that we are not suggesting that the advertising paradigm has changed with the move to online ads. Indeed, we have described a similar process as the one that has been going on for more than a hundred years. Rather, what we are pointing out is that this process has been given technological improvements to make it more

²⁴Of course this isn't a problem specific to the Internet. This type of information is rarely available in any form. The point is that the Internet *could* make this information readily and cheaply available to the consumer. The fact that it does not is something that needs to be considered when people make the assertion that the Web is such a valuable resource for consumers who want to know more about a product before purchasing it.

effective. While it appears that the act of advertising products hasn't changed much with the move to e-commerce, the actual products being sold *have* changed. Whereas the industrial economy is based on the consumption of material goods, the emerging 'new' economy seeks to place "information" itself as the prime object for consumption. That is, in the 'new' economy, information is transformed into a commodity. The Internet and e-commerce act merely as the vehicle for the change. As Jordan (1999) points out, quite correctly, "cyberspace is strategically placed to implement a fundamental McLuhanesque revolution in information consumption. This change amounts to a new commodification of information, because it redefines the nature of immaterial commodities and their role in socioeconomic life" (160).

If we recall from Chapter 1 the products that are most often bought online, and how buying habits are shifting to the online arena, we see those information products: computer software and hardware, books and magazines, and music, leading the move to online consumption. Except for the case of computer hardware, each category is essentially an immaterial commodity. There has to be no material transaction to consume the product. All the consumers must do is exchange his credit card *information*, then download the latest Stephen King novel. The very nature of this exchange transforms the social actors.

To understand how this change manifests itself, we must examine how transactions occur over the Internet vis-a-vis B2C e-commerce. First, the consumer must find the object or information that she wants to purchase. This can be achieved through many different means, including visiting a search engine, or perhaps a brick-and-mortar establishment that has developed an e-commerce Web site. Yet another option is to 'hire'

a 'bot.' This is a computerized personal assistant that takes information about the product you are looking for, then scours the Web to compile a list of the sites that carry the product and the price they are selling the product at. All the consumers must do is make the decision from whom she wants to buy.

Once that decision is made, the consumer is quickly whisked to the site, where all she must do is check to make sure the product is exactly what she wanted. If everything checks out, the next step involves the purchase or exchange. Traditionally, this would have to be completed by taking the product to an employee at the front of a store. But e-commerce eliminates that step. The labour traditionally performed by an actual person is replaced by software.

In the last section we discussed the effect of computer technology on traditional production-centered jobs. We did not focus on those jobs that are most closely related to the consumption of a commodity - retail service workers. Yet here we find similar changes. In fact, replacing human service personnel with software programs seems to be the perfect solution to management gurus like Frank Feather. In his book futureconsumer.com (2000), he repeatedly makes contemptuous claims about service workers. For example, describing the 'typical' e-shopper, Feather argues that they are glad to avoid "product-ignorant, indifferent, and rude sales clerks" (90). We are informed that clerks are "disinterested, discourteous, [and] clueless" (104). Furthermore, consumers are likely to be "hassled by tobacco-smelling salesmen in plaid pants" (203). Or perhaps even meet up with "salesmen in polyester suits [that] come after you with fangs" (203). Clearly these comments are meant as hyperbole, however, it is quite

obvious that the goal of the offline retail economy should be to shift online, where their paid incompetent sales staff can be replaced by efficient unpaid software programs.

The effect on the consumer is to effectively remove labour from the entire consumption process. In fact, from the start of shopping to the delivery of the product at the door, one may never come into contact with a human being. Marx characterizes the exchange relationship as social relations between commodities and material relations between people. When we exchange goods, we do not recognize the social nature of the exchange, rather we only see the material relations, the exchange of money for goods. In the realm of e-commerce, the material relations between people disappear. Two people no longer have to be present to complete the transaction. The process of reification, which is such a large component of commodity fetishism, seems to be complete. For the exchange relationship in a computer-mediated capitalist society truly transforms "human properties, relations and actions into properties, relations and actions of man-produced things which have become independent of man and govern his life" (Bottomore, 1983:411). *The disembodiment of labour is total and complete.* This becomes more obvious when we look at the medium of exchange online.

When Marx was writing about commodity fetishism, consumer credit wasn't available to the masses. Thus, when a buyer and seller met in the marketplace, money was the means of exchange, the material embodiment of the universal equality of human labour. Remember that the introduction of money into exchange further reinforced the fetish. Money serves as a veil that obscures the origin of value, because exchanging money for a commodity contributes to the belief that commodities have an inherent value,

something that can be embodied in currency. In the 'new' economy, money as a material object is no longer the means to exchange. Rather, the credit card becomes the method of payment of choice. Fully "90 percent of online purchases are made that way" (Feather, 2000:170). Credit allows for instant gratification. Payment appears to be somewhere off in the future, no need to deal with it now. Since no money actually changes hands until sometime 'later,' the consumer is free to indulge in their every desire.

Furthermore, credit displaces the physical nature of money. An e-commerce transaction becomes informational, not material. While money acts as the universal equivalent of human labour, and thus serves to conceal the social reality of it, credit adds another layer that further distracts from our understanding of the phenomenon. We can see this by recognizing that credit stands in for money which stands in for the equality of human labour that produced a commodity. Thus, credit further removes us from the direct exchange of commodities based on use-value. Again, we can see the implications of Marx's theory that commodity exchange is a social relation between objects and material relations between people. On the web this transaction is now virtual, no longer embodied by the physical meeting of the clerk and customer in a brick and mortar store. This is magnified in the realm of e-commerce since credit serves to further remove the social reality from the human participants in exchange. The human appears outside of the exchange relationship, somehow apart from, yet not completely a part of the process. It appears as though the human is mediating the exchange between the credit card company and the seller of the commodity. In effect, they are trading his capacity for labour. The process then becomes cyclical. As the consumer must continue to work to pay off debt,

and thus continue to consume on credit. It is this work-consume mentality that is so pervasive in early 21st century capitalism and it is the engine driving economic growth, at least in North America.

Up to this point I have only discussed how commodity fetishism is related to the consumption of goods. But there is another aspect to consumption, the services we consume. In fact, services represent a large part of the GDP and are therefore prime targets for software introduction. Perhaps one of the most obvious examples I have already alluded to is in the financial sector.

In 1997, the "big" five banks of Canada (Royal Bank, CIBC, Bank of Montreal, Scotiabank and Toronto Dominion) recorded annual profits of more than \$7 billion (Canadian Community Reinvestment Coalition (CCRC), 1998:1). By 2001 their profits rose to just more than \$9 billion (down approximately \$100 million from 2000) (Yahoo News, 2001:2). During the same period, banks have entered the 'new' economy, offering traditional services provided by tellers in brick-and-mortar branches online. The rationale is explained by Darlington,

"At the beginning of 1997, the cost of setting up a fully functioning web site for a full-service retail bank was about the same as the cost of opening a new branch - roughly \$1 million. However, the web site would be accessible to an estimated 10 million North American households today, and to an anticipated 16 million households by the end of 2000" (Darlington, 1998:116).

Instead of opening a branch office that employs people and serves the need of the immediate community, banks have begun to replace full-service branches with ABMs and web sites. This makes economic sense to the banks because as transactions move from the

“real” to the “virtual” world their costs fall, from over a dollar per transaction at a branch, to almost zero online (page 18, this text).

Of course, these are the costs to the bank and not the customer. While the customer may see a decline in their service fees, it is not as sharp as the decline in the costs of providing the service. Up to this point it has been very hard to say whether the “big” five have been profiting by “gouging” the consumer because “they refuse to disclose how much it costs them to provide their services compared to how much they charge, and the government has refused to require disclosure of this information” (CCRC, 1998:2).

According to Darlington (a financial officer at the Bank of Montreal) “the cost of an automated banking machine transaction . . . costs \$0.27, while a debit card transaction costs \$0.10. On the Internet, transaction costs approach absolute zero” (Darlington, 1998:127). These are the costs to the financial institution. The costs to the consumer are quite different. First it is important to point out that these banks do not distinguish between whether the customer is using an in-branch, ABM, Interac or online method for transactions. Rather the service fees depend on the type of account the customer holds. For example, at the Royal Bank service fees for debit cards (ABM, Interac, and online banking) can range from unlimited free transactions (for a \$20 monthly fee) to \$1.50 per transaction (between five and 15 times the actual cost to the bank).

In the latest Canadian Bankers Association (CBA) report, Canadians conducted 53 ABM transactions per person in 1998 and more than 1.7 billion Interac transactions last year (CBA, 2001: 2). Electronic banking is so popular in this country that “no other major industrialized country uses electronic banking like we do” (ibid.). In fact more than

85% of all banking transactions are now done electronically. However, it costs the customer the same whether the bank employs people or not. The banks have used technology to replace workers, then profit from it by charging the customer to use this “anti human” approach to banking. Indeed, profits have never been larger.

The elements of commodity fetishism involved in consumption can be delineated as the manifestation of consumer culture. Objects become signs or symbols, defined by advertising agencies, to be consumed. We have seen how advertising expenditures on the Internet are on the rise, giving way to a cyberspace populated by corporations and brand names, competing for attention. The Internet is an excellent place for advertising. Not only can ads be visible any day, at any time, but the technology of surveillance allows for the tracking of consumers, and thus for valuable information about what sites they visited. With this information, advertisers can target a specific group of people, and tailor their message to them. The net effect is to redefine the object so that there is no relation to its physical properties, or to the actual manufacturing process and labour involved with its production. The reality of labour is further removed from the process vis-a-vis the method and medium of exchange in an e-commerce transaction. Essentially, the consumer never comes in contact with another human. Everything is mediated by computer software and hardware, resulting in the further disembodiment of labour.

Thus, reification and commodity fetishism are not only attributes of the ‘new’ economy; they also elevate these phenomena to new heights. Indeed the effects of reification become amplified vis-a-vis the technology of the Internet and the World Wide Web. In terms of production this means that knowledge appears as a commodity that can

be bought and sold, like anything else. It becomes divorced from the process that creates it, thereby masking the social reality of knowledge and the people who endeavor to use it. The ramifications are that technological changes brought about by human labour work effectively to eliminate the need for that very labour, or at the very least introduces a system of rationalization that degrades the skills necessary to perform a job.

The elimination of the need for human labour is seen most acutely in the realm of consumption. E-commerce allows for the complete disconnect between the consumer and the producer of commodities. Indeed, transactions in electronic commerce do not take place between actual people. Rather the process is mediated by technology. The consumer is never in contact with an actual person; traditional labour undertaken by the retail service worker is disembodied in software programs that guide the consumer through the transaction. In fact any service where it makes economic sense to replace humans with software is undergoing this change. I used the example of the "big" five Canadian banks, but it is also the case for service occupations like accountants (replaced by programs such as Quattro Pro). What implications does this hold for society?

CHAPTER 4

IMPLICATIONS OF REIFIED THINKING SURROUNDING THE 'NEW' ECONOMY

"We live, so the pundits tell us, in an epoch beyond capitalism and its crises, and beyond the class conflicts these once generated"

-David McNally, 1998, p.99

"Capital will colonize Cyberspace, just as it has colonized everywhere else"

-James Curry, 1997, p.9

Now that the theoretical groundwork has been laid for an alternative understanding of the place of knowledge and information in the 'new' economy, it becomes imperative that we examine the effects of a reified point of view. By scrutinizing the ramifications of what might be called a "false reality" I can highlight some of the myths associated with the 'new' economy.

Perhaps the most important effects occur with relation to the state. Although the ramifications are much larger than those I will present, I would like to focus on two: the state apparatus that allows for the commodification of knowledge and information, and how this affects the production of knowledge in the education system. My focus in this

section will be on copyright and patent laws, their history and who they are designed to protect. I will argue that the state has become a willing accomplice in the privatization of information and the transfer of socially-produced public knowledge to the private sector. This has effects on education and research because they are centres of knowledge production in our society.

The second aspect I will examine is the role of technology in the globalization process. It has been pointed out that globalization and advanced communications technology are intimately connected, but what are the repercussions? I am especially interested with how this affects labour and the community.

As a means of highlighting the processes discussed in the first two sections, our third will deal with the winners and losers of the 'new' economy. Here, we will discuss the continued concentration of wealth, reiterate the ideological myths of the information age, and whom the 'new' economy truly benefits.

Finally, I will conclude by offering examples of resistance to the corporate commercialization of cyberspace and the privatization of intellectual property. These examples will highlight not only the possibility that information technology has to enrich our active participation in the world around us, but also the tools available to the state to make this happen. Above all it is a call to action for people who believe that there exists the possibility of returning the Internet to the highly social and communicative medium it once was, and for the expropriation of knowledge, returning it to the community for the greatest good of all.

4.1 The State, Education and the Commodification of Knowledge and Information

As I have described, the capitalist economy must continually colonize new markets in order to maintain the semblance of growth. In most cases this means commodifying public goods. In the advanced stage of the capitalist economy this has meant the commodification of information and knowledge. This process has been spurred on largely by the development of computer and communications technology and by the commercialization of the Internet and the World Wide Web.

As I have discussed, the original purpose of the Internet has been corrupted so that the work of academics and hobbyists who helped develop it has been effectively written out. Instead we are told that it was the work of the United States military and private contractors. While it is true that the early stages were developed largely by these interests, the majority of the pioneering work was carried out in the public interest, by people involved in the sharing of ideas, not in the development of a new market space. The people who worked on the development of the Internet readily shared software programs with each other, and worked together to improve them. Indeed, if it wasn't for the need to develop shared protocols for software, the Internet as it exists today may have never taken shape.

The Internet may have remained an entirely communal space outside of the market was it not for the increasing interest of capital. As more and more people purchased computers and migrated online it was impossible to deny the growing economic potential of cyberspace. Once this undeveloped market was discovered the commercialization and

commodification of the World Wide Web began in earnest, and the very nature of online activity changed.

No longer are the majority of people logging on to bulletin boards to engage in the free flow of information. Instead the web surfing experience begins to mirror the channel surfing of the couch potato. Rather than being an active participant, we become an audience. No longer are we interested in the communal potential of the technology, instead we surf to look for commercial sites for information about products for consumption. And when we do we are surfing to corporate web sites, where we hear the corporate message.

Thus, e-commerce and the 'new' economy more broadly illustrate the intensification of a process inherent in the capitalist economy, in Marxist terms, the conversion of use-value to exchange-value. For example, information is produced not for the producer but for the consumer. It does not concern the capitalist what kind of information it is (it could be the latest news on a music group, or the progress of a movie shoot, or what Britney was wearing last night). What matters is that somebody will pay for it.

I have already illustrated how this conversion occurs, but not how it is protected by the state. That is, how the state sanctions the private pilfering of public knowledge. This protection is achieved through intellectual property rights authored by national governments. They protect industrial interests through patent and trademark laws, and literary, artistic and software interests with copyright. These laws act to reinforce the notion that knowledge is property and therefore can be owned. Indeed, the state is intrinsically concerned about reinforcing the notion of private property because

“governments accept as beyond question the capitalist context in which they operate” (Miliband, 1969:67). They act to protect the interests of capital.

The rationale for the protection of intellectual property is put bluntly by Bowker, “there is nothing which may more rightfully be called property than the creation of the individual brain” (1912:3)²⁵. And thus copyright is founded on the concept that a “unique individual who creates something original . . . is entitled to reap a profit from those labours” (Rose, 1993:2). This was formalized in 1710 when the Statute of Anne was passed into law in the United Kingdom, the first to officially protect books and other writings²⁶. It introduced two new concepts: first, the author becomes the owner of the copyright, and second, it established a fixed term of protection for published works (the life of the author plus fourteen to twenty-eight years). However, of particular interest is the fact that copyright law originated out of a battle between book publishers, not authors. Copyright originated out of protecting the interests of the owners of the means of production (in this case, owners of printing presses) and not the interests of the cultural worker, the author²⁷.

²⁵I have argued at length why this is a naive position and sociologically unjustifiable.

²⁶The history of copyright before 1710 is difficult to determine. Prior to the Statute of Anne, copyright was left up to common law and was never really enforced. The earliest mention of anything resembling copyright was in Roman literature which describes the sale of play-right by the dramatic authors (Bowker, 1912).

²⁷For an extensive discussion on the legal case history of the battle over copyright between rival publishers see Rose, 1993.

In 1776 the U.S. Constitution enshrined protection for authors and inventors for limited times. Thus it becomes an important date given that U.S. economic practice is “world hegemonic”.

It was not until 1886 when changes to the basic copyright law would be introduced. Known as the Berne Convention, it was the basis for “mutual protection of copyright between sovereign nations in foreign works and promot[ing] development of international norms with regard to copyright protection” (ARL, 2001:2). This is an important point because the power to grant copyright and determine the extent of it was (and still is) territorial and thus “a function of national laws and enforcement institutions” (Hoekman and Kostecki, 2001:275).

The next important revision to the law was introduced by the United States in 1976. This proposal sought to include recent technological developments and their ramifications on what “might be copyrighted, how works might be copied and what constitutes an infringement” (ARL, 2001:2). Several important changes emerged from this proposal, perhaps the most noteworthy is that computer software would be protected as a literary work, and that copyright would be extended to computerized databases. Furthermore, a provision was included that allowed for “fair use” by the consumer. A “fair use” policy allows the consumer to make copies of music for people (just how many people, is not defined), to lend or photocopy a section of a book, and to dispose of the copyrighted material by reselling it if he so wishes.

With the dawn of the millennium came the latest revision in the form of the Digital Millennium Copyright Act, which “encourages the use of technological protections to

facilitate a pay-per-view, pay-per-use system using some sort of automatic debit payment before anyone can have access to anything” (Litman, 2001:27)²⁸. This type of design tinkering is directly responsible for attempting to keep information in the private domain. Indeed, the agents of globalization agree that public property is “unproductive,” and therefore must be privatized to be of any use (Teepie, 1995). This is the ultimate rationale for copyright and patent laws. The argument is that if the ability to profit off of an idea is not possible, if all innovations remain in the public realm, then there is no incentive to innovate. Thus, copyright acts as “an incentive to bribe publishers to invest in finding the authors²⁹, and their works, and printing, reprinting, publishing, and vending that work to end users” (Litman, 2001:104).

But are incentives really needed? The Internet makes it easy for someone (like an author) to distribute their work to a very large audience. And there is no need to bribe creative people to create, they will do so as long as their needs are taken care of and for the satisfaction they receive from the act of creating. For the better part of human history there were no such things as copyright and patent laws, and yet people created wondrous

²⁸An example of such a technology is the now defunct Digital Video Express (Divx) format. Released at the same time as current DVD technology, Divx was a more secure format that allowed delivery of movies and multimedia to the user on a pay-per-use basis. Basically the consumer would buy a Divx player which would allow her to watch Divx movies once. If she wanted to watch the movie again, she would have to pay for an access code and enter that into the Divx player menu system before she was allowed to view it.

²⁹It is important to consider what an author is under copyright law. An author may be a single individual, but more commonly, especially in the area of computer software, authors are corporations. This is known as the work-for-hire doctrine. The employer is considered as the author and thus “‘cast as visionary’ while the artist or music arranger [or computer programmer] or other cultural worker is treated as ‘a mere mechanic following orders’” (Rose, 1993:136).

works of art, literature, music, and technology. Pre-capitalist history seems to be forgotten when discussions of intellectual property are held. Furthermore, are we to believe that if it wasn't for publishers that music, literature and software would cease to be created? Wasn't the Internet, the very basis of the 'new' economy, built on the work of academics and hobbyists who gave away their creation? Of course it was. But capital and the state are so interested in ensuring that the individual³⁰ profits from ideas that they neglect the community that gave rise to those ideas in the first place. An excellent example of this is the privatization of research carried out on the campuses of public educational institutions.

The influx of business interests onto university campuses across the world is not a new development. In fact, "modern higher education is, of course, extensively accommodated to the needs of the industrial system" (Galbraith, quoted in Miliband, 1969:226). But, when academic freedom is maintained and scholars are free to transmit their knowledge and research, the relationship can be mutually beneficial. However, it has recently become a contentious issue as national governments slowly withdraw funding and institute legislation that allows for the private appropriation of knowledge and research conducted in public institutions.

By increasing the reliance on funding from business we have seen the creation of "serious ethical questions about who owns the results of research done on their premises and which research gets done" (Barlow and Robertson, 1996:66). This is especially the

³⁰The rhetoric is often couched in terms of an appeal to the individuals right to profit. But as I have shown it is really the corporation that receives the bulk of the protection and hence, profit.

case when examining ownership of commercially valuable innovations. A highly publicized recent example is that of Dr. Nancy Olivieri, a blood specialist at Toronto's Hospital for Sick Children and professor at the University of Toronto.

She received funding from Apotex Pharmaceuticals to conduct research on a drug called deferiprone. Her initial findings were favourable, but after studying the long term effects of the drug, she reversed her position on it. The people at Apotex were not impressed. They moved to suppress her findings and threatened legal action if she presented or published her results (Regush, 1998:1). When she persisted, she was dropped as key investigator for the drug. The company then collected her research, and with the help of two of her colleagues (and without her permission) wrote an abstract favourable to the drug (*ibid.*, 2).

Dr. Olivieri's case highlights a major problem associated with corporate control of research conducted at public educational institutions. The question is, who controls the results of the research, the corporation who sponsors the study or the researcher who carries it out? The maintenance of academic freedom is paramount. Whether the results are positive or negative, they must be written up, reviewed and disseminated. This is the basic goal of all research, the sharing of ideas. A gag order must not be placed on scientific findings.

Research findings are one issue, but quite another is who controls commercially viable innovations. Just because a corporation sponsors research, does it mean that it owns the product of it? Apparently so, as the university gives up its control in exchange for funding. A striking example is described by the American Association of University

Professors (AAUP). At the University of California, Berkeley, an agreement was reached between a Swiss pharmaceutical company, Novartis, and the Department of Plant and Microbial Biology. Under their partnership, Novartis funds research for five years at \$25 million. In return, it “receives licensing rights to a proportion of the number of discoveries by the department’s researchers equal to the company’s share of the department’s total research budget, *whether or not the discoveries result directly from company-sponsored research*” (AAUP:2, my italics).

It appears that those who fund research retain the right to appropriate the innovations that spring from it, even though those innovations are rooted in knowledge that exists in the public domain. This puts researchers in an awkward position. On one hand corporate sponsorship allows them the opportunity and the means to complete research projects. Yet on the other hand, the sponsor usurps one of the basic tenets of academic research, the dissemination of findings.

It should be pointed out that universities can also become willing accomplices in the privatization of academic research carried out on their campuses. In the United States this was made possible with the passage of the Bayh-Dole Act in 1980. The act allows institutions doing publicly funded research for the federal government to “own the intellectual property they produce, and sell the rights to private companies” (Benner, 2002:4). The result of this transfer of knowledge, from public institution to private corporations, is the founding of approximately 2,200 companies with “\$30 billion in economic activity every year” (ibid.).

Where the 'new' economy and the growing involvement of corporations in education collide is in the development of private-sector online education-for-profit institutions. Some may ask, "What is the difference between the University of Manitoba charging students' tuition and an online university like the University of Phoenix (www.UoPhx.edu)?" The main difference is that a for-profit university will only offer courses of study that return a profit, whereas a bonafide educational institution provides a wider range of courses, regardless of how 'profitable.' That is, the commodification of knowledge opens the door for education to be similarly commodified. By harnessing market forces, these for-profit education models reward success (measured by the amount of profit) by "allocating more funds to those institutions or subject areas that attract the most students" (Twigg and Miloff, 1998:196). For example, at the online University of Phoenix, the courses offered include: accounting, administration, business, counseling, education, human services, management, marketing, nursing/healthcare and technology. The majority of these degrees are strictly business related and don't necessarily allow for critical thinking about the world around us. Instead, students are taught how to prosper within the system, not how to question it. As Miliband argues, business schools provide "training in the 'techniques of management' and other assorted skills, but also training in the ideology, values and purposes of capitalist enterprise" (1969:226).

This does not necessarily have to be the case at traditional universities. Rather, a diverse range of courses allows students to learn the critical thinking skills necessary to

make their own decisions³¹. But it is also the case that faculties like Arts don't have the resources to compete with more 'mainstream' faculties like management and medicine. The important thing is that the courses are still offered. In the for-profit model of education, departments like sociology, anthropology, philosophy and history are less likely to survive or flourish, they would just not be profitable enough.

Through copyright and patent laws sovereign governments make possible the privatization of the intellectual commons. By commodifying knowledge it appears as property that can be bought; and corporations are doing just that as they enter university campuses. The type of research that is done is largely determined by corporate funding. Two criteria appear to be paramount: the project must result in some sort of commercially viable knowledge and/or information. And this knowledge and/or information must become the property of the corporation. University campuses become the corporate headquarters of research and development, reaping the benefits of plundering the intellectual commons.

4.2 The Technology of Globalization: Its Effects on Labour and Community

In general, we might say that globalization entails the shrinking of the world, through both the dissolution of national boundaries and the need for continued cooperation to keep economies growing. Globalization depends on the free movement of capital, labour and commodities across national boundaries without impediments. The process of globalization has several features that are reflected in the growth of computer-mediated

³¹Although Miliband would also argue that "traditional" universities are involved in the indoctrination of capitalist ideology and serve an important role in the process of legitimation.

electronic commerce. Two of the most important is economic and cultural globalization.

I will address the effect of economic globalization first.

Broadly, economic globalization is the ability of capital to travel instantaneously across the globe. But for that to occur there must be policies in place that allow for its free movement. The policy side of economic globalization is neoliberalism, an ideology that promotes privatization, deregulation and liberalization.

If we examine the neoliberal policies that dominate the globalization project we can see striking similarities between those that are proposed for capital and labour, and those proposed for the World Wide Web and information. Teeple (1995) summarizes fourteen policies undertaken by neoliberal governments that have led to a global economy. The most important are the promotion of private property rights and the notion of the free market³² as panacea. As I described in Chapter three, the 'new' economy is not really something new at all. Instead it acts to accentuate the trends of the 'old' capitalist economy. It does so primarily by using the same notions of private property and the free market to argue for the privatization of knowledge and information. Indeed, copyright and patent laws authored by sovereign governments are increasingly giving the wealth of the intellectual commons to the private sector for exploitation.

³²It should be pointed out that amidst all the rhetoric of the 'free market,' what corporations and neoliberal ideologues are really pushing are 'free markets' for the poor - to force those who don't have sufficient economic means to be governed by the 'free market' and suffer its inherent inequalities. It is a belief that the poor should be subject to market principles, not the rich. In fact, corporations want shelter from the 'free market.' They receive shelter in the form of subsidies, tax relief, and the use of public funds to build the necessary infrastructure. Copyright and patent laws also give shelter because they give exclusive production rights to software (for example) for a certain period of time, enough time for the creation of a virtual monopoly.

In terms of the social impact of this phenomenon, one needs only to look at some of the trends that characterize the global economy. First and most obvious is the effect of transnational corporations (TNCs) on the poor countries of the southern hemisphere. The outsourcing of high paying industrial jobs to the Third World has expanded the labour market available to TNCs and has managed to further impoverish the poor. Rather than paying a North American or European fourteen or fifteen dollars an hour to manufacture products, TNCs produce their commodities overseas, taking advantage of low labour costs, lax environmental laws and government subsidies. Indeed, the Internet has made it easier to practice capital flight or capital strike when a country or workforce begins to demand better wages or workplace safety laws.

This is occurring concomitantly with another worrisome trend that has not escaped governments and labour groups alike. When computers and automated systems were first introduced into the workplace they were supposed to offset the elimination of blue collar jobs by creating better paying white collar ones. Automation and globalization were supposed to further enrich the North. Instead of mentally uninteresting manual production jobs, workers would be able to work creatively in information processing and technology (Krahn and Lowe, 1993:274). The computer was thought to be the savior for the workers and economies of the North. It would produce good, high paying jobs for all, as well as more leisure time.

The reality is much different as the promises have never come to fruition. Instead, "the vast increases in productivity due mainly to microelectronics and computer-integrated

systems have increased the number of long-term or permanently unemployed³³” (Teepie, 1995:134). And the trends of outsourcing have continued. Software can be programmed anywhere in the world and transmitted in seconds to corporate headquarters via the Internet. Software is programmed in Bangladesh by computer scientists earning much less than their European counterparts but still substantially more than their countrymen.

It is, therefore, a myth that high-tech jobs in the knowledge economy will replace those that are displaced by automation and outsourcing. In this respect it seems the fate of the 21st century industrial worker mirrors that of the 19th. Marx described it well, “crippled as they are by the division of labour, these poor devils are worth so little outside their old trade, that they cannot find admission into any industries, except a few of inferior kind, that are oversupplied with underpaid workmen” (Marx, 1992:415).

For the rich countries of the North this has left job growth, according to estimates, in largely menial jobs; in the near future jobs like cashiers, janitors and cleaners, salespersons, waiters and waitresses will be growing in numbers. It looks as if “jobs like these, not the ‘digital workplace,’ are the future for millions of people” (McNally, 1998:105). But even these jobs are in danger of being lost. As consumers move online, the job of the bank teller, salesperson, cashier and others are threatened. Online banking and e-shopping replace the human service worker with software programs. Some may argue that this is a step in the right direction - eliminate the jobs that are dangerous or that people find

³³Furthermore, those with jobs and benefit packages are induced to work overtime so that corporations can avoid employing additional human beings with benefit packages.

distasteful. However, that argument only makes sense when there is a suitable alternative, and there seems to be few.

Therefore there is a very important question that has to be asked: how can an economy based on consumption sustain itself when people aren't earning an income³⁴? The answer, quite simply, is that it can't. *The current economy is unsustainable*. There is an inherent internal contradiction in the global capitalist economy, which is that "unreformed capitalism destroys the bases of its own existence, namely, the reproduction of nature and labour power" (Teeple, 1995:141). Technology has enhanced productive activity to such a degree that it permanently displaces workers. This means that

"less money is in the hands of the worker-consumer and her or his family. . . . The results of this technological revolution will be that workers are unable to purchase the necessities of life and that capitalists are unable to sell all the commodities their newly automated farms and factories are putting out"
(Katz-Fishman, quoted in Benello, 1992:181).

By impoverishing the vast majority of the world's population while at the same time allowing huge personal fortunes to be accumulated on their backs is not just unsustainable but it is morally reprehensible. Yet this is exactly the course we are on. And the communities must face the results of this. Whether it is crime, alcohol and drug abuse, unemployment, poverty and/or homelessness, the community must deal with it. Corporations absolve themselves of responsibility and move to their next target.

³⁴Is not a principle task of government to create structures that allow citizens to make a living? It is hard not to conclude that the 'new' economy genuinely hates people in the production process and restricts its interests in people when they are consumers.

The argument has been made that the forces of globalization have rendered the traditional notion of the state impotent. It is powerless as the 'logic' of the market and competition between nations (and provinces and states within nations) battle each other for the right to host TNCs. This forces them into a Dutch auction, each willing to concede more than the other (in terms of labour standards, environmental regulations and tax concessions) in a competitive race to the bottom. However, it must be pointed out that globalization has not occurred on its own. Rather, states have been instrumental in creating an environment ripe for this type of development. The free trade agreements that have opened states to the forces of globalization are authored by the very states who claim powerlessness. They do have options, but do they have the will to implement them. We will discuss one of these options in a proceeding section.

While we have focused on the implications for labour and communities in a global information economy, it also has very important cultural implications. Thus, we must ask: "Who controls the content on the Web?"

Perhaps we can answer this best by returning to the roots of the technology, namely a communications medium for disseminating research in America. This reality means that both the Internet, and the World Wide Web, use something called the American Standard Code for Information Interchange (ASCII). The result is that "ASCII is assumed to be standard in the protocols controlling e-mail, which means sending e-mail in any language but English is made difficult by the *fundamental design* of e-mail" (Jordan, 1999:46, my italics). This bias in e-mail programs extends to web authoring software as well. The result: In 1998 78 percent of hosts existed in English-speaking countries (46) and the

United States boasted 65 percent of *all* hosts (51). By its very nature it embodies social technologies of exclusion, “most of the software needed to access the Web, and much of the software available via the Web, are only available in English” (Everett, 1998:388). These facts raise anew the issues of cultural imperialism in the information age. It is important to note that I am not arguing that the Internet is the reason for the imperialism; rather, it serves to further accentuate existing processes.

The Internet has been framed as the utopian technology, set to bring about the McLuhanesque notion of a ‘Global Village’. It is supposed to represent a “significant break with previous one-way, top-down, mass communication media” (Hedley, 1999:82). But with English being the predominant language on the net, and the majority of content being created in English-speaking countries, the reality is that “more than 90% of what is available on the Internet is Western in focus” (Hedley, 205)³⁵. Thus the dream of a ‘Global Village’ may remain just that, a utopian dream. The far more realistic outcome is one of “Western cultural and economic dominance on a scale never before imagined” (Hedley, 1999:82).

4.3 Winners and Losers in the ‘New’ Economy

With the accentuation of trends such as commodification and globalization, who are the winners and losers in the ‘new’ economy? On the face of it, it appears as though the real winners are the captains of industry, those interested in deregulation, liberalization, privatization and profit. We have already discussed the potential for job loss and the

³⁵This quotation comes from his article entitled “Technological Diffusion or Cultural Imperialism? Measuring the Information Revolution”.

monopolization of the online market. But specifically, what does the future hold for e-commerce?

While it seems that online shopping hasn't exploded as many predicted it would, the retailers who have remained online are procuring a large and larger market. As many online companies fail and are either bought out by larger ones or disappear completely, a growing market is being divided between fewer and fewer players. While it may eventually be true that the web will become a "shopper's paradise" (Feather, 2000:103) it is more likely to benefit large retail corporations, than the consumer.

For example, the biggest winner in the 'new' economy may be the offline behemoth Wal-Mart. Ranked by Frank Feather (2000), and others, as the most likely corporation to dominate the online economy, Wal-Mart's economic power is already very well documented. Of the top 200 economies of the world, Wal-Mart ranks 12th, placing it above 161 countries (Dobbin, 1998:10). This means that its gross revenue is greater than the total wealth, measured in gross domestic product, of any of these countries. Unfortunately, the wealth that has been amassed by this corporation has been on the backs of some of the poorest people in the world.

They win by using the speed and reach of the Internet to quickly cash in on consumer trends. If a fashion style becomes "in vogue," designers can draft an electronic design and instantly transfer it to a manufacturing plant half-way around the world. The design can then be implemented almost simultaneously (or, at least, in a very short period of time). They also win by keeping inventory low, tracking sales and using just-in-time delivery, so

that individual stores need not be burdened by excessive inventory that is suddenly “out of style”.

However, Wal-Mart is also a notoriously bad corporate citizen. Klein (2000) highlights several of the abuses for which Wal-Mart has become infamous. These include being accused of monopolistic practices, aggressively fighting unionization efforts, keeping workers part-time who want to work full-time, and censoring products that they carry (compact discs and movies) (Klein, 2000:426). This is not to mention their involvement with sweatshops and child labour. One of the most egregious examples is that of a garment factory in Tianjin Yuhua, China. Employees are paid 23 US cents an hour and work 60 hour weeks. But even this meager pittance is too much for the powerful transnational corporation; “Wal-mart is pulling out of this factory and other large publicly owned plants in the north to relocate its work to unregulated lower-wage privately owned sweatshops in the south of China” (474).

This abuse of power is continuing online as well. Recently Wal-Mart was charged by the US Federal Trade Commission for failure to identify the country of origin on items listed on the company’s web site³⁶. Rather than deal with full disclosure, Wal-Mart promptly removed the items from the site (UFCW Canda, 2000:8).

³⁶Of course, this is also a problem in their brick-and-mortar retail stores. Manufacturing laws in the United States put very little pressure on Wal-Mart and others like it to disclose who makes their products. By requiring that as little as 1 to 2 percent of the product be manufactured in the United States for “Made in the USA” designation, clothing can be made in sweatshops all over the world. The simple fact that the “Made in the USA” tag is sown on in the USA is often enough to qualify for this designation.

Of course, mass merchandisers like Wal-Mart aren't the only winners in the 'new' economy. Individuals like Bill Gates and other CEOs of large transnational computer hardware and software firms are direct beneficiaries of the profits generated by the 'new' economy. Software companies that hold a virtual monopoly will also benefit, Microsoft being the most obvious. Other technological firms will also reap the rewards. Those involved in supplying products and services that help create the infrastructure for electronic commerce like backbone providers (Qwest), ISPs (AOL), networking hardware and software companies (Cisco), security vendors (Checkpoint), and fiber optics manufacturers (Corning) will benefit. Others who provide the technology that make e-commerce feasible, companies like Netscape, Sun, RealNetworks and Macromedia, and Adobe, will also profit. While the winners come from a rather circumscribed sector, the losers are much more diverse.

As we have already mentioned, the impact on national governments from globalization and the 'new' economy have been important, and will continue to be. The pressure to deregulate the economy, privatize public assets and liberalize trade have had a detrimental impact on the autonomy of the state. It has bred the belief that governments do not have the ability to act in the interests of its citizens for fear of market repercussions. Digital money, the payment of choice for people engaging in e-commerce, further places pressure on the autonomy of states. Credit cards, smart cards, e-cash, all of these methods of payment are almost entirely "*untrackable and untraceable*" (Strange, 1998:25, my italics).

Because of this, purchases (or any financial transaction for that matter) made on the Internet are not charged sales taxes, thus revenue on the sale of goods is lost. While it may appeal to some because goods bought online will be marginally less expensive, the repercussion for the state is immense. Tax revenues are declining enough as it is (through tax cuts to the upper income levels and corporate exemptions) without the loss of sales tax as well. Although it appears that people are migrating online and forming 'virtual communities,' the reality is that we still live in the 'real' world. And there are real problems that have to be dealt with. The social safety net, already weakened by the forces of globalization, becomes ever more fragile as tax revenue declines.

Labour unions have also been weakened by the forces of globalization. Many have had to make severe concessions to employers in order to keep union jobs from being sent offshore. However, the 'new' economy threatens them even more. As we pointed out in Chapter three, those jobs that employ workers who have managed to acquire high wages, good benefits and a middle class lifestyle through their association with unions are being replaced by automated smart systems and software programs. It is also difficult to unionize the new class of 'knowledge' workers because of the belief that they are professionals, and therefore do not need the protection a union provides. This mentality will only last as long as there is the demand for the labour. But when job opportunities decrease and more people have the education to perform professional knowledge work, those who have jobs may be placed under similar circumstances as industrial workers before them. As long as there is a supply of surplus labour, there will be pressure to meet the demands of the employer, because if one doesn't there are others who will.

Communities also suffer from the negative ramifications of a global information economy. When jobs disappear they are often replaced by social problems. In the past there may have been an elaborate social safety net to protect the most vulnerable from these problems. That is not necessarily the case now, resulting in private families, communities and charities attempting to deal with the repercussions of unrestricted capital accumulation. And more often than not the state's response is to criminalize the poor (Teeple, 1995), making a bad situation even worse.

Finally there are the two groups that every one of us are members of: workers and consumers. We have previously outlined how workers are not benefitting from the 'new' economy and electronic commerce. The reification of knowledge and fetishization of its product, the information commodity, betrays the origin of that product. By separating knowledge from its physical embodiment, labour is effectively disembodied from the entire production process.

The link between the owner of the means of production and the labourer appear to converge because it is believed that the workers themselves own the means of production - the knowledge in their heads. However, as we have outlined, this pervasive myth does not explain the experiences many workers have lived in the 'new' economy. Instead we see similar trends in the online economy as we have seen in the offline one. Ninety percent of all businesses fail, and often success or failure depends on having the resources to weather a slow start, something that individual entrepreneurs (whether the traditional bricks-and-mortar kind or the dot-com kind) don't have. When their businesses fail, they

often end up being reincorporated into the knowledge economy as labourers, not capitalists.

While we are told by business futurists and management gurus that the 'new' economy will be a boon for workers, the reality is that we are seeing a reconfiguring of the 'old' industrial economy, not the emergence of a qualitatively new economy. Thus the knowledge worker is no more free to exploit his/her own knowledge than the manual labourer who does not own the means of production. It remains true that the labourer has to sell his capacity for work to survive, and for capitalists to exploit this need.

Another pervasive myth of the Internet and the 'new' economy is that it will become a paradise for shoppers. This is only true in so far as consumer's feel that a discount mass merchandiser like Wal-Mart is the epitome of paradise. While it is true that inevitably there will be small niche markets for specialty shops on the Internet, finding these in the vast array of sites is becoming more and more difficult. Instead, popular speciality shops are diversifying their products to appeal to a greater number of consumers. A good example is www.amazon.com. Founded by Jeff Bezos, amazon began as a speciality online book shop. However, it has recently expanded into other areas such as music, movies, toys, video games, and electronics of all sorts.

Indeed, if the prediction's Frank Feather makes are correct, it appears as though the consumer will be faced with the same, if not less, choice as the online economy matures. Fully 70 percent of the companies that make his "Top 50" that are expected to dominate North American sales in 2010 are from the traditional offline economy (Feather, 2000:232-233). Some of the names included are: Wal-Mart, AOL-Time Warner, Dell,

Disney, Ford, Gap, GE, Microsoft, Sears, Sony, Viacom, Virgin and Wells Fargo. This simply reinforces the trend toward a growing concentration of wealth, power and control in the hands of a few transnational corporations.

Therefore the 'new' economy is not something new at all, but rather the accentuation of old-style capitalist tendencies into the realm of knowledge and information. Indeed, the processes are familiar yet exhibit a magnitude and sophistication that we have yet to encounter. Given this, one has to conclude that the 'new' economy is itself anti-human. What else should we call a system that sees sense in replacing living, breathing humans with dead computer software and hardware. We must ask ourselves what we expect from this economy. Is it the equitable distribution of goods and services and adequate employment, or is it simply a rationale for the private accumulation of wealth, while socializing the costs associated with its pursuit? The market was originally envisioned as an efficient mechanism for the distribution of goods and services. It appears as though technological innovation has made the market obsolete. A sociologically and ethically informed perspective would thus argue that the economy should be used to maximize the health and well-being of all members of society. Clearly, the 'new' economy does not seek the same, for if it did intellectual property would become "common property, so that the collective interests of men may gain from the greatest good for all" (Kropotkin, 1990:21).

Table 6 - Winners and Losers in the 'New' Economy	
<i>Winners</i>	<i>Losers</i>
Transnational Corporations	National Governments
Discount, Mass Merchandisers	Labour Unions
Computer Hardware and Software Companies	The Education System
Internet Technology Firms	Communities
	Workers
	Consumers

4.4 Resistance

The topic of resistance is extremely important to our discussion of e-commerce, commodification, globalization and the growing corporate takeover of the public information commons. While it may be possible to argue that a reified view of knowledge and information is leading toward an ever more commodified society, it is not taking place without dissent. The main channel for this dissent is coming from the very source of the problem - the Internet and the World Wide Web.

Online, this resistance can be conceptualized as both formal and informal opposition. On the one hand are the formal, conscious resisters; those people who are aware that the actions they are taking are in opposition to a growing trend of corporate control and power. These are the people who organized the Seattle demonstrations against the World Trade Organization (WTO) through web sites and bulletin boards, Listservs and chat groups, the community organizers who discuss anti poverty issues and develop strategy in web forums, and the hackers who crack programs and make them available to all, for free (with a little bit of searching). These people could all be considered the conscious resisters of the corporate control of knowledge and information in the 'new' economy.

The informal, unconscious resisters are those who participate in the online file swapping services like Napster, Gnutella and their various incarnations. They are deemed 'unconscious' because they may not be aware that their actions are having a very real effect on the development of the Internet and the commodification of knowledge and information. By engaging in these activities they are implicitly arguing for a redefinition of intellectual property, back toward some universal commons rather than a source for

private accumulation. They participate in these services because they offer something for nothing, which reinforces the belief that knowledge and information products should be free and available to all, in direct opposition to the current trends of privatization and commodification. These unconscious resisters should not be romanticized; their actions are purely selfish and motivated by greed, yet the effects of their actions are worth mentioning.

Conscious resisters may be activists who have long been concerned over issues such as globalization and poverty or newcomers to the resistance, teenagers who find the corporate control of software and content on the web disturbing. Two examples will illustrate this group of resisters. The first is the file-sharing program called Gnutella, developed by a twenty-year-old America Online employee named Justin Frankel, which has grown into a movement concerned about free access to media and a “network that isn’t ruled by the capitalists” (Lewis, 2001:134). The second is PovNet, a network of antipoverty activists in British Columbia using the Internet to communicate with other activists about poverty law. A third example will show how the state has power to wield, if only the people in power had the will to use it.

I will begin with the example of Gnutella, a file-sharing program developed with the expressed goal to ensure that it could never be shut down by any one person or organization. It is based on Metcalf’s law. Developed by Robert Metcalf (the founder of 3com corporation), it states that “networks (whether of telephones, computers, or people) dramatically increase in value with each additional node or user” (Downes and Mui, 1998:5). As prices for the technology fall, more people adopt it, which in turn increases

the value of owning it. A perfect example is that of the telephone. It would have no use to us if it was so expensive that only a few people could afford to use it; the overall network would be ineffectual for the people who actually had a phone. If you could only contact ten or twelve people, the network and the technology would not be seen as valuable.

The basis of Gnutella is a program which, when downloaded, makes your computer a member of a network with special privileges. Using the search engine provided, you and other Gnutella users can look for MP3 (audio) files, movie files, software, anything that people are sharing, on each other's hard drive. You can then download your selection directly from someone else's computer. Called peer-to-peer networking, the two computers, the downloader and the uploader, communicate directly with each other, unmoderated by a central server. This makes it extremely difficult to shut down. It also makes it extremely valuable to the end user because the more people that download Gnutella, the greater and more diverse the music selections become.

Furthermore, there is a specific ideology attached to the Gnutella movement, namely the intense distrust of commercial interests. This is where the history of its development becomes instructive. The history of Gnutella is interesting because it illuminates some of the contradictions inherent in the pursuit of intellectual property rights. The developer of the Gnutella program (Justin Frankel) originally created software that allowed users to easily listen to MP3 files. It became so popular that it caught the attention of AOL, and they soon bought the company for a reported \$100 million. Frankel and his team of programmers then worked for months at AOL, developing, among other things, a program

called Gnutella. They released a very early version of it hidden on the back page of their company's website.

Around this time, AOL was working on the merger with Time Warner, which in turn, owns the EMI and Warner Music labels, two members of the Recording Industry Association of America (RIAA) which launched investigations on Napster (which we discuss below). When AOL was made aware of Gnutella, they promptly removed it from the website, but not before people had downloaded the program. The process of reverse-engineering began and copies started to appear online.

The contradiction is that since Frankel was an employee of AOL, his labour, in the production of the Gnutella code, was the property of AOL. Thus AOL, who was merging with Time Warner and their music labels, owned the copyright to software that was hurting its own interests. Furthermore, an attack on Gnutella by the RIAA would essentially be an attack on their own members. Indeed, "had Gnutella been created by anyone *but* AOL, many observers think that the RIAA already would be serving up legal papers" (Brown, 2000:6, emphasis in original).

As one Gnutella developer, quoted in Lewis (2001:133-4), argues, commercialists take credit for the work of the real innovators, those who have a non pecuniary interest in the development of knowledge or technology. As we have already pointed out, copyright law reinforces this belief, as it is the employer, or capitalist, who is recognized as the holder of the copyright, not the actual authors. The founders of the Gnutella network, who have no problem with paying the artists for their labour, find it incomprehensible as to

why we should also pay the record company, publisher or software company, have managed to use the legal system to their advantage.

By developing a software program that turns everyone's hard drive into communal property, the Gnutella network is attempting to reverse the current trend toward privatizing intellectual property. This has led to a growing concern over copyright infringement. This stems from the fact that "although several areas of law define some kinds of information as property, people often act according to the belief that reading, using, or copying information is an individual right" (Perrolle, 1987b, 2). Perhaps the most highly publicized case of copyright infringement was that of the music trading community known as Napster. Developed by a 19-year-old named Shawn Fanning, Napster proved to be the "killer application" of online music, and led to millions of people becoming unconscious resistors to the privatization and commodification of information.

The problems that record companies and some music artists have with a network like Napster or Gnutella is that there is no room for profit; people exchange music freely and corporations don't get paid. The consumer can buy a CD, copy it to the hard drive and make it available to anyone who wants it, for free. For the person using such a network it reinforces the belief that these products should be free (or as close to free as possible) and thus fewer and fewer people make material purchases, they simply wait till they can get it online for free. It serves to provide an alternative definition of property rights and the concept of "fair use."

The second example is that of PovNet. PovNet began in British Columbia in 1997 because of a need for anti poverty groups representing women, people with disabilities,

tenants, poor people, libraries, refugees and immigrants, legal aid advocates and public bodies to communicate more cheaply and efficiently (Goldsmith, 2001:184). The objective was to use the Internet as a resource to facilitate communication between groups using confidential discussion groups and a public access web page. The system has proven so popular that anti poverty workers from across Canada are now lobbying for a similar national system as PovNet. Some recent uses of PovNet include challenging the B.C. government on an application for assistance that required applicants to sign away their rights to privacy, to defending "squeegie kids" who have been arrested for washing windshields at red lights (Goldsmith, 2001: 185-6).

It maintains communication between groups by operating e-mail lists on topics that would concern anti poverty activists and updating information on their public access site that allows people interested in anti poverty issues to stay abreast of current issues and challenges facing them. In this instance the Internet is being used to build community between people with similar interests and goals. This is the key. They are using the technology as a resource for people, not against them. That is, the technology is used to supplement their skills, not to replace them. It is allowing people to organize and protest some of the repercussions of the global economy by using the very medium driving these forces. PovNet is not the only group, other organizations are doing similar things and attempting to achieve similar goals. Of particular interest is www.cpsr.org, the Computer

Professionals for Social Responsibility, a public-interest group concerned about the impact of computer technology on society. Also instructive is www.directactionnetwork.org, the Direct Action Network, a coalition of activists groups that worked together to attempt the shut down of the WTO meetings in Seattle.

The final example of resistance is really not an example at all. Instead it is a description of the possibilities that exist within sovereign nation states to

act in the public interest. There is an interesting contradiction between corporations who want access to the intellectual commons for knowledge and information, yet want to convert that into private property and charge people to access it. Within this contradiction we can find a place for the state to assert some control, because it is the state that determines the boundaries between “the intellectual commons and intellectual property” (Jessop, 2000:8).

Indeed the state has long been the arbiter of such distinctions. There have been cases where private property has been deemed public, in Canada this is known as expropriation

Online Resources

Magazines:

www.essential.org/monitor/
www.rabble.ca
www.covertaction.org
www.zmag.org

Websites:

www.straightgoods.com
www.ifg.org
www.directactionnetwork.org
www.protest.net
www.ruckus.org
www.sweatshopwatch.org
www.coopamerica.com
www.cpsr.org
www.wtowatch.org
www.socialinvest.org
www.indymedia.org
www.wholeearthmag.com
www.whirledbank.org
www.corpwatch.org
www.canadians.org
www.meaning.com

or eminent domain in the United States. For example, environmental laws may prohibit individuals and corporations from “building homes [or businesses], plowing fields, filling ditches, felling trees, clearing brush, and repairing fences, all on private land” (Adler, 1996:1). Or, a government may force the sale of homes or other private property for the construction of public goods like hospitals, schools, parks, and highways. There are only two elements that must be met for the legal right of expropriation: that the property being expropriated will be of public use and that the entity (individual or corporation) who is losing property is justly compensated. If this principle can be applied to literal property, why not to intellectual property “which is granted protection by that very same government?” (Nadeau, 1998:1).

The result of expropriating intellectual property is that it would become available to all in the public domain. In many cases this would mean that it would actually become more valuable than if access to it was limited by artificial restrictions (like cost). An example is Microsoft’s MS-DOS operating system, and its later Windows incarnations. Microsoft has held an effective monopoly on operating systems since the early 80’s and the introduction of IBM personal computers. However, they have a reputation for releasing a product before all the bugs are worked out, but because they are the operating system installed on the vast majority of consumers machines, most users have no choice but to deal with the problems³⁷. However, if the source code was made available for examination

³⁷In fact Microsoft (though not the only one) often releases software early to have consumers use it and report on the bugs they have encountered (called beta testing), another example of a wealthy corporation using customers as unpaid employees. An interesting exchange about knowingly introducing faulty software onto the market was reported to occur between the CEOs of Microsoft and Ford Motor Company (if memory serves). Bill Gates argued that if Ford

and deciphering then “industry experts could pore over the code line-by-line and find errors, proprietary traps, or missing functions, and propose solutions and fixes to repair them” (3). They would then be available free, so the consumer would not have to wait until Microsoft decides to release their next incarnation. Microsoft would also benefit because they would be compensated for their contribution. Of course, it would not be as lucrative as their current position in the market.

It appears that everyone wins. Microsoft gets paid and consumers get quality products. In fact, expropriation may serve to drive innovation rather than curtail it. How much incentive does Microsoft need to produce a truly innovative product when it has guaranteed sales based simply on the fact that it controls the market? But if their products were placed in the public domain, then to continue being compensated, they would have to release a product fundamentally different from what is already available to the public for free. Instead of releasing upgrades that merely patch problems or add “bells and whistles,” they would be forced to release something new. Now that’s incentive: give the public something new or disappear.

Ultimately what is needed is a balance between the interests of the individual and that of the community. Unfortunately the current arrangement comes no where near to a fair balance. As already mentioned, copyright and patent laws fall under the jurisdiction of nation-states, and all other nations who have ratified the Berne Convention are required to

had improved the automobile as much as Microsoft had “improved” their operating system, cars would be running on water and getting a thousand miles to the gallon. The reply, “But who wants a car that crashes every two minutes?” A case in point was the unveiling of Windows 98 to the media. As Bill Gates himself was beginning to demonstrate the software it crashed on him.

accept the decisions of sovereign governments. Thus, states do have power to wield in this arena. I have mentioned the process of expropriation, but the state has other options, including but not limited to, the revision of copyright and patent laws so that intellectual property finds its way to the public domain much faster. For example, software may move from the private control of corporations (“profitware”) to shareware and finally to freeware over a period of a decade. It really is a question not of impotence but of will. National governments still have the power to govern themselves and to set the rules that corporations wanting to do business in their countries must follow. Given the current trends toward strengthening and expanding existing copyright and patent laws, the state has become a complicit actor in the project of privatizing the intellectual commons.

The implications of this thesis are far reaching and serve to reinforce the idea that the social ramifications of electronic commerce and the ‘new’ economy are things worth further study. The reification of knowledge and its concomitant commodification is leading to an environment that is accentuating some of the trends of the old industrial economy: the polarization of the information have and have-nots, the concentration of wealth, power and control in the hands of transnational corporations and the disembodiment of labour. All are ramifications of a reified and fetishized view of knowledge and information.

Furthermore, the ‘new’ economy is not new, at least, not in the areas that its proponents would have us believe. It does not necessarily create more or better jobs. It does not necessarily turn knowledge workers into the owners of the means of production, and it does not necessarily place a greater degree of control into the lives of consumers.

Instead, as it stands now, it restricts consumers by placing them in an environment of increased surveillance. It makes the knowledge worker just as vulnerable as the craft worker, as new technology requires less skill to produce information commodities. And instead of creating jobs, the 'new' economy actually destroys them, replacing human labour with robots and computer hardware and software.

What is quantitatively new about the 'new' economy is the scope and sophistication of processes that are pre-existing in capitalist economies. But because of the reification of knowledge they become more difficult to recognize; the movement toward a technologically driven information economy seems natural and inevitable.

Hopefully I have provided the theoretical framework for further inquiry into this topic. As society moves further into the 21st century, these issues will become more and more important, and citizens of the global economy need an alternative to the market ideology that proclaims social knowledge open to private accumulation. The 'new' economy may not be qualitatively different from the 'old' industrial economy, but for the first time in human history we are eliminating the need for ourselves from the productive economy on a massive scale. Rather than using technology to further the possibilities of human potential we are satisfying the greed of a few to the great detriment of many. The 'new' economy will not make good on its promises if left alone. I have illustrated why and how people and governments can struggle against it. There is the possibility for change; is there the will?

GLOSSARY

Applet A small piece of Java code that can perform functions such as moving images or providing a lookup list. This software is sent to and works inside browsers.

Backbone The term used to describe all the wiring and routers that make up the Internet.

Bandwidth The capacity of an electronic transmission medium, such as a cable, to carry electronic signals.

Browser A software package that displays HTML (Hyper Text Markup Language) documents primarily from the Internet.

Client A Computer that is connected to a network that is not a server or router.

Domain Name A plain-language name for a Web site. This is translated into an Internet Protocol number that is used to locate and access the site on the Internet.

FTP (File Transfer Protocol) A standard used to transfer large files or large amounts of data over the Internet.

Host The computer through which a user is directly served.

HTML (Hyper Text Markup Language) A standard markup language created by a worldwide consortium and used to format Web documents.

IP (Internet Protocol) Address Internet Protocol address is the numeric address used to locate physical or virtual computers or sites on the Internet.

ISP (Internet Service Provider) A company that has a connection to the Internet and charges the public a fee to use part of that connection.

Java An object-oriented programming language created and distributed for free by Sun Microsystems.

Moore's Law In the 1960's, Gordon Moore, Intel's founder, predicted that every 18 months, chip processing power (as established by chip transitory density) would double while the costs would stay the same.

Packet A small piece of data that has addresses appended to it to allow it to be sent from one computer to another.

Point of Presence (POP) An Internet Service Provider's point of connection to the Internet in a specific city or community.

Protocol A standardized way to transfer data so that computers on a network can communicate with each other.

Router An internetworking device that determines the route a data packet will travel between nodes on the Internet.

Server A computer that acts as a central control point for a network to manage applications.

TCP/IP Protocols Define how data is subdivided into packets for transmission, and how applications can transfer files and send electronic mail.

Uniform Resource Locator (URL) The full address of an Internet service, including the protocol and domain.

Web browser A software program that allows you to connect with network servers in order to access HTML documents and associated media files and to follow links from document to document, or page to page.

Web server A software program that manages data at the Web site, controls access to that data, and responds to requests from Web browsers.

XML (Extensible Markup Language) The next generation of standard Internet presentation language created by a worldwide consortium.

REFERENCES CITED

- Abercrombie, Nicholas
1980 Class, Structure and Knowledge: Problems in the Sociology of Knowledge. New York: New York University Press.
- Adler, Jonathan H.
1996 "Property Rights, Regulatory Takings, and Environmental Protection," <http://www.cei.org/utills/printer.cfm?AID=1452> (Accessed 23/01/02), pp.1-2.
- American Association of University Professors (AAUP)
---- "Statement on Corporate Funding of Academic Research," <http://www.aaup.org/repcorf.htm> (accessed 11/09/01), pp.1-4.
- Association of Research Libraries (ARL)
2001 "Timeline: A History of Copyright in the U.S." <http://www.arl.cni.org/info/frn/copy/timeline.html> (Accessed 01/09/02), pp.1-7.
- Barlow, Maude and Heather-Jane Robertson
1996 "Homogenization of Education" in Mander and Goldsmith (eds.) The Case Against the Global Economy. pp.60-70.
- Baudrillard, Jean
1999 The System of Objects. James Benedict (trans.). New York: Verso.
- Bell, Daniel
1973 The Coming of Post-Industrial Society: A Venture in Social Forecasting. New York: Basic Books, Inc.
- Benello, C. George
1992 From the Ground Up. L. Krimerman et al (eds.). Montreal: Black Rose Books.
- Benner, Jeffrey
2002 "Public Money, Private Code" http://www.salon.com/tech/feature/2002/01/04/university_open_source/print.html (accessed 01/23/02), pp.1-6.

- Berger, Peter and Stanley Pullberg
1965 "Reification and the Sociological Critique of Consciousness," *History and Theory IV*, 2, pp.196-211.
- Berger, Peter and Thomas Luckmann
1966 The Social Construction of Reality: A Treatise in the Sociology of Knowledge. Toronto: Penguin Books.
- Berger, Peter L.
1972 "Sociology of Knowledge" in Budd and Ruber (eds.), Interdisciplinary Approaches to Human Communication. New Jersey: Hayden Book Co., pp.155-173.
- 1967 The Sacred Canopy: Elements of a Sociological Theory of Religion. New York: Doubleday & Company, Inc.
- Birdsall, William F.
1996 "The Internet and the Ideology of Information Technology".
[Http://www.isoc.org/inet96/proceedings/e3/e3_2.htm](http://www.isoc.org/inet96/proceedings/e3/e3_2.htm). pp1-6. Accessed 9/22/00.
- Bottomore, Tom (ed.)
1983 A Dictionary of Marxist Thought. Oxford: Basil Blackwell Publisher Ltd.
- Bowker, Richard R.
1912 Copyright: Its History and Its Law. New York: Houghton Mifflin Company.
- Braverman, Harry
1974 Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century. New York: Monthly Review Press.
- Brown, Janelle
2000 "The Gnutella Paradox,"
http://www.salon.com/tech/feature/2000/09/29/gnutella_paradox/print.html (accessed 01/30/02) pp.1-8.
- Buckingham, Jane Rinzler
2000 "Net Not So Hot: Teens and the Internet - Not Necessarily a 'Love' Match" in *The Winnipeg Free Press*, Oct.1, pp.B3.

- Burbules, Nicholas and T. Callister.
 1998 "Paying the Piper: The Educational Cost of the Commercialization of the Internet," *Electronic Journal of Sociology* 3(3).
[Http://www.sociology.org/content/vol003.003/callister.html](http://www.sociology.org/content/vol003.003/callister.html) (Accessed 11/10/00), pp.1-12.
- Canadian Bankers Association (CBA)
 2001 "Canadian Bank Facts - 1999/2000 Edition,"
http://www.cba.ca/eng/tools/brochures/tools_bankfacts_2000_4.htm
 (Accessed 01/21/02) pp.1-4.
- Canadian Community Reinvestment Coalition (CCRC)
 1998 "10 Questions Canadians Should Ask Themselves About Bank Profits,"
<http://www.cancrc.org/english/ccrc10q.html> (Accessed 01/22/02) pp.1-4.
- Carayannis, Elias G. and Jeffrey Alexander
 2000 "B2B E-Commerce: To Be or Not To Be in the Brave New World of Global Business Virtualities"
http://www.isoc.org/inet2000/cdproceedings/7b/7b_3.htm (Accessed 9/22/00) pp.1-7.
- Castells, Manuel
 2000 The Rise of the Network Society (Second Edition). Oxford: Blackwell Publishers.
- Chattell, Alf
 1998 Creating Value in the Digital Era: Achieving Success through Insight, Imagination and Innovation. New York: New York University Press.
- Cooley, Mike
 1981 "The Taylorisation of Intellectual Work" in Levidow and Young (eds.) Science, Technology and the Labour Process. London: Blackrose Press, pp.46-65.
- Coomber, R.
 1997 "Using the Internet for Survey Research" *Sociological Research Online*: 2(2). [Http://www.socresonline.org.uk/socresonline/2/2/2.html](http://www.socresonline.org.uk/socresonline/2/2/2.html) (Accessed 1/26/99).

- Curry, James
1997 "The Dialectic of Knowledge-in-Production: Value Creation in Late Capitalism and the Rise of Knowledge-Centered Production" in *Electronic Journal of Sociology*, 2(3), pp1-20,
<http://www.sociology.org/content/vol002.003/curry.html>. Accessed 10/12/00.
- Cyberatlas, The
2000 "Online Consumer Sales Keep Increasing"
http://cyberatlas.internet.com/markets/retailing/article/0,1323,6061_349891,00.html (Accessed 5/3/00) pp.1-3.
- Daily, The
2001a "E-Commerce: Household shopping on the Internet," March 1st,
<http://www.statcan.ca/Daily/English/010301/d010301a.htm> (Accessed 11/5/01) pp.1-2.
2001b "Electronic Commerce and technology," April 3rd,
<http://www.statcan.ca/Daily/English/010403/d010403a.htm> (Accessed 11/5/01) pp.1-8.
2000 "E-commerce and Business use of the Internet" in The Daily, Aug. 10th,
<http://www.statcan.ca/Daily/English/000810/d000810a.htm> (Accessed 11/6/00) pp.1-9.
- Darlington, Lloyd
1998 "Banking Without Boundaries: How the Banking Industry is Transforming Itself for the Digital Age" in Tapscott, Lowy and Ticoll (eds.) Blueprint to the Digital Economy, pp.113-138.
- Dobbin, Murray
1998 The Myth of the Good Corporate Citizen: Democracy Under the Rule of Big Business. Toronto: Stoddart.
- Downes, Larry and Chunka Mui
1998 Unleashing the Killer App: Digital Strategies for Market Dominance. Boston: Harvard Business School Press.
- Drucker, Peter F.
1993 Post-Capitalist Society. New York: HarperBusiness.
- Drysdale, Patrick (ed.)
1995 Collins Pocket Reference English Dictionary. HarperCollinsPublishers.

- Economist, The
2000 "Internet Economics: A Thinkers' Guide" in *The Economist*, April 1st, pp.64-66.
- Ellul, Jacques
1964 The Technological Society. John Wilkinson (trans.). New York: Alfred A. Knopf.
- Everett, Margaret
1998 "Latin America On-Line: The Internet, Development and Democratization" in *Human Organization*, 57(4), pp.385-393.
- Feather, Frank
2000 futureconsumer.com: The Webolution of Shopping to 2010. Toronto: Warwick Publishing.
- Gardener, Carl (ed.)
1979 Media, Politics and Culture: A Socialist View. London: The MacMillan Press Ltd.
- Gates, Bill
1995 The Road Ahead. New York: Viking.
- Goldsmith, Penny
2001 "POVNET: An Online Commons for Anti-Poverty Activists" in Moll and Shade (eds.) e-commerce vs. e-commons, pp.183-189.
- Hedley, R. Alan
1999 "The Information Age: Apartheid, Cultural Imperialism, or Global Village?" in *Social Science Computer Review*, 17(1), pp.78-87.
---- "Technological Diffusion or Cultural Imperialism? Measuring the Information Revolution" pp.198-212
- Hoekman, Bernard M. and Michel M. Kostecki
2001 The Political Economy of the World Trading System: The WTO and Beyond (second edition). Oxford: Oxford University Press.
- Internet Indicators
2000 "Facts and Figures" <http://www.internetindicators.com/facts.html> (Accessed 11/21/00) pp.1-3.

- Jary, David and Julia Jary
1991 The HarperCollins Dictionary of Sociology. New York: HarperCollins Publishers.
- Jessop, Bob
2000 "The State and the Contradictions of the Knowledge-Driven Economy," published by the Department of Sociology, Lancaster University, <http://www.comp.lancs.ac.uk/sociology/soc044rj.html> (Accessed 11/05/01).
- Johnston, David, Debra Johnston and Sunny Handa
1995 Getting Canada Online: Understanding the Information Highway. Toronto: Stoddart.
- Jordan, Tim
1999 CyberPower: The Culture and Politics of Cyberspace and the Internet. New York: Routledge.
- Katsikides, Savvas A.
1998 The Societal Impact of Technology. Brookfield: Ashgate.
- Kim, Beomsoo
1999 An Analysis of a Digital Economy. Doctoral Dissertation for The University of Texas at Austin. Unpublished.
- Klein, Naomi
2000 No Logo: Taking Aim at the Brand Bullies. Toronto: Knopf Canada.
- Koch, Gertrude
1999 "The New Disconnect: The Globalization of the Mass Media" in *Constellations*, 6(1), pp. 26-34.
- Koslur, David
1997 Understanding Electronic Commerce. Redmond: Microsoft Press.
- Krahn, Harvery J. and Graham S. Lowe
1993 Work, Industry and Canadian Society (Second Edition). Scarborough: Nelson Canada.
- Kristula, Dave
1997 "The History of the Internet". [Http://www.davesite.com/webstation/net-history.shtml](http://www.davesite.com/webstation/net-history.shtml). pp1-7. Accessed 4/24/00.

- Kropotkin, Peter
1990 The Conquest of Bread. Montreal: Black Rose Books.
- Lasch, Christopher
1979 The Culture of Narcissism: American Life in an Age of Diminishing Expectations. New York: W.W. Norton & Company.
- Lefebvre, Henri
1968 The Sociology of Marx. Norbert Guterman (trans.). Toronto: Random House.
- Leiss, William, Stephen Kline and Sut Jhally
1997 Social Communication in Advertising: Persons, Products & Images of Well-Being (Second Edition). New York: Routledge.
- Levidow, Les and Bob Young (eds.)
1981 Science, Technology and the Labour Process: Marxist Studies (Volume 1). London: Blackrose Press.
- Levinson, Paul
1999 digital mcluhan: a guide to the information millenium. New York: Routledge.
- Lewis, Michael
2001 Next: The Future Just Happened. New York: W. W. Norton & Company.
- Litman, Jessica
2001 Digital Copyright. Amherst: Prometheus Books.
- Luke, Timothy W.
1989 Screens of Power: Ideology, Domination, and Resistance in Informational Society. Chicago: University of Illinois Press.
- Macdonald, John and Jim Tobin
1998 "Customer Empowerment in the Digital Economy" in Tapscott et al (eds.) Blueprint to the Digital Economy, pp.202-220.
- Mander, Jerry and Edward Goldsmith (eds.)
1996 The Case Against the Global Economy and for a Turn Toward the Local. San Francisco: Sierra Club Books.

- Marcuse, Herbert
1964 One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society. Boston: Beacon Press.
- Marson, Stephen M.
1997 "A Selective History of Internet Technology and Social Work" in *Computers in Human Services*, 14(2), pp.35-49.
- Marx, Karl
1992 Capital: A Critique of the Political Economy (Vol. 1). New York: International Publishers.
1978 "The *Grundrisse*," in Tucker (ed.) The Marx-Engels Reader (Second Edition), pp.221-293.
- McKnight, Lee W. and Joseph P. Bailey (eds.)
1997a Internet Economics. Cambridge: The MIT Press.
1997b "An Introduction to Internet Economics" in McKnight and Bailey (eds.) Internet Economics, pp.3-24.
- McNally, David
1998 "Marxism in the Age of Information," *New Politics (New Series)*, 4(24), Winter, pp.99-106.
- Miliband, Ralph
1969 The State in Capitalist Society: The Analysis of the Western System of Power. New York: Quartet Books.
- Moll, Marita and Leslie Regan Shade (eds.)
2001 e-commerce vs. e-commons: Communications in the Public Interest. Ottawa: The Canadian Centre for Policy Alternatives.
- Mosco, Vincent
1989 The Pay-Per Society: Computers and Communication in the Information Age. Toronto: Garamond Press.
- Nadeau, Tom
1998 "The Case for Eminent Domain," <http://www.vcnet.com/bms/features/domain.html> (accessed 01/29/02), pp.1-3.

- Napoli, Lisa
2000 "Where, Oh Where has my Shopping Bot Gone?" in *The New York Times*: A Special Section on E-Commerce, Sept.20, E7.
- National Telecommunications and Information Administration
1997 "Falling Through The Net II: New Data on the Digital Divide".
[Http://www.ntia.doc.gov/ntiahome/net2/falling.html](http://www.ntia.doc.gov/ntiahome/net2/falling.html). (Accessed 22/9/00) pp1-5.
- Perrolle, Judith
1987a "The Analytical Engine: Work in the Information Society,"
<http://www.ccs.neu.edu/home/perrolle/book/chapter8.html> (Accessed 11/5/01) pp.1-21.
1987b "Property, Privacy, and Social Control: Computers and the Law,"
<http://www.ccs.neu.edu/home/perrolle/book/chapter10.html> (Accessed 11/5/01) pp.1-16.
- Pitkow, James E. and Margaret M. Recker
1994 "Results from the First World-Wide Web User Survey,"
http://www.gvu.gatech.edu/user_surveys/survey-01-1994/survey-paper.html., pp.1-14 (accessed 10/13/00).
- Postman, Neil
1992 Technopoly: The Surrender of Culture to Technology. New York: Vintage Books.
- Regush, Nicholas
1998 "Don't Tell, Don't Ask,"
<http://www.igc.apc.org/cna/news/abc82698.html> , pp.1-5 (accessed 11/09/01).
- Rifkin, Jeremy
2000 The Age of Access: The New Culture of Hypercapitalism Where All of Life is a Paid-For Experience. New York: Jeremy P. Tarcher/Putnam.
- Ritzer, George
1996 Modern Sociological Theory (Fourth Edition). New York: McGraw-Hill Inc.
- Rosborough, Linda
2000 "Wired, but Wary of Web Buys: We're Slow to Embrace E-commerce" in *The Winnipeg Free Press*, Oct.11, pp.B3-4.

- Rose, Mark
1993 Authors & Owners: The Invention of Copyright. Cambridge: Harvard University Press.
- Rushkoff, Douglas
1999 Coercion: Why We Listen to What "They" Say. New York: Riverhead Books.
- Schutz, Alfred
1967 Collected Papers I: The Problem of Social Reality. The Hague: Martinus Nijhoff.
- Scitovsky, Tibor
1976 The Joyless Economy. London: Oxford University Press.
- Shelftalk
2000 "Efficiency and Buying Power Prompt Global Partnership" in *Shelftalk*, Issue 12, October, pp.5.
- Sherlock, Steve
1997 "The Future of Commodity Fetishism" in *Sociological Focus*, 30(1), February, pp.61-78.
- Skirrow, Gillian
1979 "Education and Television: Theory and Practice," Gardner (ed.) Media, Politics and Culture: A Socialist View, pp.25-40.
- Sklair, Leslie
1991 Sociology of the Global System. Baltimore: The Johns Hopkins University Press.
- Smith, Anthony D.
1973 The Concept of Social Change: A Critique of the Functionalist Theory of Social Change. London: Routledge & Kegan Paul.
- Smith, Rob, Mark Speaker and Mark Thompson
2000 The Complete Idiot's Guide to e-Commerce. Indianapolis: QUE.
- Startup.com. Videocassette. Prod. Alliance Atlantis. Directed by Chris Hegedus and Jehane Noujaim, 2001. 103 min.

- Strange, Susan
1998 Mad Money: When Markets Outgrow Governments. Ann Arbor: The University of Michigan Press.
- Tapscott, Don
1996 The Digital Economy: Promise and Peril in the Age of Networked Intelligence. New York: McGraw-Hill.
1995 The Digital Economy: Promise and Peril in the Age of Networked Intelligence. Toronto: McGraw-Hill.
- Tapscott, Don, Alex Lowy and David Ticoll (eds.)
1998 Blueprint to the Digital Economy: Creating Wealth in the Era of E-Business. New York: McGraw-Hill.
- Teeple, Gary
1995 Globalization and the Decline of Social Reform. Toronto: Garamond Press.
- Toffler, Alvin
1970 Future Shock. New York: Bantam Books.
1980 The Third Wave. New York: Bantam Books.
- Tucker, Robert C. (ed.)
1978 The Marx-Engels Reader (Second Edition). New York: W.W. Norton & Company.
- Twigg, Carol and Micharl Miloff
1998 "The Global Learning Infrastructure: The Future of Higher Education" in Tapscott et al (eds.) Blueprint to the Digital Economy, pp.179-201.
- UFCW Canada
2000 "Blowing the Whistle on a Neighbourhood Bully: What Makes Wal-Mart Such a Bad Neighbour?" *Our Union*, XVIII(1), Autumn, pp.7-16.

UNDP/CSOPP

- 1995a "Issues and Trends in Intellectual Property Systems"
<http://www.undp.org/csopp/CSO/NewFiles/dociknowledge1.html>
(Accessed 8/22/01), pp.1-9.
- 1995b "Indigenous Knowledge of Biodiversity"
<http://www.undp.org/csopp/CSO/NewFiles/dociknowledge3.html>
(Accessed 8/22/01), pp.1-9.
- 1995c "Alternatives to Intellectual Property Rights"
<http://www.undp.org/csopp/CSO/NewFiles/dociknowledge4.html>
(Accessed 8/22/01), pp.1-13.

United States Government

- 1997 "A Framework for Global Electronic Commerce"
<http://www.doc.gov/ecommerce/framework.htm> (Accessed 5/3/00),
pp.1-19.

US Census Bureau

- 2000 Monthly Retail Trade Survey: Frequently Asked Questions (FAQ).
<http://www.census.gov/mrts/www/faq.html> (Accessed 9/22/00) pp.1-6.

US Department of Commerce (USDC)

- 2000a Digital Economy 2000. <http://www.esa.doc.gov/de2k.htm>
(Accessed 11/9/00) pp.1-91.
- 2000b "Retail E-Commerce Sales: Current Press Release"
<http://www.census.gov/mrts/www/current.html> (Accessed 9/22/00)
pp.1-3.

Woodall, Pam

- 2000 "Untangling E-conomics" Special Insert of *The Economist*, Sept. 23,
356(8189): New York, pp.6-40.

Yahoo News

- 2001 "Scotiabank Reports Record Earnings for Fiscal 2001 Despite Weak
Economy," <http://www.ca.news.yahoo.com/011205/6/f9pq.html>
(Accessed 01/21/02) pp.1-3.