HYPERMEDIA:

Modes of Communication in World Order Transformation

by

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ABSTRACT

Despite that we are in the midst of profound changes in communications technologies, there is a remarkable gap in the International Relations literature devoted to exploring the implications of these changes. In part, this can be attributed to the discipline’s conservative tendencies; generally, International Relations theorists have resisted studying major discontinuity in the international system. The few studies that do attempt to account for change typically focus on modes of production or destruction as determinant variables. Though there are rare exceptions, many of them also tend towards a form of mono-causal reductionism. When considered at all, communications technologies are viewed through the prism of, or are reduced to, these other factors. This study seeks to remedy this gap by examining the relationship between large-scale shifts in modes of communication and "world order" transformation -- the structure or architecture of political authority at a world-level.

Drawing from the work of various "medium theory" scholars, such as Harold Innis and Marshall McLuhan, the study outlines an open-ended, non-reductive theory at the core of which is the argument that changes in modes of communication facilitate and constrain social forces and ideas latent in society. This hypothesized process can be likened to the interaction between species and a changing natural environment: new communications environments "favour" certain social forces and ideas by means of a functional bias towards some and not others, much the same as environments determine which species prosper by "selecting" for certain physical characteristics. In other words, social forces and ideas survive differentially according to their "fitness" or match with the new communications environment -- a process that is both open-ended and contingent.
The study is organized into two parts: Part one examines the relationship between printing and the medieval to modern world order transformation in Europe; Part two examines the relationship between new digital-electronic-telecommunications (called "hypermedia") and the modern to postmodern world order transformation. The study suggests that the hypermedia communications environment is contributing to the dissolution of modern world order by facilitating the transnationalization of production, the globalization of finance, the rise of complex, non-territorial social networks, and the de-massification of "national" identities. The hypermedia environment is also helping to re-focus security concerns from an inter-national to an intra-planetary context. While it is far too early to provide a clear outline of the emerging postmodern world order, the trends that are unearthed in this study point away from single mass identities, linear political boundaries, and exclusive jurisdictions centred on territorial spaces, and towards multiple identities and non-territorial communities, overlapping boundaries, and non-exclusive jurisdictions.
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Acknowledgement

There is more than a little irony in submitting a dissertation in which I argue that notions of "authorship" are now being undermined in the hypermedia environment. However, it certainly makes me feel more compelled than ever to recognize and acknowledge those who have contributed in some way or another to the construction of this study. And there are many. First, I owe an enormous debt of gratitude to my advisor and friend, Mark Zacher. Mark has helped me along every step of this study, and through my tenure in the Ph.D. program. He has been an unwavering supporter and a diligent critic. His integrity and his enthusiasm for the discipline are a constant source of inspiration. No student could hope for a better advisor. I would also like to thank the many people who have read various versions and pieces of the text through its many different lives, including Dan Deudney, David Elkins, Paul Heyer, Kal Holsti, Tsuyoshi Kawasaki, Richard Matthew, Richard Price, and Hendrick Spruyt. Special thanks go to three individuals with whom I engage regularly in on-line discussions: Darcy Cutler, Rodney Bruce Hall, and Neal Roese. All three have contributed in countless valuable ways to my thinking on the many different topics that are covered in this study. I would also like to thank and acknowledge the financial support of the Social Sciences and Humanities Research Council of Canada, and The Canadian Department of National Defence/Military and Strategic Studies program. I am very grateful to the Institute of International Relations, and especially its Director, Brian Job, for help in numerous ways. Finally, and most importantly, I would like to thank my wife, Anna, for her patience, encouragement, support and humour. It is to her, and to my daughters Emily and Rosalind, that I dedicate this dissertation, and to whom I now turn to have some fun.
Introduction

There is an emerging consensus among a growing body of scholars that the present era is one in which fundamental change is occurring. Among International Relations theorists, for example, John Ruggie has argued that we are witnessing "a shift not in the play of power politics but of the stage on which that play is performed." Similarly, James Rosenau contends that the present era constitutes an historical breakpoint leading to a "postinternational politics" while Mark Zacher has traced the "decaying pillars of the Westphalian temple." This belief in epochal change is mirrored outside of the mainstream of International Relations theory in, for example, pronouncements of a coming "information age," "post-industrialism," "post-fordism," or, more generally, "postmodernism." While these analyses differ widely in terms of their respective foci and theoretical concerns, there is at least one common thread running through each of them: the recognition that current transformations are deeply intertwined with developments in communications technologies -- popularly known as the "information revolution."

Communication is vital to social cohesion. The ability to communicate complex symbols and ideas is generally considered to be one of the distinguishing characteristics of the human species. Yet in the International Relations field little or no attention has been given to the wider implications of large-scale shifts in the means through which humans communicate. In part, this can be attributed to the discipline's conservative tendencies; as Ruggie points out, International Relations theorists are not "very good...at studying the possibility of fundamental discontinuity in the international system." The few studies that do attempt to account for change in the
international system typically focus on developments in either modes of production or destruction as determinant variables.\textsuperscript{10} Although there are rare exceptions, many of them also tend towards a form of mono-causal reductionism; when considered at all, communications technologies are viewed through the prism of, or are reduced to, these other factors. Even in analyses that point to the independent role of "ideas" or "knowledge" in shaping various aspects of world politics, little corresponding attention is given to the specific form in which ideas and knowledge are stored, transmitted, and distributed.\textsuperscript{11} Such an oversight runs at variance with the historical record, where even a quick glance suggests that important historical junctures coincide with major changes in communications technologies. To take just a few examples:

* the so-called "Great Leap Forward" some 35,000 years ago -- the evolutionary juncture at which modern peoples replaced Neanderthals -- coincides with physiological changes in the vocal tract that permitted the spoken word;

* the invention of writing coincides with the development of the first civilization in the form of the city-states of ancient Sumeria;

* the development of the alphabet and the spread of literacy \textit{ca} 700 b.c. in ancient Greece coincides with the onset of the Greek enlightenment;

* the development of moveable type and the spread of printing in western Europe coincides with the Renaissance and early Modernity.

The main argument that I will pursue in this study is that these coincidences are, in fact, no mere coincidence at all; that changes in modes of communication -- the various technological channels by which information is stored and exchanged -- have significant implications for the evolution of society and politics at a world order level. In making this argument, I will be retrieving a theoretical position that has been largely absent from International Relations literature, but is one that has a long intellectual lineage -- this is "the history of communications
as an aspect of the general history of civilizations.\textsuperscript{12} While its major proponents are associated with 20th century scholarship, the themes that are raised can be traced as far back as Rousseau, Locke, and even Plato. Its nuances and meta-theoretical orientation hark back to a late 19th/early 20th centuries tradition of scholarship grounded in cultural evolutionary thinking, associated with Lewis Mumford, Gordon Childe, and Edward Tylor. However, it is the Canadian economic historian Harold Adam Innis who is generally recognized as the first to fully articulate and apply the theory. The core of this "medium theory" approach is aptly summarized by Heyer:

\textit{Loosely stated it refers to the belief that the transformation of basic information into knowledge is not a disembodied process. It is powerfully influenced by the manner of its material expression. In other words, the medium is never neutral. How we organize and transmit our perceptions and knowledge about the world strongly affects the nature of those perceptions and the way we come to know the world.}\textsuperscript{13}

My objective in this study is to put forward a theoretical and analytical framework, derived and modified from the tradition of scholarship outlined above, and apply it to the question of world order transformation. As will be made clear throughout this study, my purpose in doing so is not to assert that communications offers a "master key" to the unlocking of human history, nor is it even to argue for the priority of the mode of communication over other forces of change. Rather, it is to offer one interpretation concerning the relationship between changes in modes of communication and world order transformation -- a \textit{problematique} that should be of central importance to International Relations theorists today, yet is not.

In the remainder of this chapter I will provide a general introduction to the theoretical
backdrop and central focus of the study: the role of communications technologies in world order transformation. Because this level of analysis is unusual in comparison to the majority of International Relations theorizing, a significant portion of the introduction will be spent situating this study as a contribution to what Charles Tilly refers to as "world-historical" research. As will be shown below, this study "problematises" the taken-for-granted foundations and structures that are typically "assumed away" by most theorists. It requires, then, a "de-sensitization" exercise, one that strips away those presuppositions to provide an orientation for the analysis to follow. Chapter one will then provide a more detailed overview of the theoretical perspective that informs this study.

Theorizing the communications revolution

That we are currently living through a revolutionary change in technologies of communication is beyond dispute. The signs and evidence of this change are no more apparent than in the technology that I use to write these words. With the touch of a few buttons, I could send this entire study within seconds to any one of millions of people around the planet. With a few re-routing attachments, I could send it to thousands more at the same time many of whom might live thousands of miles apart from each other and from me. If I so desired, I could "enter" the Library of Congress in the United States -- without ever leaving my chair in North Vancouver, Canada -- and access whatever it currently has stored in digital-electronic format, which is growing exponentially. Anecdotes and illustrations similar to those above are plentiful and well-known. But how do we understand -- amidst the maelstrom of changes occurring
around us -- the wider implications of these developments? How can we assess where we are heading? How do we do so without being swept up in the "hype"? In other words, where can we find a proper framework or guide that will give us some perspective on the relationship between these changes and society and politics at a world level?

Those groping for answers to these questions would be hard pressed to find any preliminary leads within the International Relations literature. There is no tradition of International Relations scholarship that takes communications as its central focus. The one scholar who is an exception to this generalization -- Karl Deutsch -- wrote most of his studies prior to the recent developments surrounding the so-called "information revolution." Moreover, as his work focused on measurable flows of communications across borders regardless of the medium, it is of little or no use to those interested in changing communications technologies. There are plenty of studies that allude to "information" or the "media," but these studies typically subsume communications under a theoretical perspective that privileges other independent variables, such as the mode of production by Marxists and neo-Marxists, or weapons technology by security materialists. And like Karl Deutsch’s analyses of communications flows, these studies ignore the constraints imposed and opportunities created by changes in modes of communication. More will be said about this dearth of scholarship in the communications/International Relations nexus in chapter one.

Outside of the International Relations field there is, of course, plenty of popular speculation about the impact of information technology on world politics, but the vast majority
can only be characterized as theoretically naive. Here, the problem is not so much a dearth of scholarship as it is a surfeit of hyperbole. One finds the usual waltz of cranky Ludditism and blind optimism that seemingly accompanies every technological innovation of the last two centuries, only now it is magnified a thousand-fold by the reproductive and distributive capacities of the communications technology itself!\textsuperscript{17} Corralling this virtual stampede of publications is surely one of the more challenging tasks in writing a study such as this one. For example, James Beniger has listed with exasperation no less than 75 books written between 1950 and 1984 dedicated to major societal transformations associated with new communications technologies.\textsuperscript{18} Depending on the author, we are now in the midst of, or are or transforming into, "posthistoric man," "postcapitalist society," the "end of ideology," the "computer revolution," the "postcivilized era," the "age of discontinuity," the "technetronic era," a "republic of technology," a "wired society," and, of course, "the third wave."\textsuperscript{19} In this headlong rush to grasp the implications of a seemingly endless chain of improvements in the speed and scope of communications, hype about "what's in store" for us in the misty future -- \textit{what we will be able to do} -- typically displaces informed analyses of what is going on today, here and now.\textsuperscript{20} Depending on the moral proclivities of the author, the result is usually a well-worn rehearsal of either optimism or despair that makes for good science fiction, but poor analysis of contemporary trends.

One tradition of scholarship that does take as its central focus the impact of changing communications technology on society and politics falls under the rubric "medium theory." This approach is associated with (but by no means exclusive or original to) Marshall McLuhan,
arguably the most cited, but least understood, theorist of the "information age." At the heart of medium theory is the argument that changes in modes of communication -- such as the shift from primitive orality to writing or the shift from print to electronic communications -- have an important effect on the trajectory of human evolution and the values and beliefs of human society. Medium theory traces these effects to the properties of the medium itself regardless of the content or the message being transmitted. In other words, each successive mode of communication, it is argued, has a certain "logic" or "nature," not in any determinist sense, but only in the sense of making certain types of communication easier or more difficult. As communication is such a vital part of human existence, a change in the mode of communication will have substantial effects on factors such as the distribution of power within society, the nature and character of individual and social cognition, and the values and beliefs that animate a particular population.

Medium theory has received less attention than one might expect given recent developments in communications technology -- a neglect that is probably at least indirectly related to the way it was introduced to a wider audience by its two main practitioners: Harold Adam Innis (the "father" of modern communications and medium theory) and Marshall McLuhan ("the oracle of the electronic age"). Both theorists had a notoriously dense and complex writing style -- a limitation that both invited misinterpretation and discouraged further investigation. Innis' writings seem rushed -- as if they were working drafts for a larger project that was never completed before his relatively early death. McLuhan, on the other hand, practiced a self-conscious "mosaic" style of writing that consisted mostly of bullet-like aphoristic
probes designed to challenge the reader. However, one person's "probe" is another's "gross generalization." While achieving widespread popular notoriety, McLuhan's work was received less kindly in academic circles -- a reflection perhaps not so much of the poverty of McLuhan's analysis as of the envy that seems to arise within academia when a scholar achieves widespread fame. Whatever the root cause, by the time of McLuhan's death in 1980 the substance of medium theory had been reduced to a few well-worn cliches, like the "global village" or "the medium is the message." To this day most remain unaware of the theoretical grounds that underlie such claims.

In chapter one, I provide a substantial elaboration and modification of medium theory designed to resurrect the core propositions of this approach while shedding those elements that have come to be seen through criticism and the passage of time as misguided, overstated, or merely tangential. The majority of these modifications and elaborations are attempts to "get back to the roots" of this approach, so to speak -- to unearth what I see as the evolutionary-anthropological grounds out of which medium theory developed. In doing so, I am linking the basic postulates of medium theory to a much deeper tradition of scholarship that includes figures such as Lewis Mumford, Gordon Childe, and the French Annales school of medieval historians, associated with Fernand Braudel, Marc Bloch, and more recently Georges Duby and Jacques Le Goff. Embedding medium theory in this deeper tradition of scholarship enables me to articulate a more holistic view of the role of communications technology in human evolution, one that is able to confront and overcome the most basic perceived fault in medium theory: technological determinism. It also enables me to situate medium theory more clearly within the International
Relations field. As I will point out in chapter one, what I call the "ecological holist" position that underlies my version of medium theory aligns me closest to the work of historicists in the field, such as John Ruggie, Robert Cox and Daniel Deudney. It also bears a close resemblance to the social constructivist approaches developed by Alexander Wendt, Friedrich Kratochwil and Nicholas Onuf. And it diverges fundamentally from the more ahistorical, rationalist approaches associated with mainstream neo-realist and neo-liberal theories. Indeed, what I believe to be one of the more important contributions of this study is the argument that the elements of international politics which mainstream rationalist approaches presuppose to be "natural," "essential," and "unchanging" are, in fact, the products of historical contingencies and thus subject to change over time.

The study of world order transformation

Fundamental changes, such as those being pursued here in communications, by definition resonate throughout the whole of society leaving virtually nothing untouched. Presented with this overwhelming scope of change, the analyst concerned with explaining specific relations must narrow the focus considerably. While medium theory has been applied in the past to a wide-range of issue-areas at a variety of levels of analysis, my focus in this study is on the relationship between changes in modes of communication and world order transformation. It is important, then, to specify clearly what is entailed by this analytical focus.

When most people think of "international relations" they naturally think of the relations
between states or nations, be it in the form of war, trade, or diplomacy. Indeed, the majority of scholarship in the International Relations field focuses on these very same types of questions - that is, on the interactions between political units whose existence is more or less taken as unproblematic. Theories of international relations generally assume a basic structure -- they take for granted the division of political authority into territorially-distinct sovereign states and they theorize about the relations between those states. As Robert Cox has pointed out, this level of analysis is appropriate under conditions of "apparent stability or fixity in power relations," when the basic structure of the system can be taken for granted. However, when fundamental change is thought to be occurring in the very parameters in which such interaction takes place, a deeper level of analysis is required, one that problematizes what is normally assumed away.

This deeper level of analysis focuses on the structure of political authority at a world-level, or what is generally referred to as "world order." Since this level of analysis occupies a crucial place in this study, it may be useful to unpack "world order" and more carefully delineate what is meant by the term. First, world order does not necessarily have to correspond to the planet as a whole; in other words, we can think of world order on a number of different levels, from fairly self-contained regional groupings to the globe itself. Second, world order, in its standard formulation, typically refers to the structure of political authority or system of rule found in a specific world at a particular time in history. In general terms, it refers to the "basis on which the human species is socially individuated and individuals in turn bound together into collectivities." It does not focus on the ongoing, day-to-day relations between these units, nor even whether these day-to-day relations form some discernable recurring pattern -- say, the
predisposition towards bandwagoning under a particular distribution of power. Rather, it focuses attention on the nature and spatial organization of the units themselves -- from the ideas, values and principles that sustain and underpin this organization to the institutional and functional embodiments of the actual units of political authority.

One way to help conceptualize the study of world order is by way of an architectural analogy. Different buildings typically employ a variety of principles and styles upon which space is ordered and rooms arranged and divided. Buildings also serve particular functions: stairwells or exits are placed in strategic locations while hallways may be designed to accommodate large flows of foot traffic, or conversely, to facilitate privacy and exclusion. An architect studying the spatial order of a particular building will not concern him or herself with the conversations or relations of the people occupying the building, but will focus instead on the building itself, perhaps beginning with the social nuances and cultural styles that inform the design, moving next to the general architectural principles that undergird the structure as a whole, and finally outlining in careful terms the division of space within the building - the number and arrangement of rooms and floors. Similarly, in an analysis of the architecture of world order, the concern is not so much with the relations between "units" of political authority as it is with the constitution of the "units" themselves. Here, the focus is on the social nuances and styles that give meaning to order, to the principles and rules that constitute and legitimate political authorities, and finally to the nature and character of the institutions that structure and differentiate the practice of political, economic, and social organization. The study of world order is thus above all the study of the organization of political space -- the architecture of
political authority -- at a world-level.

While "political" authority is the prime focus, it is important to emphasize that a variety of factors will influence the nature or character of a particular world order, including the organization and production of subsistence, the provision of physical security, and the supply of spiritual, religious, or other metaphysical yearnings. Consequently, the scope of this study is necessarily wide-ranging and sociological, tracking a deep current of forces reaching well below the conventional horizons of the study of world politics. It is also important not to conflate what are essentially our own theoretical categories with those of the substantive world order in question. In other words, we should not presuppose the "modern" distinction maintained between "politics," "economics," and "religion" in the composition of past or future world orders. For those living at the time these categories may be inextricably linked -- in fact, the very distinction might have little or no conceptual currency in the language of the day. This heuristic focus on world order as "the structure of political authority" may even come to be seen in the passage of time as parochial and typically "modern" (a question I will entertain in the conclusion to this study), but it has not yet exhausted its intellectual value.

By these terms, world order is an example of what is called the longue durée by the Annales school of historians. As Ruggie points out, the longue durée does not refer simply to a long period of time: "It depicts the lives of large-scale historical structures, as opposed to day-to-day events, structures which may shape those events for extended periods of time." These historical-structures become so much a part of the enduring practices of people that they "come
by them to be regarded as fixed attributes of human nature and social intercourse. Of course, they are not. We know as much because not all systems of rule throughout the course of human history have assumed the same form. In other words, there have been "breaking points" between past world orders where the architecture of political authority has undergone transformation. Whether or not the current period can be defined as one of those breaking points is a question that is occupying a considerable amount of scholarly attention in the field.

This study is organized into two symmetrical parts, both of which examine the relationship between changing communications technologies and world order transformation. Part one focuses on the development of printing and the medieval to modern world order transformation in Europe. Part two examines the role of new digital-electronic-telecommunications -- what I refer to as hypermedia -- in the modern to postmodern world order transformation. My intention is not to establish that communications technologies are the "prime movers" or sole variables driving these transformations. Rather, it is to view these transformations through the lens of changing communications technologies. In doing so, I believe that I will be able not only to fill a gap in the scholarly literature on the impact of communications technologies, but also to provide some perspective on the general question of world order transformation today. Communications technologies are unique insofar as they are implicated in all spheres of human interaction -- from production to security to knowledge and culture. As a consequence, changes in communications technologies both influence, and provide a window on, changes in other spheres of life. In focusing on changes in modes of communication, then, we may be able to gain insight into the nature and direction of world order
transformation as a whole. In setting the stage for the analysis to follow, the remainder of this chapter provides a general description of the medieval and the modern world orders.

The architecture of the medieval and modern world orders

Generalizing about the architecture of medieval world order is an inherently dangerous enterprise. Gone are the days when the "Middle Ages" was viewed in static, sterile terms as a monolithic entity. The trend in medieval studies today is towards an affirmation of cultural diversity and idiosyncrasy, a view of life from the "bottom up," so to speak. Structural features invariably tend to mask this rich complexity and diversity of medieval life, so there is always a risk of running roughshod over a thicket of contradictory nuances between different eras and regions that might diverge from the more general pattern. However, the study of structures by definition necessitates a degree of generalization in order to "give expression to phenomena deeper than everyday reality and to capture movement of a slower tempo." At the risk of necessarily side-stepping important contextual details and "numberless tiny areas," some broad generalizations about the form of world order during the High to late Middle Ages (a period running roughly from the 11th to the 15th centuries) can be made that would probably find agreement among most medievalists.

Despite the existence of competing and overlapping local and regional sentiments, it is safe to say that all of western Europe at this time defined itself as part of a single spiritual community. "Almost all medieval men moved contradictorily between two sets of horizons,"
notes Le Goff, "the limited horizons of the clearing in which they lived, and the distant horizons of the whole of Christendom." In cosmological terms this spiritual community was ordered hierarchically, "a Great Chain of Being" with the Church poised at the top of the apex -- an intermediary between God and temporal life. It was a society deeply imbued with religion from top to bottom, one in which the "destinies of man and the universe" were perceived within boundaries "traced by a Westernized Christian theology and eschatology..."

Although the unity of Christendom provided a broad sense of common identity, especially in relation to the non-Christian world, it never crystallized into a single political structure, in part because "the actual social structure of power, the difficulties of travel and communication, the confused pattern of local and regional differences prevented any such expression." Late medieval political rule was characterized by multiple and overlapping layers of authority, resting primarily on hierarchical and personalized feudal relations, with often competing jurisdictions among various social and cultural cells. In Perry Anderson's words, it was "a jungle of particularist dependencies." In most cases, vertical and horizontal powers were entangled within the same non-exclusive territorial spheres, making it difficult to determine to which of the many lords, churches, towns or princes people were subordinate.

In the medieval world order, no sharp demarcation was made between the "inside" and "outside," or between "private" and "public" realms, as each blended seamlessly into the other in a patchwork of personalized jurisdictions. The modern notion of dividing political space into mutually exclusive sovereign political entities would have been considered by philosophers of the
time as a "repulsive anarchy, a contradiction to their basic assumption of a hierarchically ordered universe -- almost a blasphemy."\textsuperscript{41} If there was any clear dividing line that cut through society it was a tri-functional one, as Duby has explained, between those who prayed, those who fought, and those who laboured.\textsuperscript{42} Although in formal terms the late medieval period was anarchic (i.e., there was no single supreme political authority), it was one in which the constituent units considered themselves to be "municipal embodiments of a universal community."\textsuperscript{43} This sense of inclusive rights and overlapping jurisdictions provided the distinctive characteristics of the architecture of medieval world order. As Ruggie aptly describes it, the medieval world order "represented a heteronomous organization of territorial rights and claims -- of political space."\textsuperscript{44}

The transformation from this medieval heteronomous structure to the modern world of territorially-distinct, mutually-exclusive sovereign nation-states was a slow process encompassing changes that span centuries. Although theorists traditionally date the modern states system to the Peace of Westphalia in 1648, there is no one single year that signals its emergence, making the assigning of a time-line somewhat arbitrary. For years elements of what might be considered "medieval" co-existed with what are now considered benchmarks of the "modern."\textsuperscript{45} Furthermore, within this transformation no single overarching variable stands apart as a primary driving force; instead the origins of the modern world order lay in what Michael Mann calls "a gigantic series of coincidences."\textsuperscript{46} Drawing from the \textit{Annales} school, Ruggie's recent essay on the medieval to modern transformation provides an outstanding overview of some of these multifaceted "coincidences," beginning first with base material changes in eco-demographics and the environment, moving upwards to military and productive technologies, to explorations and
travels, to shifts in strategic and commercial relations, and resting finally on important changes
in mentalités collectives. Assigning weight to different variables within this complex may be
somewhat futile if not misguided given the interwoven series of contingencies involved. At best
what we might conclude from the medieval-to-modern transformation is that "when the creation
of a new mental attitude falls together with extensive material and economic changes, something
significant happens."47 The result, over a period of centuries, was the emergence of the modern
world order: territorially-distinct, mutually-exclusive, sovereign nation-states.

The key feature of the modern world order is implicit in the definition above -- the
parcellization and segmentation of all economic, social, and cultural activity into mutually-
exclusive, functionally-similar political entities, or territorial "bundles."48 At a more specific
level, the transformation entailed the creation of centralized state bureaucracies that ruled
territorial spaces from a single centre. As part of this "centring" process, the medieval Christian
Commonwealth was atomized into discrete community identifications centred first on the person
of the monarch, and later on national-linguistic ties, or the "nation." At its foundation, however,
the division of political authority into territorially-distinct, sovereign nation-states defined the
architecture of modern world order in Europe.49

This mode of organizing political space spread gradually through imitation and force to
encompass eventually the entire planet by the 20th century, and it was strongly re-affirmed
following de-colonization in the mid-1950s.50 Today it stands as the dominant "paradigm" of
world order at a global level.51 The institutional depth of this paradigm is strong, as evidenced
by the wide range of social, political, and economic activities that reinforce it daily. At the most basic level, the overwhelming majority of people around the world vote in a single state, carry passports of a single state, and consider themselves to be citizens and thus subject to the government and laws of a particular sovereign state. Breaches of sovereign territorial boundaries are still strongly condemned, as revealed by the international community's reaction to the Iraqi invasion of Kuwait. And the majority of independence movements around the world still overwhelmingly define their political goals in terms of sovereign aspirations. It was with these many interlocking ideas and social practices in mind that Stephen Krasner concluded that "The breadth of the state in terms of its links with other social entities, and the depth of the state reflected in the very concept of citizenship as a basic source of individual identity, make it very hard to dislodge."

However, as pointed out in the opening pages of this introduction, a number of scholars are now beginning to question the continued viability of this mode of organizing political space. Environmental, economic, military, technological, and social changes are among the many factors that are now seen as presenting fundamental challenges to the architecture of modern world order. It is in the hope of contributing in a constructive way to this debate that this study is put forth. As will be revealed in the pages to follow, the conclusions reached in this study strongly suggest that many of those interlocking elements that have traditionally provided the "institutional depth" for the modern world order paradigm are being rapidly dismantled. The architecture of political authority is in the process of being reconstructed. While it is far too early to provide a clear outline of that emerging world order, the trends that are unearthed in this
study point away from single mass identities, linear political boundaries, and exclusive jurisdictions centred on territorial spaces, and towards multiple identities and non-territorial communities, overlapping boundaries, and non-exclusive jurisdictions. Whether these developments continue in this direction or not depends on a variety of contingent factors in the future. But certainly changes in communications technologies occurring today suggest they will.

Notes

1. Throughout this study, I will use the upper-case "International Relations" when referring to theorists or the discipline itself and the lower-case "international relations" when referring to actual relations between modern states or nations.


8. See Jean-Francois Lyotard, *The Postmodern Condition: A Report on Knowledge*, (Minneapolis: University of Minneapolis Press, 1984); Richard Rorty, *Contingency, Irony and Solidarity*, (Cambridge: Cambridge University Press, 1989); and Barry Smart, *Modern Conditions, Postmodern Controversies*, (New York: Routledge Press, 1992). For more extensive citations on the topic of postmodernism, see chapter eight of this study where the topic will be dealt with at greater length.


16. See the works cited in note 10, above. A more extensive discussion and overview of the treatment of communications in International Relations will follow in chapter two.

17. Two studies that provide insightful overviews of the way past innovations in communications technologies were heralded as either the harbingers of utopia or despair are James Carey, *Communication and Culture: Essays on Media and Society*, (New York: Routledge Press, 1989);


23. For Innis, see Empire and Communications, (Oxford: Oxford University Press, 1950); and The Bias of Communication, (Toronto: University of Toronto Press, 1951).


26. This definition is derived from the works listed in the previous note. It should be apparent that according to this definition "order" is not necessarily synonymous with the absence of conflict. Even anarchic systems in which war is a prominent feature are still "world orders" by this definition. For discussions on this point in particular, see Bull, *The Anarchical Society*, ch. 1; and Cox, "Post-Hegemonic Conceptualization of World Order," pp. 136-137.


34. Periodization is tricky business when it comes to the Middle Ages. Although there is a considerable amount of scholarly debate about the proper situating of time-lines and the essential differences between eras, I have chosen to follow the convention of dividing the Middle Ages into three periods: the early Middle Ages, running roughly from the fall of Rome in the 4th century to the 10th or 11 century; the High Middle Ages, which runs from the 11th through the 13th centuries; and the late Middle Ages, running from the 14th to the 15th centuries. For


49. For a comprehensive overview, see Ruggie, "Territoriality."

51. I use the word "paradigm" here to underscore that while the modern world order may be the predominant "way-of-seeing" the world for most people, it may be one that no longer provides a useful mental map of the emerging postmodern practices of world politics. In Kratochwil's words, there is presently a "disjunction between the organizing principles and social reality." Kratochwil, "Of Systems, Boundaries and Territoriality," p. 27. Such "conceptual barriers" to postmodern world order will be the focus of the concluding chapter to this study.


55. Although space precludes a detailed overview, in the concluding chapter I will outline briefly some of the other studies that point to world order transformation today. For a more comprehensive overview, see Zacher, "The Decaying Pillars of the Westphalian Temple."
Chapter One: Medium Theory, Ecological Holism, and the Transformation of World Order

Introduction

The poverty of the many existing, mostly speculative analyses of the "information revolution" reveals the inherent difficulties of assessing sweeping changes as they unfold. Without the confidence of hindsight, and with no God's-eye vantage point, theory becomes an essential, though necessarily context-bound, tool by which to bring order to the apparent chaos that floods from abrupt ruptures in human institutions. Given the lack of attention traditionally given to communications by International Relations scholarship, my first steps in this direction must lead out of the International Relations field and across disciplinary boundaries -- a potentially dangerous expedition, though one that also offers the prospect of shaking loose dogmatic assumptions riveted in place by prolonged and artificial disciplinary closure.¹

At the same time, it is important to recognize that approaches lifted from other fields are likely to suffer their own peculiar deficiencies. We should be careful to avoid cross-disciplinary hero-worship for its own sake. At the very least, it is unlikely that any theory devised within a particular discursive field with its own set of problems can be transplanted wholesale to another without significant modification. To accommodate my own specific problematique, the rudimentary insights of Innis, McLuhan, and other medium theorists will be embedded in an evolutionary approach called "ecological holism." Although the label is new, the approach itself actually synthesizes and expounds what is already implicit in the work of many medium theorists
that is, an open-ended, non-reductionist, thoroughly historicist view of human existence that emphasizes contingency over continuity both in terms of the trajectory of human development and the nature and character of human beings. As will be made clear below, while this approach differs in significant ways from mainstream International Relations theorizing, it does find resonance in the work of at least one prominent theorist -- namely, John Ruggie -- and has important commonalities with others as well.

In this chapter, I begin with an overview of the extant literature on communications within the International Relations field. As will be revealed below, there is a dearth of scholarship that takes communications as its central focus. Moreover, what little exists is either flawed in significant ways, or is improperly designed for my central task: an examination of the relationship between changes in communication technology and social and political change at a world-order level. I then outline the central tenets of medium theory, and offer a profile of some of the main contributors to this approach, including the issues to which they have applied their insights. Using the various criticisms of medium theory as a backdrop, I then put forward a substantial elaboration and modification of medium theory, tailoring it to the specific concerns of the study, and situating it more clearly within the traditional International Relations field. The analytical scheme used to organize the research that follows in the ensuing chapters will emerge from the modifications made to medium theory.
International relations theory and communications

There is no distinct "school" or "paradigm" of communications within the field of International Relations. In fact, there are few International Relations theorists of communication at all (the one important exception being Karl Deutsch). Individual theorists may allude to communication or information in their studies, but rare are the cases where an overtly communications approach is adopted. Despite the fact that the communications/International Relations nexus remains underdeveloped, some distinct themes or issue-areas can be identified where the interaction between the two is given more than passing notice.

To the limited extent International Relations theorists have dealt with communications explicitly, the focus has primarily been on content to the exclusion of technology -- the inverse of the theoretical perspective to be employed here. For example, considerable work has been done on propaganda as an instrument of foreign policy, noting the way in which a state will manipulate messages to garner international support or undermine foes. Other studies working in the content vein have focused on media representations, or the "framing" of international events, and the way in which these representations may influence domestic opinion and thus foreign policy outcomes. These particular approaches were common during and after the Vietnam War, when the novelty of "the first televised war" captured the attention of many scholars. An important subset of this approach includes the many studies that examine the relationship between content and situation. In this group we would find studies on communication during crises; intercultural communications; communications in negotiations
and bargaining;⁷ and war-time and/or diplomatic communications.⁸

A further subset of the content-based approaches includes those that deal with control. Work in this area typically examines the way in which ownership of media creates an ideological bias that circumscribes and shapes debate to further the interests of capital or the state.⁹ For example, the Gramscian school of International Relations theory places considerable emphasis on the relationship between control over media and cultural hegemony by transnational elites.¹⁰ Another common focus of control-based approaches is the way in which flows of information deepen and solidify structures of dependency between the information-rich North and the information-poor South.¹¹ Policy proposals designed to rectify this imbalance, such as that for a New World Information Order, were a direct outgrowth of the conclusions reached by these theorists.¹² Control-based studies thus tend to emphasize the way in which communication flows threaten "cultural sovereignty" or state autonomy while extending cultural imperialism.¹³ While the focus of these analyses is on control of the medium, the intent of the analysis is to reveal the way such control determines content, which is the ultimate concern. Without disparaging the relative merit of such perspectives, it is enough to note that they are not designed to uncover the relationship between changing communications technology and social and political order, and are thus unhelpful for understanding such a concern.

Not all of the work on communications by International Relations theorists deals exclusively with content; the pioneering work by Karl Deutsch on communications flows is an important exception.¹⁴ Probably the single figure most identifiable with the
communications/International Relations nexus, Deutsch constructed a formidable and innovative body of work unique for the central role given to communicative interaction in the explanation of political behaviour. Opening any of Deutsch's many works, the reader cannot help but be struck by a sharp contrast: on the one hand, Deutsch crafts elegant historical interpretations, rich in detail, as backdrops for his analysis; when his attention turns to explanation, however, an overarching, almost obsessive compulsion for statistical rigour predominates. This concern for the quantitative is so strong that Deutsch's formal analysis of communication is restricted only to that part of the communication process that can be measured: flow. For Deutsch, communication flows determine the level of national and international integration. Concentrated clusters of communication patterns -- measured in terms of the density and flow of postal or telephone exchanges, for example -- distinguish separate communities. The unevenness of this distribution helps explain why nationalism is so prevalent in world politics. The flip side of this equation -- and the explanation for integration, according to Deutsch -- is that the density of the flow determines the scope of the community. As flows increase, parochialism dissolves.

The main problem with Deutsch's analysis is that it adopted a naive view of the assimilative tendencies of increased communication. Extrapolating from Deutsch's hypotheses, one would expect a single community of humanity as communication becomes more dense, from tribes to nations to regions to supranations. Yet the opposite is as often the case. Increased communication flow does not, by necessity, lead to common identities. Flow by itself tells us little about the nature of the interaction. In other words, rather than seductive integration, hostile backlashes can just as often ensue as a result of increased intercultural communication.
Although students of Deutsch continued his approach into the 1970s and beyond, the utility of a purely quantitative analysis of communication flows is limited.  

As in the field of communications proper, the overwhelming majority of studies on international relations and communications focus on some aspect of message content. In these studies, the specific message being transmitted is thought to be the important variable; changes in the medium through which the message is imparted are abstracted from the analysis. Those that do not deal exclusively with content focus instead on communications flows, as exemplified in the work of Karl Deutsch. In both of these cases, the medium itself is viewed as neutral and invisible. Changes in the technology of communication are also ignored.

Medium theory

Medium theory flips this abstraction, so to speak, focusing exclusively on the intrinsic properties of the medium itself, largely without regard to the volume of communications flows or to the content of the messages being delivered. Most important from this perspective is the way in which large-scale changes in modes of communication shape and constrain behaviour and thought independent of message content, and in doing so help to restructure social and political institutions. According to this perspective, media are not simply neutral channels for conveying information between two or more environments, but are rather environments in and of themselves. To put it simply, medium theory holds that communication "is a sphere where the technology involved may have an immense significance for the society in which it
occurs, and perhaps radically affect the concurrent forms of social and economic organization. Unlike content-based analyses of communications, medium theory is necessarily historical in its approach, contrasting different media environments across time, and tracing changes in the technology of communication for their effects on the evolution of social and political order.

Although medium theory is primarily associated with twentieth century scholarship, many of its core propositions can be unearthed in classic texts dating back to ancient Greece. In the *Phaedrus* and the *Seventh Letter*, Plato has Socrates raise strong objections to the newly emerging written form, arguing that it destroys memory and weakens the mind, even though, ironically, Plato's own analytic epistemology was strongly conditioned by the effects of writing on mental processes, as Eric Havelock, Walter Ong, and Ernst Gellner have argued. Moral injunctions against the expression of ideas in specific media can be found in the Old Testament, where in the Second Commandment of the Decalogue the Israelites are prohibited from depicting God in iconographic form. In the *Essay on the Origin of Languages*, Rousseau takes up a common theme in medium theory -- the transition from primitive orality to writing -- arguing that writing transforms the meaning of words and diminishes their vitality by suppressing dialects: "The more a people learn to read, the more are its dialects obliterated." What each of these perspectives shares is the central proposition of medium theory: that the medium of communication -- far from being an empty vessel or transparent channel -- has a significant influence on the nature and content of human communication.
Probably the most famous (or infamous, depending on specific viewpoints) practitioner of medium theory is Marshall McLuhan, as one of his well-known aphorisms, "the medium is the message" attests. In a series of highly publicized books written during the 1960s, McLuhan brought attention to the central principles of medium theory, mostly through his idiosyncratic style of writing, which was peppered with one-line aphorisms and gross generalizations that became catch-phrases of the decade.24 As Lapham notes, "Seldom in living memory had so obscure a scholar descended so abruptly from so remote a garret into the centre ring of celebrity circus."25 Indeed, few scholars can rival McLuhan for achieving such popular notoriety -- a rise McLuhan himself seemed to relish as proof of his own proclamations. Appearing in Woody Allen films and popular television shows, and professing to speak in the disconnected, pastiche mode of the "electronic age," McLuhan saw his role in therapeutic terms: he was to be the oracle of a new world on the verge of being born. Not surprisingly, the self-imposed transformation from bookish literary professor to postmodern electronic guru alienated many still ensconced in the tombs of typographica. In an ironic twist of his theorizing, McLuhan's meteoric rise may have had the unfortunate consequence of obscuring the message beneath the messenger.

Clothed in the "mosaic" form of argumentation McLuhan preferred ("mosaic" in contrast to the linear-style of reasoning which McLuhan believed to be a product of the Age of Typography), McLuhan's message took as its starting point some of the more basic themes of medium theory, reweaving them into electronic age prophecy. Like other medium theorists, McLuhan believed that changes in modes of communication have important consequences for
human society -- that there are deep, qualitative differences between one communication mode and another, differences that are in turn reflected in the nature of the communications epoch. For McLuhan, history can be divided into four such communications epochs, each of which corresponds to the dominant mode of communication of the time: oral, writing, printing, and electronic. McLuhan's unique contribution was the argument that in each of these communication epochs, different media act as extensions of the human senses with consequences for both cognition and social order. For example, "oral societies" live primarily in an "ear culture," while writing, and to a greater extent print, makes the sense of sight dominant. Following McLuhan's sensory classification, the electronic revolution returns us to the world of primitive orality, to village-like encounters, but now on a global scale: hence, "the global village."²⁶

One of the more popular, but confusing aspects of McLuhan's analysis is his binary distinction between "hot" and "cool" media.²⁷ "Hot" media extend a single sense in high definition; "cool" media are low in definition, requiring audience participation. For McLuhan, examples of the former include print, radio, and film, while examples of the latter would include colloquial speech, telephone and television.²⁸ Though clearly the distinction is debatable (by most accounts, print is a more active medium than television in terms of audience participation) like many of McLuhan's "probes" it had the unfortunate consequence of directing debate about medium theory away from its core propositions to McLuhan's more spectacular but incidental contributions. "McLuhanesque" slogans -- such as "the electric light is pure information" or "electric circuitry is Orientalizing the West" -- became so associated with medium theory that
by the time of McLuhan's death in 1980 few outside of the communications field were aware of the approach.  

Although he was clearly the most famous, McLuhan was merely one among a number of other scholars working along medium theory lines in the 1950s and 1960s. The interaction among these theorists was strong, with many of them meeting regularly at the University of Toronto -- an informal group that is now referred to as the "Toronto School of Communications." Generally considered the founder of this "school" was the Canadian economic historian Harold Adam Innis. Innis had established himself as an expert on trade in Canadian staple resources before turning to the history of communications. McLuhan's analysis was significantly influenced by Innis' approach -- so much so, in fact, that McLuhan had once described his own work as merely a "footnote" to Innis' scholarship. Although both shared a notoriously dense and complex writing style, Innis' work was more conventional in academic terms. Furthermore, Innis and McLuhan operated at different levels of analysis. While McLuhan directed most of his concerns to the effect of media on sensory organization and thought, Innis concentrated primarily on large-scale social organization and culture, or, to cite one of Innis' more famous titles, on *Empire and Communications*. Heyer outlines the central themes in Innis' medium theory:

*History is perceived as a series of epochs separated by discontinuity. Each is distinguished by dominant forms of media that absorb, record, and transform information into systems of knowledge consonant with the institutional power structure appropriate to the society in question. The interaction between media form and social reality creates various biases, which strongly affect the society's cultural orientation and values.*
Two prominent aspects of Innis' work are his views on space/time biases of different modes of communication, and on monopolies of knowledge. Innis argued that different media often exhibit an inherent bias towards either time or space, and that these biases are reflected in the character of civilizations. Durable media that are difficult to transport -- such as stone, clay, or parchment -- have a time-bias; these societies tend to be tradition-oriented, giving emphasis to custom and continuity over change with a strong attachment to the sacred. Furthermore, time-biased civilizations often lead to hierarchical social orders with elite groups, such as Egyptian high priests or the medieval Catholic clergy. Space-biased media, such as papyrus or paper, are lighter and more portable and tend to complement expansionist empires characterized by large administrative apparatuses and secular institutions. Using a form of dialectical analysis, Innis argued that both types of civilizations have a tendency over time to ossify into rigid and unresponsive regimes. A reaction occurs at the fringes of society with marginalized groups taking advantage of new technologies of communication which in turn results in the ascendency of a new order.

Possibly influenced by their introduction to Innis through McLuhan, some of Innis' critics have tended to latch onto these two components of his thought as evidence of a supposed crude reductionism at work. However, a careful reading of Innis' analysis reveals that he did not intend to make determinist pronouncements about the effects of media on society. His work is more subtle, intended to highlight the way in which different media have potentialities for control according to the way they are employed in different socio-economic contexts. For Innis, the emphasis is on the interaction between this context and medium form, rather than on the mode
communication in abstraction: "A medium of communication has an important influence on the dissemination of knowledge over space and over time and it becomes necessary to study its characteristics in order to appraise its influence in its cultural setting." Unlike McLuhan's more programmatic statements on "hot" and "cool" media, Innis' time/space biases are perhaps best approached as shorthand designates for the constraints imposed on certain types of communications by particular media. Above all, Innis was concerned with understanding civilizational transformation through the lens of changing media technology -- an hitherto novel focus that required significant conceptual innovation to alert readers to the way in which communications media are not mere empty vessels.

As noted in the introduction to this study, medium theory did not generate a widespread academic following initially, possibly as a result of its introduction by Innis and McLuhan. Innis' relatively early death foreclosed the possibility of his completing the more comprehensive project suggested by his two preliminary works, Empire and Communications and The Bias of Communications. As a consequence, he is known mostly through second-hand interpretations. In the case of McLuhan, the idiosyncratic style with which he chose to convey the central propositions of medium theory probably did more to obscure its theoretical basis. Quite intentionally, McLuhan chose to ignore the social science conventions of the day and suffered a predictably dismissive response from academia. However, his "mosaic" style of writing may be more resonant with contemporary postmodern audiences as evidenced by the McLuhanesque renaissance that appears to be gaining momentum.
Nonetheless, medium theory has proved to be a useful tool for a wide variety of scholars working in different issue-areas, many of whom offer a more conventional academic style of analysis than either of the two. A contemporary of Innis and McLuhan and a member of the informal "Toronto School," classicist Eric Havelock has studied the transition to alphabetic literacy in ancient Greece, analyzing its impact on classical epistemology. In a similar vein, social anthropologists Jack Goody and Ian Watt have studied the transition from primitive orality to writing for its impact on both consciousness and social organization, as has Walter Ong from a more general perspective. Historian Elizabeth Eisenstein has undertaken an extensively documented analysis of the cultural and scientific changes associated with the shift from script to print in medieval Europe. And though less often associated with the formal approach, many of the central propositions of medium theory can be found in the work of cultural anthropologists, like Lewis Mumford and Ernst Gellner, who have studied the role of technological innovation in social evolution. While most of these theorists touch on large-scale historical changes associated with innovations in communications media, none have focused exclusively on the issue with which I am concerned here: world order transformation. The next section provides an overview of the modifications and elaborations that I make to medium theory in order to accommodate it to this *problematique*.

**Theory and epistemology**

As alluded to above, no theory is without its warts, and medium theory is certainly not exempt. In order to accommodate this particular approach to my own set of questions, some re-
tooling will be necessary if only to overcome some of the more confusing aspects of McLuhan and Innis' notoriously difficult styles. The elaborations and revisions to medium theory that follow can be grouped into two categories, both of them having to do with the question of causality. The first is with respect to the relative emphasis placed on communications technology as an independent variable; the second has to do with clearly articulating the exact nature of the effects that arise from a change in the mode of communication. I will consider each of these in turn.

a. Towards a non-reductionist medium theory

A recurring criticism of medium theory is that it tends toward a form of mono-causal reductionism and technological determinism. Certainly McLuhan bears the brunt of this criticism, though other medium theorists are not immune. Not unusual would be Carey's harsh indictment of McLuhan for a thorough "technological determinism" that closed down new approaches to communications technology, and left us with only "a soggy conclusion rather than with detailed scholarship." Book reviews of medium theorists are particularly repetitious, so much so that one gets the impression that reprimanding medium theory on this score is a formulaic device. Thus Havelock's work on the Greek enlightenment is castigated for "clinging...to a simplistic reductionism" that "seems to want to make alphabetic literacy the sole cause of the change..." In Eisenstein, one reviewer detects "a certain reductionist streak" and "a tendency to overestimate printing as against other forces of change."
Indeed, a cursory glance at McLuhan's work in particular might offer substantiation for these criticisms, especially given his penchant for poetic hyperbole -- a style of writing that does not lend itself well to caveat. Superficial illustrations of technological determinism are not hard to find in books conceived as aphoristic "probes" rather than scientific treatises. In fact, McLuhan's work is constituted by them. In describing his project, McLuhan once admitted that "I don't explain -- I explore" -- a revealing quote that begs the question of the grounds on which such analysis should be held accountable. While a strong argument could be made that a charge of technological determinism is probably beside the point of much of McLuhan's work, the charge itself should be taken seriously in any analysis, such as this one, that attempts something more formal, more conventional than bullet-like, aphoristic probes.

Figure 1 (Appendix A) offers a picture of the technological determinist/mono-causal reductionist model of change. Though no one particular medium theorist can be said to subscribe fully to such a simplistic model of change, some employ language or semantic inflections that are at times consistent with such a picture of the interplay between technology and society. Eisenstein's use of the word "agent" to describe an inanimate technology -- the printing press -- is a case in point. Moreover, this base/superstructure model is a familiar one across a variety of theoretical perspectives (orthodox Marxism being the prime example) where single overarching "master" variables are held as determinant. When critics of medium theorists reprimand them for technological determinism they are implicitly invoking this flawed picture of causality. Any attempt at revising medium theory necessitates confronting the many interrelated pitfalls inherent in such a simplistic model of change.
The most serious flaw in this model is that it tends to view the introduction of a new technology of communication as an autonomous force with certain definite and predictable results irrespective of the social and historical context in which it is introduced. By attributing generative causal powers to this independent variable, the technological determinist model tends to slight the extent to which the technology itself emerges out of a particular context and is itself influenced by social, cultural, and historical forces. This relative neglect of contextual factors is especially erroneous because not only does it tend to privilege the technology over other factors, but it produces faulty projections for the introduction of a similar technology in different cultures and contexts. Furthermore, the picture of causality employed sets up a strong binary opposition between the "material" and the "ideal," with social forces and ideas placed in a subordinate, derivative position to the material instrument of technology. Additionally, because social consequences are seen as arising out of the technology itself, the technological determinist model portrays historical change as a radical disjunction, with the technology as the hinge -- a view of epochal change now widely discredited among historians.\textsuperscript{48}

To avoid these pitfalls, we must underscore the "social embeddedness" of technology. We must give greater emphasis to the historical and social context in which technologies are introduced and have their effect, an insight most forcefully made by social constructivists of technology.\textsuperscript{49} These theorists trace the way social needs develop towards which certain innovations are applied. The most comprehensive of them show how social forces in conjunction with available material resources and technical knowledge mould the construction and invention of new technologies. In doing so, they dispel the illusion maintained by the technological
determinist that technologies enter society de novo and generate specific social forces and/or ideas.

But despite its strengths as a corrective to the technological determinist model, the social constructivist position has a tendency to fall into the opposite trap and slight, if not ignore altogether, any independent effects attributable to the technology itself once introduced. It is important to remember that although social forces may give direction to technological innovation, they are not completely determinant; once introduced a technology will likely have many unforseen effects, and it is these effects in which the medium theorist is most interested. The technological determinist model portrays them as emerging out of the technology itself, with the means of communication "generating" specific effects, as in: "the printing press created individuality" or "the Reformation is the child of the printing press." The problem with these types of claim is that they tend to mask the complex interplay between social context and communications technology, and return us to the reductionist fallacies described above. How do we avoid this seemingly endless dialectic between the technological determinist and the social constructivist? A more apt characterization of this interplay might be gained by reflecting on and amplifying one of the more prominent metaphors in medium theory analysis: media as environments.50

In classical Darwinian theories of evolution, environmental changes strongly condition the differential survival and reproduction of species.51 Although species are vitally dependent on their environment, the environment itself can not be said to engage in the selection process
by acting on species; rather, innovations and genetic mutations produce a variety of physical characteristics which, in turn, are selected blindly according to their "fitness" or match with the environment. Not to be confused with 19th century "Social Darwinist" views of progressive development, evolution from this perspective assumes no inherent direction or purpose but is a contingent, open-ended historical process. Similarly, a change in media technology (environment) will facilitate and constrain ideas and social forces (species) already latent in society. Modes of communication help determine which prosper by means of a functional bias towards some and not others, just as environments determine which species prosper by selecting for certain physical characteristics. It is important to emphasize that this "functional bias" is really the product of a chance "fitness" between the interests of particular social forces on the one hand and the nature of the communications environment on the other -- an interaction that varies with the social and historical context in which the technology is developed. Thus changes in communications environments blindly "favour" some social forces and ideas latent in society over others in the same way that changes in natural environments "favour" certain species over others -- a process that is both contingent and open-ended. Unintended consequences loom large in this picture. We would anticipate, in other words, that social forces and ideas that are marginalized in one communications environment may resonate strongly once that environment changes. Likewise, those social forces that initially gave support to, and drove the early development of a new technology of communication may find themselves disadvantaged once the full characteristics of the new communications environment take root.

This Darwinist evolutionary analogy is particularly useful because it moves away from
the technological determinist view of technologies "generating" specific social forces and ideas. It affirms that the genesis of social forces and ideas ultimately reflects a multiplicity of factors that cannot be reduced to a single overarching "master" variable. Instead, it argues that social forces and ideas already latent in society will flourish or wither depending on their "fitness" or match with the new communications environment. From this perspective, a new mode of communication is not an "agent" but rather a passive, structural feature of the technological landscape in which human beings interact. It imposes certain constraints or limitations on the nature and type of possible human communications, while facilitating other types, but it does not impose thought or behaviour in any crude one-to-one fashion. It is an environment. And like natural environments, when it changes some species will be favoured while others will be disadvantaged, not because of an active intervention on the part of the environment itself, but rather because the functional properties of the environment either facilitate or constrain the characteristics and interests of the species within it. There are two quite distinct ways in which these reinforcements and constraints operate, which brings me to my second modification to medium theory.

b. Two effects: distributional changes and changes to social epistemology

When a new technology of communication is introduced into society, its effects operate in two quite distinct ways related to the nature of communication technology itself. Consider the following quote by Goody:
Systems of communication are clearly related to what man can make of his world both internally in terms of thought and externally in terms of his social and cultural organization. So changes in the means of communication are linked in direct as well as indirect ways to changes in the patterns of human interaction.\textsuperscript{53}

What Goody is alluding to is the dual-nature of any communications technology. On the one hand, the introduction of a certain medium has specific tangible, distributional effects on the social and political infrastructure. In Innis' formulation, "Inventions in communication compel realignments in the monopoly or the oligopoly of knowledge."\textsuperscript{54} This effect depends on two assumptions alluded to above: first is the most basic proposition of medium theory, that specific communications environments have a certain "logic" or "nature" not in any determinist sense, but only in the sense of "making human communications of certain types easier or more difficult."\textsuperscript{55} The second assumption is that society is made up of discernable social forces that, while not necessarily "rational" in the homo economicus, utility-maximizing sense of the term, are nonetheless motivated by certain historically and culturally varied interests and goals. The methodological task becomes clear when the two assumptions are married: identifying those social forces whose interests are likely to "fit" with the new media environment, and those whose interests do not. Because social forces acquire a certain "path-dependency" or institutional inertia based on the shared habits of thought and action of the multitudes of individuals that comprise them, they cannot easily adapt to new circumstances. Their institutional incumbency, as Gould calls it, "reinforces the stability of the pathway once the little quirks of early flexibility push a sequence into a firm channel."\textsuperscript{56} For example, every person in the industrialized world could conceivably wake up tomorrow and stop driving their cars and use bicycles instead, "but who will bell the cat or start the ball rolling?"\textsuperscript{57} Social forces are just not easily re-oriented or
quickly transformed from their core interests that define them. Thus social forces that may have
thrived in one communications environment may be at a significant disadvantage once that
environment changes. And conversely, social forces that were marginalized or subordinate
within one communications environment may suddenly find a "niche" and thrive once that
environment changes. It is in this sense, then, that changes in modes of communication have
distributional consequences.

On the other hand, communication technologies also communicate ideas and information;
the specific manner by which each medium imparts information has an influence on the nature
of individual and social cognition. To take but one specific example often cited by medium
theorists, the introduction of writing encourages abstract thought because words and ideas can
be manipulated and compared to a greater extent than in oral societies. Here we are
concerned with the way communications technology influences what Ruggie labels a
transformation in social epistemology. Social epistemology broadly refers to the web-of-
beliefs into which a people are acculturated and through which they perceive the world around
them. It encompasses an interwoven set of historically-contingent characteristics ranging from
individual cognition to spatial or temporal biases to "imagined communities" that are unique to
a specific historical context, and differentiate one epoch from another. Among French social
theorists and medievalists it is referred to as mentalités collectives -- the shared mental
predispositions of a population in time -- and it plays a crucial role in their interpretation of
cultures.
In highlighting changes to social epistemology, medium theory has a close affinity to sociology of knowledge or social constructivist approaches. At its most basic, what these perspectives share is the belief that a wide range of social, economic, and political factors shape the genesis and structure of human thought and behaviour, and thus the contours of social epistemology. Medium theory adds a materialist dimension to these perspectives by focusing on changes in communications technology. A common example of an argument linking technological innovation and social cognition in this way is Lewis Mumford's treatment of the impact of the clock on Western society in Technics and Civilization. Prior to the clock, the measure of time was determined organically, that is, by the sun and the seasons; beginning in the 14th century, the measure of time was re-oriented by the clock with important social ramifications. The clock "dissociated time from human events and helped create the belief in an independent world of mathematically measurable sequences..." As Mumford goes on to explain:

*When one thinks of the day as an abstract space of time, one does not go to bed with the chickens on a winter's night: one invents wicks, chimneys, lamps, gaslights, electric lamps, so as to use all the hours belonging to the day. When one thinks of time, not as a sequence of experiences, but as a collection of hours, minutes, and seconds, the habits of adding time and saving time come into existence. Time took on the character of an enclosed space: it could be divided, it could be filled up, it could even be expanded by the invention of labour-saving instruments....Abstract time became the new medium of existence.*

Mumford's social construction of time nicely illustrates the type of interpretive approach that should be employed when attention turns to the effects of the mode of communication on social epistemology. Effectively exploring the link between communications technology and
social epistemology moves us considerably into the realm of semiotics and the study of symbolic forms. This move necessitates a much richer type of interpretive analysis than the methodological strictures of more positivist-oriented theorizing allows: thick, as opposed to thin, description in Clifford Geertz's formulation. We must be able to tap into and unearth the constitutive social norms of a period, the unconscious boundaries and biases that frame experience, the symbolic forms that give meaning to behaviour for a people. These social norms and symbolic forms are crucial because they provide what might be called "the metaphysical underpinnings" of the constitutive features of world order. If only by unconscious biases and orientations common to a people, "social epistemology" is implicated in the architecture of world order. Medium theory, as used here, does not argue that the mode of communication generates these symbolic forms and cognitive biases; rather, it argues that changes in the mode of communication will facilitate and constrain symbolic forms and biases already latent in society thus giving rise to a new social epistemology -- re-threading the webs of significance, in other words.

It is important to emphasize that the "fitness" between elements of social epistemology and the communications environment is largely an inter-generational process, rather than intra-psychic. In other words, it does not mean that each individual person will suddenly abandon long-held metaphysical presuppositions and cognitive biases as a result of their exposure to a new communications environment. New technologies of communication do not carry within them mysterious magical properties that overpower those with whom they come in contact. Nor do they come equipped with their own special social epistemology. Rather, it means that a
communications environment will be set up where a particular social epistemology latent in society will have a better chance of finding a "niche" and thus surviving and flourishing over time. In other words, an increasing portion of those acculturated into the new communications environment will come to see a particular social epistemology current in society as more "natural" and "reasonable," and it is through this inter-generational "selection" process that a new social epistemology will flourish.

In sum, changes in modes of communication have an important effect on the nature and character of society and politics. These effects vary in terms of the social and historical context in which the technology is developed. New technologies of communication do not generate specific social forces and/or ideas, as technological determinists would have it. Rather, they facilitate and constrain social forces and ideas already latent in society. The hypothesized process can be likened to the interaction between species and a changing natural environment. New media environments favour certain social forces and ideas by means of a functional bias towards some and not others, just as environments determine which species prosper by "selecting" for certain physical characteristics. In other words, social forces and ideas survive differentially according to their "fitness" or match with the new media environment -- a process that is both open-ended and contingent.

There are two conceptually-distinct ways in which these effects operate: distributional changes and changes to social epistemology. These two conceptually-distinct effects will in turn provide the basis for the analytical scheme to be employed in the chapters to follow. The study
is divided into two parts, both of which are comprised of three chapters:

* the first chapter in each part provides an historical and descriptive overview of the development of a new communications environment -- printing in part one and hypermedia in part two (chapters two and five);

* the second chapter examines the distributional changes that result from the change in the mode of communication (chapters three and six);

* the third chapter examines the changes to social epistemology that result from the change in the mode of communication (chapters four and seven).

Ecological holism and medium theory

Having made these substantial modifications and elaborations to medium theory, I am now in a better position to articulate more clearly the meta-theoretical assumptions on which this study rests. The non-reductive, evolutionary medium theory approach outlined above must, by necessity, encompass a much wider perspective on the dynamics of human/technological interaction than the simple mono-causal picture portrayed in figure 1. Figure 2 (Appendix A) depicts what I call an "ecological holist" picture of human existence. This figure essentially unearths and clearly articulates the evolutionary underpinning that is at least implicit in the writings of Innis, and perhaps most explicit in the work of those medium theorists with a social anthropological background like Goody, Mumford, and Gellner. It is significantly influenced by the work of the French Annales school of historians, represented by Braudel, Duby, and Le Goff. Each ring in the figure refers to a conceptually-distinct component of human existence, none of which is reducible to the others. The lines separating each component are not rigid, but blend into one another at the margins.
At the centre are the basic inherited neurophysiological adaptations and traits shared by the species as a whole. These traits are very general and non-determining, and can be considered trivial in a sociological sense. An example might include what Noam Chomsky calls the "human language faculty" -- the innate predisposition to learn a language within a constrained set, or deep linguistic structure. Not to be confused with crude classical realist speculations on a fixed and determining "human nature," nor with the neo-classical "rational" actor assumptions, these dispositions are confined to certain morphological or neurological properties shared by the species as a whole. The mere fact that they are so general as to be able to accommodate the vast diversity of cultures that have existed throughout history means that they will have no bearing on our analysis.

The first ring refers to the web of beliefs, or what I referred to earlier as "social epistemology." To reiterate, it includes a historically-contingent web of intersubjective values, beliefs, cognitive biases, and symbolic and linguistic forms into which a people are acculturated. This web of beliefs is not species-wide, but variable from culture to culture or epoch to epoch. It forms the broad epistemic lens through which a people interpret and act on the world around them. The web of beliefs blends into the next ring, which is composed of formal and informal institutions, ranging from states and corporations and organizations on the formal side to habits of actions and general modes of organizing human interaction and subsistence on the informal side. Situated between the material environment and institutions is technology. In its narrow sense, technology refers to applied knowledge, but here the term is used in its more common sense to encompass both practical or applied knowledge (formally, technology) as well as the
material instruments or artefacts of technology (formally, technics), such as the printing press. As a material artefact, technology is constrained by the available resources of a time and place; but as a tool it is always conditioned by and emerges out of existing social institutions, knowledge, and skills -- what we earlier referred to as the "social embeddedness" of technology. In ontological terms, technology should not be seen as merely an appendage to human society, but a deeply intertwined constitutive feature of human society. In Mazlish's words:

The evidence now seems strong that humans evolved from the other animals through a continuous interaction of tool, physical, and mental-emotional changes. The old view -- that humans arrived on the evolutionary scene fully formed and then proceeded to discover tools and the new ways of life that they made possible -- no longer appears acceptable.74

The last ring refers to the material or geophysical environment, including demographics, disease, climate, and natural resources, all of which have a loose constraining effect on the broad trajectory and character of social evolution.75 For millennia theorists have speculated on the way in which these broad material factors impact on the nature of human societies, and there is a strong tradition of "natural" theorizing reaching back to the ancient Greeks.76 For the time-frame of most analyses, however, these basic material factors can be assumed away as relatively insignificant. But in studies that focus on the longue durée, they take on more importance.77

Although the figure may give the appearance of stasis, it is important to emphasize that ecological holism is fundamentally historicist in outlook, meaning that human existence is seen as a continuously evolving interplay between environmental and technological conditions, formal and informal institutions and practices, and intersubjective values and beliefs. From this
perspective, "rationalities," identities, nations, and states -- though potentially stable in their basic contours over relatively long periods of time -- are nonetheless products of historical contingencies and thus subject to change as nature and society evolves.78

It is also important to be clear that change from this perspective is not the unfolding of predetermined patterns, or teleological processes, but rather "the grand aggregation and multiplication of the actions of individuals and groups in concrete historical circumstances as these individuals are responding to a multiplicity of biological, psychological and social needs."79 Thus chance or contingency play an important part in the nature and direction of social evolution. From an ecological holist perspective, conceptual, technological, economic or other changes in human patterns of interaction can alter the human developmental path in unexpected ways that defy more linear notions of change. In this respect, ecological holism runs contrary to those theories that argue for the existence of recurring "long-cycles" or progressive "stages of development" through which all societies are assumed to pass.80 It is informed by a "Darwinist" view of history -- that is, one that sees no unfolding logic to history, but only "descent with modification."81

Of course, fundamental change in the basic structures of human society is not continuous but episodic given the relative stability and endurance of human institutions, ideas and habits. In Gaddis' words, "conditions can persist for years with so little alteration that people come to accept them as permanent."82 The broad contours of history thus take on characteristics similar to what Stephen Jay Gould referred to as "punctuated equilibrium" -- that is, long durations of
stability punctuated by abrupt "epochal" changes. Some social theorists, wedded to the
technological determinist/mono-causal reductionist model, want to reduce all such fundamental
change to a single overarching "master" variable, such as the mode of production or technologies
of destruction. But according to the ecological holist perspective advanced here, the specific
source of fundamental change at any one time in human history cannot be stated on a priori
grounds, and typically reflects a multiplicity of factors -- both material and ideal -- that happen
to converge in the form of a sudden change in human patterns of interaction.

Medium theory can be seen as a subsidiary approach embedded in an ecological holist
perspective, isolating those changes that are encouraged and facilitated by a change in the mode
of communication. This focus should not be taken as an assertion of the fundamental primacy
of communications over other spheres of human existence, but merely a heuristic division of
scholarly labour. Technological changes in communications media are one among many other
important innovations that produce novelty in social interaction. Yet because communication --
like production and security -- is so vital to human existence, these changes will likely have far-
reaching implications.

Ecological holism, medium theory, and International Relations theory

It should be clear from the overview that the tenor of medium theory is clearly aligned
with the "historical sociology" side of the International Relations field, as opposed to the more
ahistorical approaches Robert Keohane identifies as "rationalist." Robert Cox points out that
rationalist approaches, which he calls "problem-solving," are suitable to "periods of apparent stability or fixity in power relations." Surprisingly, these approaches represent the majority of the field today, despite the fact that we appear to be in an era of fundamental transformation. As Gellner remarks: "The great paradox of our age is that although it is undergoing social and intellectual change of totally unprecedented speed and depth, its thought has become, in the main, unhistorical or ahistorical."87

The two dominant approaches in the field today -- neo-realism and neo-liberalism -- are ahistorical not because they are unable to amass "historical" details in support of their claims, but rather because they seek essentially to escape history by grounding their theories in fundamental presuppositions -- be it the anarchic structure or the desire to maximize utilities -- which are posited as universal (i.e., timeless, contextless) foundations.88 In Adler's terminology, they are both examples of what he calls theories of "being" -- "a prevalent notion that sees everything in nature and society as static and mechanistic, including change."89 For neo-realists especially, the main components of the international system are treated as if "suspended in space" -- "time has little to do with them, and movement and change are linear..."90 Even those cyclical theorists like Robert Gilpin who appear to give a more dynamic treatment to the international system by allowing for differential growth still present change as merely the rearrangement of rationally-motivated "units" under the universal constant of a constraining anarchic order.91 Likewise, neo-liberalism offers what Wendt calls a "behavioral conception of both process and institutions: they change behavior but not identities and interests."92 For all their apparent differences over the question of relative versus absolute

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gains, neo-liberals and neo-realists are alike in assuming the natural order of world politics to be one of unitary rational actors in an anarchic setting.93

The alternative to theories of being, according to Adler, are theories of "becoming" -- those that see human existence "as a permanent process of change and evolution, even that which appears to be static" -- a category that obviously includes ecological holism.94 There are few examples of the type of full-blown historicism characteristic of theories of "becoming" in the International Relations field, although that is changing. Increasingly, a number of scholars see their work as falling outside of either the neo-realist or neo-liberal camps, and what might be termed an "historicist" school of International Relations theorists can be identified in the field.95 The common denominator of this school is a shared view of human institutions and practices (including states, nations, identities, and interests) as products of historical contingencies and thus subject to change over time. Historicists see politics not as a cyclical, recurring phenomenon (as neo-realists clearly do) but rather as an open-ended process.

Historicists can be differentiated in terms of the relative weight they place on the "material" versus the "ideal" as explanatory variables -- a distinction that harkens back to Marx and Hegel respectively. For example, Robert Cox's "historical structures" approach, which explicitly articulates an open-ended evolutionary theory that takes into account material environments, institutions, and intersubjective values and beliefs, ultimately falls toward the "material" end of the spectrum because of the overriding importance attached to the mode of production as a determinant variable.96 Likewise, Daniel Deudney's ongoing reconstruction of
materialist geopolitical theories -- which explores the relationship between changing technologies of destruction and world order formation -- also falls toward the "material" end because of the weight given to military technologies. Towards the "ideas" end of the spectrum fall the social constructivist theories of Wendt, Kratochwil, and others, which focus on the historical malleability of interests, identities, and institutions. These approaches tend to concentrate purely on the interaction between social epistemology and institutions to the exclusion of environmental or technological factors. They lack the "grounding" of the more materially-encompassing theories outlined above, and tend to downplay or ignore material factors as causally-significant variables in politics.

As shown in Figure 2, ecological holism can be seen as an attempt to overcome this binary opposition between "material" factors and "ideas", which are seen not in either/or terms, but as part of a single whole. Ecological holism takes as its starting point the basic materialist position that human beings, like all other organisms, are vitally dependent on, and thus influenced by, the environment around them. However, it recognizes that because human beings have the unique ability to communicate complex symbols and ideas, they do not approach their environment on the basis of pure instinct (as other organisms do) nor as a linguistically-naked "given," but rather through a complex web of beliefs, symbolic forms and social constructs into which they are acculturated and through which they perceive the world around them. As Luke describes:

*The ways in which people apprehend their environment is (pre)formulated by the statements about ideas, "reality," objects, facts, relations, and so forth that organize a particular field of reference. The human subject in any given historical*
era apprehends her or his world, the self, and the relations between self and others on the basis of historical discursive practices that name, locate and organize concrete and abstract knowledge and experience.99

There are few examples of ecological holism in the field today, though Ruggie's work on historical transformation is a clear exception. In "Territoriality and beyond," Ruggie states the ecological holist position that "material environments, strategic behavior, and social epistemology" are "irreducible to one another."100 Other examples that are perhaps less explicitly illustrative include the work of Ernst Haas and Emanuel Adler, who share the view that "politics is a historical process that changes with physical changes and the evolution of meanings."101 In their empirical work, both Haas and Adler have focused on a more narrow time-frame in which "physical changes" can be treated as a "given" for the purposes of analysis. Thus Adler's work on "epistemic communities" bears a strong resemblance to the social constructivism of Wendt and Kratochwil -- the major difference being the latter are not explicit about the extent to which material, geophysical factors are part of their ontology.102 Of course, the differences between ecological holism and social constructivism are minimal compared to their similarities, especially in contrast to mainstream rationalist approaches, which treat interests and identities as relatively fixed. However, ecological holism provides a more comprehensive picture of human existence, one that is vital for an examination of the type of large-scale historical changes undertaken here.
Notes

1. I use the word "artificial" quite literally here, meaning produced by human art and effort, to emphasize the fact that disciplinary boundaries are, after all, heuristic conventions and not reflections of any "natural" divisions in the world itself. In Cox's words, "academic conventions divide up the seamless web of the real social world in separate spheres, each with its own theorizing; this is a necessary and practical way of gaining understanding." However, as Cox continues, "It is wise to bear in mind that such a conventional cutting up of reality is at best just a convenience of the mind." Cox, "Social Forces, States and World Orders," p. 204.


17. Of course, communications flows are factored into medium theory analyses when changes in the volume of communication are tied to the properties of a particular medium. For Deutsch, the sheer volume of communications alone was the important variable, regardless of the media.


20. Normally, medium theorists are concerned not with the comparative effects of discrete media operating contemporaneously (though this is certainly not excluded) but rather with large-scale changes in modes of communication that signify epochal changes in human history.


22. "Thou shalt not make unto thee any graven image, any likeness of anything that is in heaven above, or that is in the earth beneath, or that is in the water beneath the earth." As Postman explains, "It is a strange injunction to include as part of an ethical system unless its author assumed a connection between forms of human communication and the quality of a culture." (italics in original). See Neal Postman, Amusing Ourselves to Death. (New York: Penguin Books, 1985), p.9.

23. As cited Heyer, Communications and History, p.44.

24. In addition to other works cited in this study, see especially McLuhan, The Gutenberg Galaxy; and McLuhan, Understanding Media.


28. See Understanding Media, pp. 36-45.


31. See especially Innis, Empire and Communications; and The Bias of Communications.


33. Heyer attributes the formulating of this distinction to James Carey. See Heyer, Communications and History, p.126.
34. Innis, *Empires and Communications*. The following overview of Innis is indebted to Heyer's informative treatment in *Communications and History*.

35. Heyer, *Communications and History*, p. 115.

36. Innis, *The Bias of Communications*, p. 33. [emphasis added]


47. Tilly explains the reasons for this tendency in the social sciences in the following way:

> It would be astounding to discover that a single recurrent social process governed all large-scale social change. Perhaps the hope of becoming the Newton of social process tempts social scientists into their repeated, fruitless efforts at discovering that philosopher's stone.

Tilly, *Big Structures, Large Processes, Huge Comparisons*, p. 33. Richard Rorty describes this search for master variables or ultimate foundations as attempts to "escape from history." See Richard Rorty, *Philosophy and the Mirror of Nature*, (Princeton: Princeton University Press, 1979). More on this search for "ultimate foundations" and attempts to escape history will be said below with regard to the mainstream International Relations field.


53. Goody, *The Interface Between the Written and the Oral*, p.3.

54. Innis, *The Bias of Communications*, p.4.


57. Ibid.


60. It is important to note that the term "web of beliefs" refers not just to specific beliefs that can be held or discarded by individuals, but more importantly the space of possible or probable beliefs that distinguish a population, including unconscious assumptions and cognitive biases. It is also important to note that this notion of a "web of beliefs" is not incompatible with a basic "materialist" outlook, and should not be confused with an airy idealism. John Dewey explains in general terms how this process of acculturation into an intersubjective body of meanings bears on the young individual:

*The conceptions that are socially current and important become the child's principles of interpretation and estimation long before he attains to personal and deliberate control of conduct. Things come to him clothed in language, not in physical nakedness, and this garb of communication makes him a sharer in the beliefs of those about him. These beliefs coming to him as so many facts form his mind; they furnish the centres about which his own personal expeditions and perceptions are ordered.*


64. Mumford, *Technics and Civilization*.

65. Ibid., p. 15.

66. Ibid., p. 17.


68. This practice of unearthing unconscious boundaries and biases of thought is, of course, most often associated with the work of Michel Foucault. See especially, Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, (New York: Vintage Books, 1970); and


71. As Stephen Gould aptly put it, "the statement that humans are animals does not imply that our specific patterns of behaviour and social arrangements are in any way directly determined by our genes. Potentiality and determination are different concepts." Gould, Ever Since Darwin, p. 251.


73. For discussion, see Lewis Mumford, Technics and Civilization; and Daniel Deudney, Pax Atomica: Planetary Geopolitics and Republicanism, (forthcoming, 1995).


77. One of the more starker examples in this respect is the impact of the "Black Plague" on the restructuring of human society in the late Middle Ages. See Ruggie, "Territoriality"; and Barbara W. Tuchman, A Distant Mirror: The Calamitous 14th Century, (New York: Ballantine Books, 1978).

78. This view closely resembles Robert Cox's "historical-structures" approach, which:
sees human nature and the other structures that define social and political reality -
- from the structure of language through those of laws, morals, and institutions,
and including the state and world-order structures like the balance of power -- as
being themselves products of history and thus subject to change.

Robert Cox, "Production, the State, and Change in World Order," in Czempiel and Rosenau,
(eds.) Global Changes and Theoretical Challenges, p. 38.


80. On "long-cycles" in world politics, see George Modelski, Long Cycles in World Politics,
Political-Economic Coevolution," (Paper prepared for delivery to the workshop on Evolutionary
Paradigms in the Social Sciences, Batelle Seattle Conference Centre, University of Washington,
Seattle, May 13-14, 1994). On progressive stages of development, see W.W. Rostow, The
Stages of Economic Growth: A Non-Communist Manifesto, (Cambridge: Cambridge University

81. On an explication of "Darwinist" views of history similar to my own, see Richard Rorty,
"Dewey between Hegel and Darwin," in D. Ross, (ed.) Modernist Impulses in the Human

82. John Lewis Gaddis, "Tectonics, History and the End of the Cold War," in John Lewis Gaddis
(ed.) The United States and the End of the Cold War: Implications, Reconsiderations,

83. For discussion of "punctuated equilibrium" see Gould, Eight Little Piggies, pp. 277-279. The
theory was actually formulated by Gould in conjunction with Niles Eldridge. For an attempt at
application in International Relations theory, see Krasner, "Sovereignty," pp. 66-94.

84. Ibid., p. 53.


87. Gellner, Plough, Sword, and Book, p. 12.

88. For similar views of the ahistorical tendencies of neorealism and neoliberalism see Emanuel
Adler, "Cognitive Evolution: A Dynamic Approach for the Study of International Relations and
Their Progress," in Emanuel Adler and Beverly Crawford (eds.) Progress in Postwar
International Relations. (New York: Columbia University Press, 1993), pp. 43-88; Wendt,


91. See Gilpin, *War and Change in World Politics*.


95. My use of the term "historicism" follows that of Robert Cox, who draws from Giambattista Vico in seeing history as an open-ended evolutionary process. See Cox, "Social Forces, States, and World Order," p. 213. In this sense, it is defined in complete opposition to Karl Popper's use of the term in *The Poverty of Historicism*, (Boston: Beacon Press, 1957) to single-out theories that see history in law-like terms.


102. In a footnote ("Anarchy," p. 398, fn. 27), Wendt concedes that some constructivist approaches may be "oversocialized" when dealing with "presocial but non-determining human needs," but he goes no further in elaborating if and when other "material" factors beyond neurophysiological adaptations, like climate and population for example, would enter into the picture.
PART ONE

Printing and the Medieval To Modern World Order Transformation
Chapter Two: From the Parchment Codex to the Printing Press: The Sacred Word and the Rise and Fall of Medieval Theocracy

Introduction

In 1212, Pope Innocent III -- without a military force of his own -- orchestrated a great coalition of western European princes designed to oust Otto IV of Brunswick as King of Germany and halt his bid for hegemony over Italy by installing Frederick II (Innocent’s ward) in his place. Carrying out the Pope's bidding was Philip Augustus of France, who inflicted a crushing defeat of Otto’s forces at the battle of Boivines in 1214. Turning to England, Innocent became embroiled in a lengthy dispute with King John over the election of Stephen Langton, Innocent’s appointment to the see of Canterbury. Though King John was initially hostile and recalcitrant, Innocent suspended church services throughout England and, turning again to Philip Augustus for help, threatened the invasion of England. Bowed under the awesome putative power of Papal authority, John not only conceded Langton as archbishop, but he recognized Innocent as his own feudal overlord.  The controversy resembled another instance 150 years earlier when a dispute between Pope Gregory VII and German King Henry IV over ecclesiastical appointments resulted in a Papal Bull of excommunication, which effectively freed Henry's subjects from their oath of fealty. The King’s support rapidly diminished, and the once-powerful Henry was forced to seek absolution from Gregory -- an humiliating defeat borne not of superior military force, but overwhelming moral authority.  The suasive power of successive popes in this respect is perhaps best evidenced by the ongoing series of military crusades called for by the Church against other civilizations, which were then undertaken willingly by princes, knights and
commoners.3

These illustrations all exemplify the power of the Roman Catholic Church over, and penetration into, secular authority during its zenith in the High Middle Ages. From the perspective of much of mainstream International Relations theorizing it is truly a remarkable anomaly that with no private army of its own, and initially no great material wealth, the small bishopric of Rome could eventually develop into "the most powerful feudal court in Europe, receiving oaths of allegiance from princes and kings, exacting taxes and interfering in affairs of state throughout Christendom..."4 The Church was the one institution that straddled all of the competing, cross-cutting jurisdictions of medieval political authority during medieval times, and though its effectiveness and dominance was more than once undermined by secular power or incompetent rule, from the 11th to the 13th centuries it came close to unifying western Europe under a centralized "papal monarchy." What explains the Church’s predominance? According to Curran, the power of the Church cannot be understood without reference to "its early dominance over institutional processes of ideological production that created and maintained support for its exercise of power."5 To understand the papacy, then, we must also understand the mode of communication.

In this chapter, I provide a historical narrative of developments in communications technologies leading up to the printing press in western Europe. The bulk of the chapter will be devoted to an examination of the way in which the mode of communication was implicated in the Church’s hegemony over medieval world order. This examination will then set the stage
for an overview of the development of printing and the change in the communications environment. Contrary to more popular accounts, the printing press did not arrive on the European scene like a flash in the dark, but was the product of slow, converging social pressures for more efficient communications. It represented a much wider ferment in western European society as a whole, partially in response to the spiritual decline and growing secularism of the Roman Catholic Church. The purpose of this chapter, then, is to situate the change in the mode of communication in its historical context -- to underscore what I earlier called the "social embeddedness" of technological innovation. The consequences for world order transformation of this change of communications environment will then be taken up in the ensuing two chapters.

The sanctity of the written word

Language and communication are such integral components of human life that it is difficult to imagine a time without the abstract symbols regularly employed by humans to convey meaning. Yet if we look back to the evolutionary juncture 35,000 years ago at which time modern humans replaced Neanderthals, and assume that human beings have been able to communicate the spoken word in some capacity since then, it was not until nearly 32,000 years later that a crude form of writing was first invented. Thus for the vast majority of time, the human species has been characterized by primitive orality. Of course, human beings had been drawing pictures and scratching marks as memory aids for millenia prior to the invention of writing, but these pictographs and markings cannot be included as examples of true written scripts, which do not consist of mere pictures, of representations of things, but [are]
representation[s] of an utterance, of words that someone says or is imagined to say. "7 Most scripts have their origins in and probably evolved out of such graphic arts. They certainly depend on the same physical attributes: that is, the ability to manipulate tools with an opposable thumb and coordinated by the eye, ear and brain. 8 The difference lies in the degree to which the graphic system of writing proper "succeeds in duplicating the linguistic one, that is, in the extent, first, of word-to-sign (semantic) correspondence and, secondly, of phonetic correspondence." 9

The first such written system that we know of was developed among the Sumerians in Mesopotamia beginning around 3500 BC. Archaeological evidence suggests that this writing system evolved out of the use of clay tokens, which were used to record payments and inventories of grain following the shift to agricultural production at the beginning of the Neolithic period. 10 As society grew more complex and came more to depend on the clay tokens for facilitating transactions, the tokens themselves were dispensed with in favour of two-dimensional symbols that corresponded to the three-dimensional shapes of the tokens. This first undeciphered pictorial system from the city of Uruk IV is thought to have evolved gradually into the cuneiform (wedge-shaped) orthography used to write down the language of the Sumerians around 3100 BC - - the earliest known system of writing.

There is a temptation in tracing the impetus for the development of writing to reduce it solely to the functional imperatives of economics or urbanization, but it is important to bear in mind that the reproduction of writing -- whatever its ultimate origins -- has always been closely
associated with a spiritual elite. Social anthropologists and historians have usually attributed this association to the fragility of texts or tablets, which seem to favour the privileging of a class of clerics who are charged with the preservation of sacred norms and rules.\textsuperscript{11} An even more compelling explanation probably lies in the point of view of those who first developed writing - - a capability that "could not be credited to mere mortals."\textsuperscript{12} It is not surprising, then, that most early civilizations that were acquainted with writing shrouded their origins in myths and legends, such as the Egyptian god Thoth -- the creator of writing.\textsuperscript{13} Nor is it surprising that those charged with reproducing and interpreting the word should be revered. According to Gellner, "the mysterious power of writing in recording, transmitting, and freezing affirmations and commands soon endows it with an awe-inspiring prestige, and causes it to be fused with the authority of ritual specialists."\textsuperscript{14} The priest or cleric, as custodian of the sacred text, is a mediator with the forces or Deity "beyond" and thus achieves an empowerment associated with the skill required to interpret the word -- a general pattern found especially among religions of the Book, such as Islam, Judaism, and Christianity.\textsuperscript{15}

Looking back from our own perspective when the word has been dissolved into an electronic code and copies are cheap and plentiful, it is difficult to appreciate fully the way the text itself could have value beyond the words it contains. Yet it is important that we approach the manuscript culture of medieval Europe from this perspective of the distant origins of the sacred word for it helps to shed light on the privileged status of the medieval clergy. Similar to the position of ancient scribes in other cultures, medieval Church clerics were the guardians of the word, and the "Word was God." As a religion of the Book, the Roman Catholic Church
carried over many of the same general attributes found in other such religions, including the 
veneration of the word and the reverence of those charged with its reproduction. One important 
pillar of Church authority, then, was the privileged position enjoyed by the literate clergy as 
guardians of the text in a largely illiterate society. As Anderson puts it, "The astonishing power 
of the papacy in its noonday is only comprehensible in terms of a trans-European Latin-writing 
clerisy, and a conception of the world, shared by virtually everyone, that the bilingual 
intelligentsia, by mediating between vernacular and Latin, mediated between earth and heaven."16

Consider, for example, the status of language during the early to High Middle Ages. At 
this time language was not generally conceived of as an arbitrary and thus interchangeable sign, 
but rather a channel to ontological truth -- an emanation of reality rather than a representation 
of it.17 The spoken and the written word were considered to be continuous with nature, a belief 
reflected in the view that the meanings of words were tied to the things signified. This 
"Adamic" view of language sought knowledge through finding the divinely ordained, natural 
homology between words and things that was set down following Creation by Adam.18

Foucault describes how according to the Adamic view:

There is no difference between the visible marks that God has stamped upon the 
surface of the earth, so that we may know its inner secrets, and the legible words 
that the Scriptures...have set down in the books preserved for us by tradition. The 
relation of these texts is of the same nature as the relation to things: in both cases 
there are signs that must be discovered.19

Accordingly, texts were considered sacred fonts of wisdom from a pure past and an Other
World -- a belief that often manifested itself in worship of the medium itself, which was attributed metaphysical, quasi-magical powers. Marc Drogin explains:

_Since God or the gods invented the alphabet -- everyone believed it to be divine inspiration -- the letters were holy. Since it was letters that formed words, the words were equally holy. In a time when what was holy was born of the miraculous and when the fine line between miracle and magic was difficult to discern, the three terms could be easily interchanged. Letters and words were miraculous in origin and therefore were the stuff of magic._

Drogin notes how it was not uncommon to find the mingling of words or texts in medicinal instructions, such as the herbal mixture called the holy salve in which the person preparing the mix is directed to write in it with a spoon: "Matthew, Mark, Luke, and John." An 11th century manuscript advises patients prone to fever to wear strips of parchment around their necks on which is to be written "In the name of Our Lord, who was crucified under Pilate, FLEE YE FEVERS." The mysterious powers attributed to the text help to explain the crusader’s odd practice of wearing a parchment scroll beneath the coat of mail, or having prayers and odd letter combinations inscribed on their weapons. Rituals such as these only make sense if the person performing them is acculturated into the belief that the word or text has a connection to the Divine. The exceptions to this rule are equally instructive for in the very defiance of the sanctity of the word, they reveal the scope and depth of the norm. For example, in 1022 a group of heretics were burned in Orleans for referring to the clergy’s knowledge as human fabrications "written on the skins of animals," as opposed to what the heretics believed was the "law written in the inner man by the Holy Spirit."

Although the fact that the Roman Catholic Church shared this general tendency found
among other religions of the Book does offer some insight into the power and status of the medieval clergy, it does not explain how the Church arrived at this position from its "obscure beginnings as a small persecuted community in the capital of the Roman Empire," nor how the Church's fortunes were related to a specific technology of communication. For a comprehensive explanation along these lines, we must trace the vagaries of the mode of the communication following the collapse of the Roman Empire in the 5th century. As will be shown below, the Church's rise to prominence was contingent on a combination of fortuitous circumstances in which we could include the peculiarities of the mode of communication. A variety of other historical contingencies not so fortuitous from the Church's perspective then contributed to its demise.

The rise and fall of medieval theocracy

The internal disintegration of the Roman Empire in the 4th and 5th centuries, compounded by successive waves of "barbarian" invasions, left much of western Europe outside the bounds of Roman administration. In its heyday, the Roman Empire governed itself through the administration of a literate bureaucracy among whom communications rested significantly on written texts on papyrus rolls, and a highly efficient network of roads. Upon its demise, much of western Europe returned to a state of primitive orality and personalized forms of rule characteristic of the Germanic invaders. In the city of Rome, the collapse of Imperial authority created a void into which the only plausible alternative was the bishopric of the Catholic Church, an alternative that was facilitated by the work of successive Christian
emperors, who endowed the Church with special privileges and helped to outlaw paganism. Though many popes were weak and ineffectual through this period, the first who seemed to have perceived the opportunity for the bishopric of Rome was Pope Leo I (also known as St. Leo the Great). By negotiating with the invading Huns and Vandals for the safety of the city of Rome, and by asserting the so-called Petrine Doctrine (which sought to link the Roman see directly to St. Peter) Leo vastly increased the prestige of the papacy throughout western Christendom. As Cantor explains, "half-consciously the pope worked to make the Roman episcopate the successor to the Roman state in the West."²⁸

Leo's prominent ideological work was complemented by the growth of a literate monastic network that gradually spread through western Europe. Throughout the period of Roman Imperial disintegration, many well-born aristocrats converted to Christianity, carrying over to the Church their literary education and respect for the preservation of the written word characteristic of late antiquity.²⁹ To be sure, while the Church could soon count among its ranks nearly all literate individuals in Europe, literacy was limited to a small group. The norm for western Europeans, for whom much of life was violent and chaotic, was primitive orality -- that is, the overwhelming majority of people were confined to the bounds of the spoken word. Even many Church priests were illiterate, unable to comprehend the Latin phrases they regularly parroted for their parishioners. But the veneration and preservation of the word that was carried over by former Roman aristocrats gradually became fused with the practices of monasticism making the Church an island of literacy in an otherwise oral culture. In Cantor's words:

_The Latin church was preserved from extinction, and European civilization with_
it, by the two ecclesiastical institutions that alone had the strength and efficiency to withstand the impress of surrounding barbarism: the regular clergy (that is, the monks) and the papacy.\textsuperscript{30}

The moulding of Christian monasticism around the preservation and veneration of the written word was first given doctrinal formulation in the works of St. Benedict and Cassiodorus in the early Middle Ages, where the idea of the monasticist scriptorium was outlined and book copying was portrayed as a sacred act.\textsuperscript{31} Doctrines flowing from these two figures instilled the close connection between the ability to read and the religious life of the monk, as well as the cultural and spiritual importance of the conservation and transmission of the written word. "This meant that the monastery needed to have the means -- a library, a school, a scriptorium -- that quite naturally made it an exclusive and culturally privileged place."\textsuperscript{32} One reason why the monasteries thrived in the early Middle Ages was precisely this exclusion from the disorder of life outside. Ironically, their self-imposed isolation acted as a magnet for those drawn to learning, for "the Benedictine monastery alone, during the early Middle Ages, had the continuity, the dedication, the library, and the substantial supply of teachers to serve as an effective educational institution."\textsuperscript{33}

Another reason why the monastic network thrived in the early Middle Ages relates to a choice of media in the early history of the Catholic Church. The Roman Empire had developed a relatively efficient postal system and bureaucracy based mostly on the use of the light-weight, but fragile, papyrus rolls.\textsuperscript{34} Archaeological evidence of the earliest Christian Bible codices from Egypt reveal that the Christian community was nearly alone in favouring parchment over the papyrus roll.\textsuperscript{35} Early Church fathers and missionaries preferred the parchment codex
because it was both more suitable for easy reference than the cumbersome scroll and it was more
durable under poor travelling conditions -- an especially important feature for travelling
preachers. Some historians believe that Christians remained wedded to the parchment codex
because they were a persecuted sect without access to the papyrus leaves used by official
Rome. In any event, parchment, rather than papyrus, was the medium of choice for the
Christian religion, and it remained so into the Middle Ages as a result of both institutional inertia
and functional complementarity. If only out of the sheer force of habit, in other words, the
Christian community formed an institutional bond with parchment -- a fortuitous choice as
circumstances would later reveal.

According to medium theory, communications environments have distributional
consequences insofar as they facilitate the interests of specific social forces; the relationship
between parchment and monasticism is a clear illustration in this respect. As Innis notes,
"Parchment as a medium was suited to the spread of monasticism from Egypt throughout western
Europe." Parchment, or membranae, was manufactured from the hides of animals, a variation
on leather making. Unlike papyrus, which had to be produced centrally, parchment was
especially suited to the decentralized agrarian-rural monastic network that spread through western
Europe after the collapse of the Roman Empire. Individual monasteries could remain self-
sufficient, manufacturing parchment from the skins of their own livestock or those from the
surrounding farms. Sheeps, cows, goats, rabbits and squirrels all provided the skins for various
qualities of parchment. Goose quills were used for pens, while ink was supplied out of a
combination of gall nuts, organic salts of iron and lampblack. All of these materials were in
abundance in the woods and valleys of western Europe in the early Middle Ages. Furthering the papal-monastic interests was the near-total disappearance of papyrus from western Europe at this time. The vast Roman Empire prior to the 5th century was able to sustain the importation and production of papyrus rolls by its links to the eastern Mediterranean and beyond. Following the collapse of the Empire and the accompanying rise of Islam in Egypt and elsewhere, however, papyrus exports to the West significantly diminished leaving parchment the sole remaining medium of written communications. Parchment — in a sense by default — became the dominant medium of communication. Coincidentally, it was also the medium produced by monastic orders in conjunction with the Roman Catholic Church.

Parchment and the papal-monastic network formed a symbiotic relationship in the communications environment of the early Middle Ages: monasteries were largely self-contained islands of literacy and centres of knowledge reproduction in an oral-agrarian environment. Parchment was the medium of choice of the early Church fathers. It was sustained as such through institutional inertia and functional compatibility with missionary/monastic life. It was produced from materials that were in abundance in western Europe, and it had no serious rival medium of written communications. Secular literacy virtually disappeared in most of western Europe leaving the clergy as the sole custodians and suppliers of written information. From these converging circumstances surrounding the communications environment of the time, then, the Roman Catholic papal-monastic network began to flourish and spread throughout Western Europe. Its monopoly over the reproduction of written information was to have significant consequences for the prevailing cosmology of the medieval world order.
Structural characteristics of the Church's hegemony in the High Middle Ages

Given the Church's early monopoly over written communications, it is no surprise that knowledge reproduction was distorted -- "pagan writing was neglected and Christian writing emphasized." Cantor points out that Benedictine monasteries took a functional, Augustinian approach to copying classical texts, using them in a secondary derivative sense, and passing over those that contradicted the Gospels or had little relevance to Christian doctrine. Likewise, Miccoli notes how monks were instilled into a ritual which emphasized "a deep assimilation of God's word through a constant and repeated rereading of Scripture (meditatio and rumunatio)." In principle, ancient pagan works had no autonomy in the official Church cosmology, but were tolerated for instrumental reasons -- that is, "as they contributed to the linguistic and literary formation of the monks." Of course, it was precisely because of the toleration of pagan authors -- even in a subordinate sense -- that many important classical works were transmitted. Ironically, other classical works were passed on to posterity quite by accident: when parchment was in short supply, monks would often re-copy the Gospels over pagan works, and it is through this recopying process that many ancient texts were rediscovered. But the fact remains that "between the sixth century and the middle of the eighth century, virtually all classical texts ceased to be copied..." As suggested above, this selective reproduction was not so much a matter of deliberate censorship as it was a combination of both indifference and priority. At the very least, it was the product of the heavy demand placed on scribes to copy the scriptures alone. Important in this respect is the relatively expensive and laborious manuscript copying process, which may have been a seasonal activity in parts of Europe.
Nonetheless, the monastic reproduction process had a clear aim to recopy the Holy Word, and in doing so, it both reaffirmed and reinforced a reading of history that emphasized the destiny of the Church in that historical process, to the exclusion of other possible interpretations. In Miccoli's words:

> when monasticism reduced all other reality to its own image and its own religious and cultural schemata in the aim of bending them to an explanation and exaltation of the choice and the experience of monastic life, it discovered the subterranean ideological, political, and social roots of its own origins that provided further support to its affirmation in history. 48

While it would most certainly be wrong to portray the Church as a quasi-totalitarian organization -- a medieval "Big Brother" -- the monopoly over the written word did confer special advantages. At the very least, the guarding and sifting of organized knowledge kept a loose discursive boundary on cosmological speculation, especially in the early Middle Ages. We must not forget in this respect that monasteries were, for most of the Middle Ages, the sole educational outlet instructing, "at a conservative estimate 90 percent of the literate men between 600 and 1100..." 49 Duby makes the important point that no distinction was made between culture and propaganda during the Middle Ages since "to educate was to convert." 50 Those who did not get formal education attended mass. Curran asserts that the "proportion of the adult population in Europe regularly attending mass during the central Middle Ages was almost certainly higher than the proportion of adults in contemporary Europe regularly reading a newspaper." 51 And the papal curia exercised a tight control over the content of the mass through set liturgies, reinforcing a macro-micro coordination of Church doctrine throughout western Europe. 52
This hegemony over cultural and ideological production was buttressed by the maintenance of huge Papal archives which provided important political and legal leverage; forgeries, like the infamous Donation of Constantine, were used by the Papacy to provide legitimacy to assertions of Church authority over, and independence from, secular rule. This particular document first emerged during the 8th century, and was used throughout the Middle Ages as evidence of a supposed grant from the Roman Emperor Constantine to Pope Sylvester I conceding supreme authority to the Pope over Italy and the rest of the western Church. However, the Donation of Constantine was no exception; forgeries were prominent ways of establishing privileges, especially monastic charters. For example, following the Norman Conquest of England forgeries among the local Black monks rose dramatically.

The Church's influence over ideology did not rest with matters purely cosmological, either. Because the aristocracy throughout much of the Middle Ages were generally illiterate, they depended on the interposition of clergy to help carry out various administrative functions. This comfortable interlocutor position meant that the Church was able to intervene, if only indirectly, in secular, as well as ecclesiastical, matters. As Bloch points out, "the princes were obliged to rely on the clerical element among their servants for services that the rest of their entourage would have been incapable of rendering." Thus William of Normandy turned to the monks after his conquest of England "to organize a wiser and more prudent administration of the crown's holdings." More so than other members of society, church clerics and monks had a reputation for "an introspective wisdom and a power of analysis, a capacity for detached realism" that made them attractive for secular administrative functions. By the 12th century...
it was not uncommon to find Benedictine monks employed as royal chancellors, state advisors and chief ministers for secular rulers -- a considerable shift from their origins as members of self-contained, isolated islands of literacy in the 9th century. Of course, intervention along these lines had important political consequences. According to Bloch:

> It is important to realize that the decisions of the powerful of this world were sometimes suggested and always expressed by men who, whatever their national or class allegiances, none the less belonged by their whole training to a society by nature universalist and founded on spiritual things. Beyond question they helped to maintain, above the confusion of petty local strife, a concern for certain wider issues. When required...to give written form to acts of policy, they felt impelled to justify them officially by reasons drawn from their own moral code.

Gradually, the Church came to rely more and more on written administration and formal documentation to underpin its authority. By the mid-12th century, under Alexander III, the administrative and judicial activity of the papal curia expanded and became more specialized -- a reflection of the way the written word permeated all Church activity. Church doctrines -- formulated at the official Lateran Councils -- were then issued in formal proclamations, such as the *Decretum*, and accepted authoritatively throughout much of western Christendom.

While written communications were the backbone of the papal-monastic information network, the Church disseminated its message to the local populations through a medieval multimedia experience designed to accommodate mass illiteracy. As Le Goff points out:

> Latin Christianity made an important choice in the Carolingian epoch. It chose images, rejecting the nonfigurative art of the Jews and the Moslems and the iconoclasm of Greek Byzantine Christianity and firmly establishing medieval Christian anthropomorphism.
The Church consciously employed the image to convey the Christian message to the illiterate masses in a way that was deeply symbolic. Probably the most well-known medieval dictum on art is Gregory the Great's pronouncement that pictures are the "books of the illiterate." This was a time prior to the emergence of imitation and perspective characteristic of "realism" -- a time in which the didactic and ideological purposes of forms in paintings and sculptures far outweighed in significance their aesthetic value. Visual art "was not so much an expression of the visible world, as of the spoken word in a still predominantly oral society." The images reproduced in outwardly visible signs the social and cosmological hierarchy of the times. For example, colours had a symbolic content as part of an hierarchical value system in which red and blue were marks of power and status, while yellow was the colour of evil and deceit. Though imagery was found on the margins of manuscripts, most of the population encountered them on the walls and stained glass of local cathedrals, which invariably featured the macabre tortures of hell alongside the visual narratives of Christ's teachings. The cathedrals themselves, in their very form, were significant in a symbolic sense as well: "the construction of churches towering over their pastoral flock symbolized the looming presence of God over all aspects of life." This multi-media experience did a great deal to shape the character of the medieval mentalite, which did not share the cognitive boundaries so characteristic of modernity between the "real" and the "imaginary," or the "natural" and the "metaphysical."

Although my theoretical lens has been directed at the constraints imposed and the opportunities created by the communications environment, there were, of course, other factors that were responsible for the Church's rise to hegemony. Most important in this respect is the
appeal of the message regardless of the medium: we should not lose sight of the fact that Christianity offered a coherent and compelling narrative of justice that both explained the disorder of the times and offered a promise of salvation in an Other World. This coherent moral vision strongly resonated in the chaotic environment of the early Middle Ages in Europe, where disorder and brutality were the norm for most people. The Church was also particularly adept at tailoring its message to suit the vagaries of local communities, especially in the early Middle Ages when myths and rituals of pagan sects were made compatible with the teachings of Christ. Under the astute stewardship of Pope Gregory I the Great, the Church purposefully assumed a quasi-magical hue to conform to the pagan rituals of the Germanic and Frankish peoples. As Curran points out, "the whole paraphernalia of ecclesiastical sorcery and ritual was of crucial importance in mediating an ecclesiastical construction of reality that underpinned papal hegemony." Each regular routine of daily life was informed by elaborate and mystical church rituals, such as baptism, confirmation, marriage, and burial. The Church actively encouraged the veneration of saints with miracle powers — a superstition strongly reminiscent of the pagan worship of various natural gods. And each of these adaptations was a mixture of "cosmic-universal and the mundane-particular" so that "however vast Christendom might be, and was sensed to be, it manifested itself variously to particular Swabian or Andalusian communities as replications of themselves." A coherent and suasive message coupled with an hospitable communications environment combined to underpin the papal-monastic network as "the dominant institution in Europe's information system."
Counter-hegemonic forces and the decline of the Church

No sooner had the Church reached its pinnacle of power in the High Middle Ages, however, than counter-hegemonic forces began to surface that would eventually undermine its authority. Many of these forces emerged precisely as a result of the Church's monopoly over written information. By the 13th and 14th centuries, the papacy had become so permeated with and dependent on the written word that its institutions grew more legalistic and bureaucratic, with the papal curia evolving into a complex, top-heavy, administrative organ. Throughout the High Middle Ages, successive popes and Church prelates were likely to be just as informed by canon law and practical affairs as they were in spiritual matters. Such a formalist-legalist infrastructure had the unfortunate consequence of gradually distancing many of the Church administrators from the spirit of popular devotion that helped make Christianity a success in the first place. As Cantor relates:

*The lawyer-popes of the twelfth and thirteenth centuries were far more successful in fulfilling the administrative than the spiritual responsibilities of their office. Their juristic education and bureaucratic experience did not tell them how to cope with the emotional religiosity and heretical inclinations of the urban communities.*

Barraclough notes that the "papal curia had the atmosphere of a law-court or business-office." Within the Church many lower-level clergy grew sceptical of the formal ecclesiastical hierarchy, believing that Rome had less and less affinity to the teachings of the Gospels or the standards of apostolic poverty. The most apparent sign of this smouldering dissatisfaction was the sudden ignition of popular heresies in various periods and regions. Many of these heresies defined themselves in fundamentalist, back-to-basics terms, hostile to the abstract, legalistic
machinery that now characterized the Roman Catholic Church. Beginning in the 11th century, hermit-saints preaching ascetic tendencies and withdrawal from the spiritual degradation of worldly life first made their appearance. These heretical movements were the first in a series of popular challenges to Church hegemony on spiritual matters over the next few centuries that would eventually culminate in the Protestant Reformation -- a topic that will be taken up again in the following chapter.

A second area where the transnational authority of the Roman Catholic Church was being challenged was in the sphere of knowledge reproduction. As outlined above, from the fall of Rome to the 12th century the papal-monastic network maintained a near-total monopoly on the reproduction of the written word. However, "from the end of the 12th century a profound transformation took place." Gradually, secular literacy began to rise among the urban populations and secular administrators -- a slow shift that signals the first signs of a change in the communications environment. The increasing reliance on the scribe and the written word placed strains on the functional capacity of the monastic network to meet the demands of a growing literate populace. Centres of knowledge reproduction, many of which were not contained within the formal Church hierarchy, arose to service this increased demand.

For example, one area in society where the demand was high and where an alternative book trade developed was within the newly founded universities. A new reading public emerged within university circles that, while still chiefly clerical, was not formally attached to a religious organization but to the corporate university community. Professors and students
needed texts for their courses, and libraries were established within universities to meet the demand for manuscripts. Professional craftsmen, organized as Guilds of Scriveners or Stationers, were then hired by the university to reproduce scholarly texts. The universities represented a growing "secularization" of learning and education that further undermined the monopoly of knowledge maintained by the monastic orders up to the High Middle Ages.

In other areas of society too, new reading publics emerged that yearned for secular literature. For example, an urban literate bourgeois class was first appearing alongside the nobility and the clergy. As Thomas describes, "Lawyers, lay advisors at Court, state officials, and, later on, rich merchants and town citizens -- all needed books, not only in their own subjects like law, politics or science, but also works of literature, edifying moral treatises, romances and translations." Works in the vernacular began to appear as growing exceptions to the Latin norm and as reflections of the gradually rising strength of local, secular identities and communities. Yet a further erosion of the monastic monopoly was the rise of government bureaucracies requiring secular, literate administrators who were increasingly siphoned off from the universities. This change was reflected in the supercession of law over theology as the specialization of choice for most students. Even within largely illiterate circles social relations were gradually succumbing to the written word: by the 13th century, property transactions between peasants were being recorded by charter rather than the oath. Manuscript reproduction, which now occurred outside of the papal-monastic network, grew more specialized and complex, reflecting the rising pressures from society for the written word. Separate specialized workshops sprouted to deal with various components of the manuscript production
process, with copyists in one shop, rubricators in another, and illuminators in yet another.89

These converging pressures naturally focused attention on ways of "improving the supply of manuscripts to meet the rising level of demand."90 Traditional techniques of manuscript production were insufficient to service the increasing dependence of all spheres of society and economics on the written word. The first improvement came in terms of the importation of paper as an alternative material to parchment for written communications. Paper first made its appearance in western Europe in the 12th century, imported into Italy by Arab merchants, who themselves had acquired it from China in the 8th century.91 Paper production techniques were also acquired by the Christian West following the reconquest of Spain from the Muslims, who had been using paper regularly since at least the 10th century.92 Unlike parchment, which was expensive to produce, heavy in form, and generally difficult with which to work, paper was cheap and light-weight. Despite its apparent superiority over parchment, paper was slow to spread throughout Europe. Resistance was probably due to a combination of its relative fragility, craftsmen's inertia, and religious bigotry. The Abbot of Cluny, Peter the Venerable, was probably not alone in having a contempt for paper because of its association with the "infidel" Jews and Arabs.93 Despite this resistance, paper spread rather quickly once the social demand for cheaper books and manuscripts intensified.94 According to Febvre and Martin:

the demand for paper was felt in many new fields: teaching spread, business transactions became more complex, writing multiplied and there was a growing need for paper for non-literary uses, by tradesmen, haberdashers, grocers, chandlers. A whole new species of trades was created which depended on paper: carriers, box-makers, playing-card makers, bill-posters and related trades.95
Of course, these very same converging social pressures for more efficient communications focused energy not only on the material on which the written word was produced, but also on the technique of reproduction. As Schottenloher put it, "The actual shining hour for paper, however, came only with the discovery of printing, when printing found in paper its most powerful ally."96 A reflection of the widespread pressures in the 15th century for a method of manuscript reproduction are the many multiple claims to the invention of the printing press. For example, many Dutch believe that their countryman Laurens Janszoon Coster should be given credit for experimenting with moveable wooden character types in the 1430s.97 In France, documents from Avignon reveal that between 1444 and 1446 contracts were issued to Procopius Waldvogel to teach the art of "artificial writing."98 Whether accurate or not, however, the most widely attributed inventor of the printing press in Europe is the Mainz goldsmith Johann Gensfleisch zur Laden, or Gutenberg. The source of this judgement is a number of cryptic documents surrounding a series of lawsuits that date to 1439 in Strasbourgh. The documents reveal that Gutenberg and his creditors were involved in a legal tussle over a number of Gutenberg’s inventions, one of which was a new art that involved the use of a press, some pieces (Stucke), some forms (Formen) made of lead, and things related to the action of the press (der zu dem Trucken gehorei).99

As Dudley points out, Gutenberg’s invention was actually a synthesis of the punch the goldsmiths used for striking inscriptions into metal, the wine-press (which had come to Germany
from the Romans) and the perfection of an ink that would adhere to metal type. Although paper had come to Europe from China through the Arabs, and although the Chinese and the Koreans had been employing a similar method of printing with moveable characters since the 10th century, the evidence suggests that the development of the European printing press was an autonomous development. The first printed works did not immediately change the appearance and form of medieval manuscripts; in fact, the early printers went to great lengths to produce precise imitations. Febvre and Martin note that "The 42-line Bible for example was printed in a letter-type which faithfully reproduced the handwriting of the Rhenish missals." Before 1500 the majority of printed works -- about 70 per cent -- were in Latin, with about 45 per cent of them being religious in content. What was novel about the new invention was the truly revolutionary impact it had on the quantities that could be produced and distributed and the time it took to produce them.

About 20 million books were printed before 1500 in Europe in a population at the time of about 100 million. This number of books, produced in the first 50 years of printing, eclipsed the entire estimated product of the previous thousand years. Febvre and Martin estimate that 150 million to 200 million were then produced in the next hundred years. In relative terms, the output of printed material was not just a change in kind, but a true revolution in communications. Of course the ability to reproduce large volumes of material with such ease meant that printed works were also significantly cheaper to produce than manuscripts. For example, in 1483 the Ripoli Press charged three florins per quinterno for setting up and printing Ficino's translation of Plato's Dialogues. Eisenstein estimates that a scribe might have charged
one florin per quintino for duplicating the same work. The Ripoli Press printed 1,025 copies; the scribe would have turned out one.\footnote{107}

Although the technology itself was revolutionary, what fuelled the spread of the printed word, as Anderson points out, was its convergence with the early printers' commercial ethos and an available market across Europe hungry for printed material.\footnote{108} Following the initial activities in Mainz of Gutenberg and his partners, Fust and Schoeffer, printing centres were established in a number of cities throughout western Europe to exploit the new market. Menthelin printed a Bible in Strasbourgin 1459. By 1475, printing workshops had been established throughout the Rhineland, and in Paris, Lyons, and Seville.\footnote{109} By 1480, printing centres had sprouted through all of Western Europe, from Oxford and London to Krakow and Budapest, from Lubeck and Rostock to Napels and Cosenza -- in all, 110 towns stretching across western Europe.\footnote{110} By 1500, the number of towns with printing centres had risen to 236.\footnote{111} By the 16th century, western Europe had entered a new communications environment at the centre of which were cheap, mass-produced printed documents emanating from the many printing presses stretched across the land.

**Conclusion**

In this chapter, I have traced the development of communications technologies through the Middle Ages leading up to the invention of the printing press in the mid-15th century. Contrary to more popular accounts, the invention of printing was an outgrowth of converging
social pressures for more efficient communications. While the Roman Catholic Church had maintained a monopoly over written communications up to the 12th century, from that point onwards a gradual change in the communications environment began to occur, as evidenced by the growth of secular literacy and the use and reproduction of written documents outside of the formal papal-monastic network. In this respect, the invention of printing actually represents the culmination of slowly accumulating social pressures. In conjunction with the broader social and economic conditions of the time, however, once printing began to spread through Western Europe, it revolutionized the communications environment with significant consequences for society and politics. In the next two chapters, I examine the ways in which the emergence of this new communications environment played a part in the transformation of the medieval world order.

Notes


6. On the connection between physiological changes in the vocal tract that permit the spoken word and the so-called "Great Leap Forward" in human evolution, see Jared Diamond, "The Great Leap Forward," Discover (1990), pp. 66-76.

7. Ong, Orality and Literacy, p. 84.

8. Goody, The Interface Between the Written and the Oral, p. 3.

9. Ibid., p. 18.


11. See especially, Goody, The Logic of Writing.


17. Anderson, Imagined Communities, p. 14. This belief was more the case during the early Middle Ages, gradually becoming a contested site from the 12th century onwards with the spread of lay literacy, and as evidenced by the debate between nominalists and realists of the time. Nominalists held that only particular physical items constitute reality, while realists believed that universals have a reality which is prior to and apart from the physical. For a more thorough treatment of these issues, see Brian Stock, Listening for the Text: On the Uses of the Past. (Baltimore: Johns Hopkins University Press, 1990); and Roy Harris and Talbot J. Taylor, (eds.) Landmarks in Linguistic Thought: The Western Tradition from Socrates to Saussure. (New York: Routledge Press, 1989), p. xv.

18. And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof. And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field...

(Genesis II, 19-20)
For discussion, see Heyer, *Communications and History*, p. 146-148; See also Cantor, who notes how a common belief that the "road to knowledge lay through the origin of words" can be found in the title of the influential *Etymologies*, written by the early seventh-century bishop of Seville, Isidore. Cantor, *The Civilization of the Middle Ages*, p. 83.


27. Le Goff, *Medieval Civilization*, p. 120.

28. Cantor, *The Civilization of the Middle Ages*, p. 64.


31. See Innis, *Empire and Communications*, pp. 118-119.


34. See Innis, *Empire and Communications*, p. 85-112; and Raven, "Road to Empire".


40. See Innis, *Empire and Communications*, p. 117.

41. Innis, *The Bias of Communications*, p. 48.


44. *Ibid*. See also Le Goff, *Medieval Civilization*, p. 114: "Thus in the library at Cluny a monk who wanted to consult a manuscript by an ancient author had to scratch his ear with a finger in the style of a dog scratching itself with a paw, 'for the pagan is justly compared with this animal.'" And on page 115: "Ancient thought only survived in the middle ages in a fragmented form. It was pushed out of shape and humiliated by Christian thought."


47. Clanchy, *From Memory to Written Record*, p. 125; See also, McKitterick, *The Carolingians and the Written Word*, pp. 136-157.


55. Clanchy, *From Memory to Written Record*, p. 318.


65. Camille, "Seeing and Reading," p. 27.


76. As Menache relates: "The development of the Church in the Central Middle Ages embodies an essential paradox: the ecclesiastical order reached its maximal influence at a time when Western society gradually evolved from corporate frameworks into more developed socioeconomic systems which by their very nature opposed the Church's monopoly." Menache, The Vox Dei, p. 78.


80. Ibid.

81. Ibid., p. 154; See also Menache, The Vox Dei, pp.213-273.

82. Cantor, The Civilization of the Middle Ages, pp. 376-377; See also Menache, The Vox Dei, pp. 216-225.


84. Ibid., p. 19; For an overview of the growth of universities, see Alan B. Cobban, The Medieval Universities, their development and organization, (London: Methuen Books, 1975).

85. Ibid., pp. 19-22.

86. Ibid., p. 22.


90. Ibid., p. 29.


92. Ibid., p. 287.

93. Ibid., p. 292.

95. Ibid., pp. 39-40.


99. Ibid., pp. 51-53.


103. Ibid., p. 249.

104. Ibid., pp. 248-249.


106. Ibid., p. 262.

107. This comparison is recounted by Eisenstein in *The Printing Press*, p. 46.


110. Ibid., pp. 167-185.

Chapter Three: Print and the Medieval to Modern World Order Transformation: Distributional Changes

Introduction

Changes in the mode of communication have far-reaching, fundamental implications for the social and political infrastructure of an era and for the trajectory of social evolution. In chapter one, I outlined two conceptually-distinct effects that arise from a change in the mode of communication: distributional changes and changes to social epistemology. In this chapter, I concentrate only on the former.

Distributional changes are changes in the relative power of social forces as a consequence of the change in the mode of communication. Because each successive mode of communication transmits and stores information in unique ways, social forces whose interests coincide with the new communications environment will be favoured while those whose interests do not will be disadvantaged. Social forces survive differentially, in other words, according to their "fitness" or match with the new media environment -- a process that is both open-ended and contingent. Thus, medium theory does not offer an explanation of the genesis of particular social forces, nor why they were animated by particular interests as opposed to others, but rather why they flourished or declined at a particular historical juncture.

Distributional changes work in two directions -- undercutting some social forces while advancing the interests of others. In this chapter I examine the way distributional changes
associated with the development of printing played a part in the medieval-to-modern world order transformation in Europe. I begin by examining the way the change in the mode of communication helped to dissolve the architecture of political authority in the late Middle Ages. Specifically, I explore the way two social forces, the Protestant Reformation and scientific humanism, were favoured by the new media environment to the disadvantage of the Roman Catholic Church. I then examine the way transformations in socio-economic relations that were encouraged by the change in the mode of communication helped to undermine the basis of feudal social relations and paved the way for modern contractual socio-economic relations among an increasingly important segment of the late medieval population: the urban bourgeoisie. This particular distributional change had what we might call a "levelling" effect on patterns of political and economic obligation, at least in urban areas, cutting through the entangled webs of personal loyalties characteristic of the feudal era and opening up the possibility for common rule from a single centre. Finally, I turn to the way the change in the mode of communication fuelled the rise of modern state bureaucracies and centralized political authority throughout western Europe. As many have pointed out, the converging interests of the latter two social forces -- the urban bourgeoisie and centralizing state monarchies -- were crucial in moulding the architecture of modern world order in Europe.
The new media environment and the dissolution of the old order

a. The Protestant Reformation

As outlined at the end of the previous chapter, by the 14th and 15th centuries strong social forces were emerging with novel agendas and interests that were pushing at the margins of the Church's hegemony over knowledge reproduction. Some of these social forces can be characterized as reactionary movements within the Church itself. In this category, we would include the various religious "heresies" that periodically and spontaneously surfaced throughout western Europe beginning in the 12th century. Although their specific goals and ideologies varied considerably, these heretical movements arose during the High Middle Ages mostly in reaction to the Church hierarchy, which, as pointed out in the previous chapter, was assuming a more legalistic and secular face distanced from the popular devotion that marked its appeal during its embryonic days as a missionary sect.\(^1\) The top-heavy administrative organs of the Papal government appeared less "other-worldly" and more corrupt, especially as successive popes engaged in or succumbed to power-political machinations -- an image doubly reinforced by events such as the Great Schism.\(^2\) This decline in Church popularity is reflected in the way many Christians saw the "Black Death" plague that swept through western Europe in the 14th century as a symbol of God's dissatisfaction with the corruption of the Church.\(^3\)

Prior to the emergence of print, the Church had been relatively successful in squelching
and containing heresies primarily "because it always had better internal lines of communication than its challengers." Those that were not stamped out by violence, or *compelle intrare*, were more than likely to be coopted by a form of special privilege or to be ignored altogether, as various heresies flickered and then faded without means of mass communication. Febvre and Martin wonder "what might have happened if some of the earlier heresies (the Hussite, for example) had the power of the press at their disposal -- power that Luther and Calvin used with great skill, first in the attack on Rome and then in the diffusion of their new doctrines." The Inquisition, established in the 13th century, was a reflection of both the growing heretical elements within society and the Church's more stringent reprisals against them. It remained an effective countermeasure so long as the doctrines flowing from heretical movements could be halted by taking measures against the persons upon whom the widespread transmission of such doctrines depended. With the rapid dissemination and publication afforded by print, however, heretical movements had a much better chance of spreading their message beyond the locality in which they emerged, making it much more difficult for the Church to take effective countermeasures.

To illustrate the way technological innovations have unintended consequences, and how fathoming such consequences are difficult for those living through them, it is interesting to note that the Church was initially enthusiastic about the printing press, making thorough use of it, for example, in its anti-Turkish crusade. One particular cardinal, Nicholas of Cusa, referred to the printing press as a "divine art" because of the way that the technology would enable poor priests who would otherwise be unable to afford Bibles to have access to cheaper, mass produced
versions. And it is somewhat ironic that the first dated printed product from Gutenberg's workshop was an indulgence -- the very emblem of Church corruption in the eyes of the Protestant Reformation. In fact, the demand for printed books and liturgies among Catholic churchmen drove the initial establishment of printing presses throughout Europe in the latter half of the 15th century. Some of the largest monasteries, like Cluny and Citeaux at Dijon, invited printers from Germany to set up printing workshops and to teach monks the art of printing. In one of the first books printed by the Brothers of the Common Life in Rostock there appeared the dedication that printing was the "handmaid of the Church." Only hindsight could tell them how wrong they were.

It is well known among historians and laypersons alike that the printing press was closely intertwined with the Protestant Reformation. What is often confused is the specific causal relationship between the two, with technological determinists often attributing to the printing press the genesis of the Protestant Reformation itself. Clearly the fact that there were many other similar outbreaks of heresies prior to print mitigates any simplistic one-to-one connection. And certainly the outbreak of the Protestant Reformation cannot be explained without reference to the deteriorating economic and social conditions of central and northern Europe which created an oppressive and intolerable environment for many. As Luke describes, "Before Luther became a figure of public and political interest in 1517, German burghers and peasants, artisans and merchants, and many humanist academics shared a feeling of unrest and dissatisfaction with existing social, economic, and political-religious conditions, and were ready for a change towards what for them promised to be a more just and Christian society." Nonetheless, what could
be said with confidence is that printing had a revolutionary effect on the extent to which one particular heresy could spread widely and rapidly with devastating consequences for the Church's containment strategies. In other words, the properties of the printing environment "favoured" the interests of the Protestant Reformation to the disadvantage of the Papal hierarchy.

What was most revolutionary about printing was the way it afforded an opportunity for one person to reach a mass audience in an unprecedented short period of time. In 1517, the German theologian Martin Luther publicized 95 theses in Latin criticizing a variety of Church practices, centring mostly on the rise in tithes, indulgences, and benefices. As Dudley notes: "A century earlier, the issue might have smoldered for years before breaking into flame. Even then, its effects would have been purely local, as in the case of the followers of John Huss whose revolt (1419-1436) had been confined to Bohemia."16 Within 15 days Luther's theses had been translated into German, summarized, and distributed to every part of the country.17 During Luther's life, five times as many works authored by Luther alone were published than by all the Catholic controversialists put together.18 Martin Luther alone was responsible for 20 percent of the approximately 10,000 pamphlet editions issued from presses in German-speaking territories between 1500 and 1530.19 Initially, the volume increased dramatically, with Luther's published output rising from 87 printings in 1518 to a high of 390 printings in 1523.20 As Anderson put it, "In effect, Luther became the first best-selling author so known."21 And of course the rise in output was not restricted to that emanating from Luther alone; from 1517-1518 -- the first year of the Reformation -- there was a 530 percent increase in the production of pamphlets issued from German speaking presses.22
Printing permitted the mass production of small, cheap pamphlets which complemented the Reformer's strategic interest both in rapid dissemination of propaganda, in the form of cheap placards and posters, and the concealment of heretical printed works from authorities by both producers and consumers. Pamphlets were produced in quarto format -- that is, made up of sheets folded twice to make four leaves or eight pages -- and without a hard cover, and were referred to by the German term Flugschriften, or "flying writings."

Edwards describes how the pamphlets were "easily transported by itinerant peddlers, hawked on street corners and in taverns, advertised with jingles and intriguing title pages, and swiftly hidden in a pack or under clothing when the authorities made an appearance." Edwards goes on to explain how the pamphlets were "ideal for circulating a subversive message right under the noses of the opponents of reform." As the pamphlets did not require a large investment in either manpower or material as did large manuscripts, they were inexpensive to produce and could be turned out quickly to respond immediately to the day-to-day battles of the ongoing religious polemics. Although precise estimates are difficult to determine, historian Hans-Joachim Kohler figures that the average Flugschriften cost about as much as a hen, or a kilogram of beef -- certainly not insignificant, but well within the reach of the pamphlet's intended audience, the "common man," and much less expensive than the cost of a well-crafted parchment manuscript.

To reach a wider, mass audience the pamphlets and other publications were printed in the vernacular -- the form itself a direct challenge to the Church hierarchy whose power rested on performing an intermediary function between the vernacular and sacred Latin scripts. As
Edwardspoints out, printing not only helped spread Luther's message, it "embodied" it in its very form by presenting challenges to doctrine in the vernacular press. Luther's explicit aim was to put a Bible in every household -- an aim that was functionally complemented by the standardization and mass production afforded by moveable type. One printer alone, Hans Lufft, issued 100,000 copies of the Bible within forty years between 1534 and 1574. Febvre and Martin estimate that about one million German Bibles were printed before mid-century. In so doing, printing helped to undermine the legitimacy of centralized knowledge reproduction by providing the means "by which each person could become his or her own theologian." John Hobbes wrote disapprovingly how "every man, nay, every boy and wench that could read English thought they spoke with God Almighty, and understood what He said."

Fuelled by the new means of communication, the Protestant Reformation reached a level of mass support unprecedented among prior heresies in Europe during the Middle Ages. A "colossal religious propaganda war" ensued, in Anderson's words, that would soon envelop the whole of Europe. At the heart of this war were the cheap, mass-produced pamphlets emanating from the many printing presses that sprouted throughout Europe in response to the market created by the religious upheaval. The pamphleteers carefully employed a combination of text and illustration to reach as wide an audience as possible. Devastating, "blasphemous" caricatures invariably featuring perverse and disfigured representations of eminent Church officials rolled off the printing press in droves -- an often neglected historical detail of the 16th century religious propaganda wars made possible by the printing press. And although literacy was still relatively low among most of the lower classes, the spread of the printed word worked
in tandem with traditional means of oral communications in what Kohler calls a "two-step" communications process, with evangelical preachers spreading by word of mouth polemical works freshly issued and/or smuggled in from the many printing houses that served as "nerve centres." We should not underestimate, therefore, the extent to which the illiterate could have access to the printed word through those that could read. So while the Reformation was very much an oral process, it was the mass distribution of printed material that fuelled the process at the crucial elite level. Moreover, Protestantism deliberately inculcated in its followers the importance of literacy and Bible reading, and as a consequence, literacy rates grew markedly higher over time in Protestant versus Catholic regions.

While printing may have "favoured" the strategic interests of Protestantism, it disadvantaged those of the Roman Catholic Church. Given its exploitation of the printing press, Protestantism was able to take the early offensive in the polemical struggles -- Rome often being forced to take the somewhat desperate and futile position of opposing and containing print in the name of doctrine. Anderson affirms that the reformers were "always fundamentally on the offensive, precisely because [they] knew how to make use of the expanding vernacular print-market being created by capitalism, while the Counter-Reformation defended the citadel of Latin." Thus it was Rome which felt the need to formulate the Index Librorum Prohibitorum of banned printed material. As Eisenstein notes:

*Catholic policies framed at Trent were aimed at holding these new functions in check. By rejecting vernacular versions of the Bible, by stressing lay obedience and imposing restrictions on lay reading, by developing new machinery such as the Index and Imprimatur to channel the flow of literature along narrowly*
prescribed lines, the post-Tridentine papacy proved to be anything but accommodating. It assumed an unyielding posture that grew ever more rigid over the course of time.40

The Index, continuously updated throughout the 16th century and beyond, had the ironic effect of spurring a market for the printed material contained therein by making it appear taboo, and thus even more attractive.41 Even prior to the Protestant Reformation the Church had issued decrees forbidding the printing of books unauthorized by the Papal hierarchy. In 1515 Pope Leo X issued an edict to the Holy Roman Empire "that no license should be given for the printing of a book until it had been examined and approved by an authorized representative of the Church."42 By restricting the publication of unauthorized printed material in this way, however, the Church's strictures created a large black-market book trade fed by printing presses housed in non-Catholic regions.43 It also resulted in strong pressures from Catholic printers who were placed at a severe disadvantage by not being able to enter into the newly emerging market for printed material -- especially the material forbidden by the Church. For example, in 1524 the printers of Leipzig petitioned their Catholic duke that they were in danger of losing "house, home, and all their livelihood" because they were not allowed to "print or sell anything new that is made in Wittenberg or elsewhere. For that which one would gladly sell and for which there is demand," they said, referring to the Protestant literature, "they are not allowed to have or sell. But what they have in abundance," referring to Catholic literature, "is desired by no one and cannot be given away."44 In short, the Church's strategic interests were disadvantaged by the newly emerging communications environment.
The way in which these religious divisions spilled over into the secular parts of the Christian Commonwealth is well-known. Their impact on the architecture of medieval world order -- in particular, the transnational hegemony of the Roman Catholic Church -- was devastating. Soon much of Europe was divided into competing religious territories -- a chasm that initially corresponded with pro- and anti-print factions. As Anderson explains, "nothing gives a better sense of this siege mentality than Francois I's panicked 1535 ban on the printing of any books in his realm -- on pain of death by hanging."45 The Protestant Reformation ripped into the increasingly tenuous cosmological bind that held Christendom together under a single society. It is unlikely that the Reformation would have been as profoundly consequential in this regard had it not been for the facilitating role played by printing described above. Printing helped to displace "the mediating and intercessionary role of the clergy, and even of the Church itself, by providing a new channel of communication linking Christians to their God."46 In conjunction with individualistic push of Protestant ideology, printing weakened the intermediary function that had buttressed the privileged social position assumed by the clergy. While Protestantism presented a frontal assault on the religious core of the official Church cosmology, a second discernable social force was gradually undercutting it from a more holistic perspective.

b. Scientific humanism

As Anderson and others point out, the early printers represented one of the first manifestations in Europe of groups of commercial entrepreneurs dedicated to making a profit.47 Consequently, they were primarily concerned with finding markets for their books and printed
materials. Once the market for religious pamphlets became saturated, booksellers needed to find alternative outlets for their products. One particular emerging social group yearning for mass-produced printed material at the time was the scientific humanist movement. Over the course of the first century of printing, a shift occurred in the content from primarily Latin-based religious themes to scientific humanist works written in vernacular languages. Like the expansion of Protestantism, the growth of scientific humanism helped to undermine the authority of the Roman Catholic Church by directly challenging the cosmology upon which its authority rested. And also like Protestant groups, social forces in favour of scientific humanism flourished in the newly emerging communications environment.

Although modernist histories of science have tended to portray the emergence of the so-called "Scientific Revolution" as a sharp historical juncture when the fetters of religious false consciousness were thrown aside for the wisdom of pure empiricism by a few path-breaking individuals, the roots of scientific humanism as a social force can actually be traced back into the late Middle Ages. In Italy and in northern Europe, the growth of universities, coupled with a more hospitable urban setting, furnished the grounds for a stimulating intellectual environment characterized by intense debates surrounding the rediscovery of classical Greek and Roman texts. At the same time, latent in European society was a growing dissatisfaction with the prevailing cosmology for more practical, secular reasons. The Ptolemaic, earth-centred picture of the universe, supported by official Church doctrine, no longer seemed adequate, for example, to the imperatives of ocean navigation, which was assuming a more important place as commerce and trade expanded. Nor could it be easily squared with observations of the

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heavens made with the aid of new technical discoveries -- foremost among them the telescope - - that furthered scepticism about its core assumptions.51 Prior to printing, those beliefs that contradicted the official Church cosmology could be contained with relative success through the same basic mechanisms, such as the Inquisition, that held other religious heresies in check. After printing, however, it became much more difficult for the Church to halt the flow of the new science, especially since scientific humanism (like Protestantism) had a strategic interest in the widespread dissemination of knowledge and information -- an interest that overlapped with that of the new printing industry.

The complementary relationship between printing and scientific humanism can actually be traced back to the establishment of universities in the High Middle Ages. As outlined in the previous chapter, the swelling numbers of students and professors in the High to late Middle Ages created a market for books that spurred on the development of "in-house" university manuscript copying centres that were not formally tied to the monastic network. This market might have remained limited, however, were it not for the introduction of a new science -- animated mostly by rediscovered Aristotelian works -- that gradually re-focused intellectual energy on "observation" and critical comparison of observations as opposed to pure reflection on traditional wisdom that characterized the predominant neoplatonism of the day.52 Although the new "empiricists" propagated the myth that they were "turning away" from the dusty parchment books of the Church Fathers to "pure" examinations of the "Book of Nature," we should cautiously avoid treating the myth, as Eisenstein suggests, as anything more than a metaphor for the break from religious ties.53 In fact, the printing press significantly fuelled the
sudden wave of scientific innovation that characterized the 16th and 17th centuries by facilitating the rapid dissemination and exchange of knowledge and ideas. Contrary to myths, the new science was critically dependent on the printed word.

While it is true that the entire printed output contained as much chaff as wheat (early modern counterparts to the "trash" television of today) the sheer volume of printed material that could be accessed by a single individual, or groups working cooperatively on a single project, was truly revolutionary, especially as it converged with the interests of the new scientific curiosity. Eisenstein argues that while:

> the duplication in print of extant scribal maps and ancient geographical treatises, even while seeming to provide evidence of 'backsliding,' also provided a basis for unprecedented advance....Before the outlines of a comprehensive and uniform world picture could emerge, incongruous images had to be duplicated in sufficient quantities to be brought into contact, compared, and contrasted.54

Thus it was not uncommon to find, as Febvre and Martin point out, many examples of printed material that furthered medieval, Ptolemaic theories alongside the new sciences.55 But what was revolutionary was the conjunction of a new intellectual mind-set alongside the sudden and dramatic increase in the sheer volume of circulating works. Contradictions became more difficult to reconcile once Arabists were set alongside Galenists or Aristotelians against Ptolemaists in a single study.56

Consider, in this respect, the way innovations new to print -- such as cross-referencing
and indexing -- functionally complemented an intellectual interest in the systematic comparison and critical evaluation of knowledge that characterized the new science.\textsuperscript{57} Printing complemented the \textit{esprit de systeme} of the age -- the desire to catalogue and organize every topic into a consistent order -- by permitting the use of new devices like pagination, section breaks, running headers, title pages, index cards, standardized copies and so forth, that would be virtually impossible to undertake without mechanized reproduction.\textsuperscript{58}

More subtle forms of "fitness" can be found as well. Consider the way in which the new sciences' stress on detached analytical, "impersonal" modes of reflection and reasoning benefited by the move away from the oral transmission of ideas, to individualized study of standardized texts.\textsuperscript{59} Or consider the way the idea of progress and cumulation of knowledge was encouraged by the duplicative powers of printing, by the sudden increase in the volume of circulated material, and by the way cross-referencing and indexing could facilitate the "building" and synthesizing of existing theories. Multiple reprints and numbered editions made possible a process of critical feedback whereby errors and omissions in an original text could be identified and corrected in subsequent editions.\textsuperscript{60} By contrast, manuscript deterioration was a constant problem in medieval Europe such that enormous energy was channelled into the preservation and re-copying of important texts while countless others were allowed to drift into oblivion. Lack of standardization, localized chronologies, imprecise cataloguing, and oral transmissions can all be seen as further constraints on the idea of progress and cumulation of knowledge. With printing, however, preservation became much less of a concern since multiple copies could be made at diminishing costs. The idea that civilization was progressing away from error through
the winnowing away of false or distorted theories "fits" a communications environment where printed material (if not "knowledge" *per se*) was visibly and quite literally *accumulating*.61

Like the Reformation, the secularization of knowledge and learning that ensued worked against Rome's controlled interpretation of the order of things, gradually overturning the medieval cosmology upon which Papal authority derived its legitimacy. The new communications environment "favoured" the interests of these two social forces, while disadvantaging the papal-monastic information network. As shown in the previous chapter, this network was critical in maintaining the Church's transnational hegemony over much of western Europe and thus of the ideological foundation of the medieval world order. Working in tandem with the ideas and interests of the Protestant Reformation and scientific humanism, printing helped to undercut the intermediary and privileged function of the clergy in medieval society, opening up the reproduction of knowledge to commercial, secular printers whose main concern was not the dissemination of a particular religious cosmology, but rather the accumulation of profit. As Curran attests:

*The development of a lay scribal and print culture also undermined the ideological ascendancy of the Church. The growth of commercial scriptoria and subsequently commercial printing enterprises made it more difficult for the ecclesiastical authorities, who had previously directly controlled the means of book production, to exercise effective censorship. The failure of the Church to maintain its domination over centres of learning in the later middle ages also weakened its grip on the content of elite culture.*62

While the Roman Catholic Church worked frantically to control the new mode of communication through censorship and patronage, it was unable to stem the tide of unforeseen consequences that
were ushered in with the introduction of printing -- a technology it had itself initially applauded. With the development of printing, the Church's dominant place in medieval world order collapsed. The remainder of this chapter examines the way the new mode of communication facilitated the rise of social forces that helped constitute the modern world order.

**The new media environment and the constitution of the new order**

Two social forces whose interests converged were critical in the constitution of the modern world order in Europe. One was the emergence of an urban bourgeoisie committed to commercial exchange, contractual socio-economic relations, and capitalist entrepreneurship. The emergence of this particular social force had what we might call a "levelling effect" on the tangled particularisms of feudal social relations, opening up the possibility of common rule from a single centre. The mere *possibility* might have remained undeveloped were it not for the values that animated this new class of entrepreneurs, who shared a collective interest in some form of centralized rule to satisfy the need for both security and standardization. Coincidentally, their interests were met by centralizing state monarchs, who were willing to provide rationalized, bureaucratic administration of internal affairs in exchange for financing from the urban bourgeoisie to fight external wars. In this way, centralized state bureaucracies -- a primary feature of modern world order -- began to emerge from the cross-cutting, personalized forms of non-territorial rule characteristic of the feudal era. My purpose in the remainder of this chapter is not to provide another historical narrative of this process; the literature on the rise of the modern state in Europe is well-developed. Rather, it is to show the way the change in the
communications environment fuelled the interests of these two social forces -- and thus the transformation of world order -- at this particular historical juncture.

a. *From the oath to the contract*

Socio-economic relations during the High to late Middle Ages were characterized by feudalism -- that is, a hierarchy of personalized, cross-cutting relationships among vassals and lords. This form of personalized rule evolved out of ancient Germanic practices in which the oath of allegiance played a central role in maintaining trust and discipline among warriors. The oath entailed an act of homage whereby one freeman would submit allegiance to another through the ceremonial placing of joined hands between those of the lord, which resulted in a bond of mutual obligation. The ceremony was highly personal, as evidenced by the bodily gestures of submission often involving a kiss as well as the verbal oath and the joined hands, signalling the vassal's allegiance to the lord "by mouth and hands." Feudalism became the dominant mode of organizing socio-economic relations following the decline of the Carolingian monarchy in the 9th and 10th centuries, and declined dramatically around the 16th century. It was most fully developed in France and Germany, and least developed in Italy where ancient Roman traditions persisted and city-life played a more prominent role in society.

Although the oath of allegiance played an important symbolic role in affirming the social bonds between vassal and lord, it was more than just a symbolic gesture insofar as literacy was indeed rare during the High Middle Ages and social relations were in fact primarily characterized.
by oral communications. As Le Goff notes, "the feudal system was a world of gesture and not of the written word." The pervasiveness of the spoken word in both a practical and a metaphorical sense over all of feudal society is perhaps best illustrated, as Clanchy suggests, by the evolution of legal procedure. It is evidenced by the fact that prior to the 13th century parties were given notice to appear in law courts not by a writ, but by an oral summons which was publicly proclaimed by criatores or "criers." Prior to the widespread use of written and printed documents, a great deal of importance was placed on personal, oral testimony as opposed to written documents, which were still considered untrustworthy. Consequently, a person went before the court to have a "hearing." One unfortunate by-product was that the deaf and dumb appear to have had no legal rights in 13th century England. Wills did not rely on written documents but rather persons witnessing the testator making his bequests "with his own mouth"; they "saw, were present, and heard" the transaction. And of course what prevailed in legal procedures was a mere reflection of society at large. For example, business was conducted, even among nascent commercial entrepreneurs, by word of mouth, if not solely because of tradition and habit, then certainly because "documents were bound to be relatively rare until printing made their automatic reproduction possible." With illiteracy the norm, and written documentation rare, socio-economic communications in the feudal era were overwhelmingly oral in nature.

The highly personalized, oral form of rule that constituted feudal society resulted in a complex web of cross-cutting and overlapping lord-vassal mutual obligations that reached across the territory of Europe. If we were to assume the perspective of an aspiring capitalist, the feudal environment would appear to be extremely constraining. Spruyt describes how:
The legal climate was unfavourable for trade given the underdevelopment of written codes, the importance of local customary proceedings, the lack of instrumentally rational procedures, and the crosscutting nature of jurisdictions. Economically, commerce suffered from great variation in coinage and in weights and measures and a lack of clearly defined property rights. Transaction costs were high.\(^73\)

Since money as we know of it today was virtually non-existent, feudal financial obligations consisted mostly of barter, or in-kind transfers.\(^74\) Legal affairs were characterized by what has been called "banal justice," with each locality assuming its own legal particularities -- a situation encouraged by the lack of written laws prior to the 13th century in most of Europe with the exception of parts of southern France and Italy.\(^75\) Secular and ecclesiastical lords used their own weights and measures, with many local lords minting their own coins -- in France alone there were as many as 300 minters.\(^76\) All of this particularism was closely bound up with the personalized, oral form of rule inherent in feudalism, which encouraged variation and localism in socio-economic and legal affairs up until the 13th century -- a point that will be taken up again in the following section dealing with nascent state bureaucracies.

Of course there were few capitalists in the High Middle Ages who would find any problem with what we now consider to be a high degree of "transaction costs." But beginning in the 12th century, a profound economic transformation took hold resulting in what Eric Jones calls "the European Miracle."\(^77\) From a multiplicity of causes -- improvements in agricultural techniques, climate and demographic changes, the growth of international trade -- economic productivity rose and grew more complex.\(^78\) As Ruggie explains, "economic relations became increasingly monetized, and developments in 'invisibles,' including the great fairs, shipping,
insurance, and financial services, further lubricated commerce and helped to create a European-wide market. Out of this dynamic economic interaction many new towns re-emerged that had been dormant since Roman times. And within these towns a new group began to coalesce into a coherent social force: the burghers or town dwellers, or what would later be known as the "urban bourgeoisie." Spruyt astutely points out how these new townspeople shared little common interests with the clergy and feudal lords who thrived on the old institutions:

Thus, coupled with the rise of the towns, a new set of interests and ideological perspectives emerged with a new set of demands. The feudal order -- based on crosscutting jurisdictions and on ill-defined property rights and judicial procedures -- did not fit the burghers mercantile pursuits. Market exchange and trade required abstract contractual obligations with money as a medium.

While Marxists have tended to reduce the emergence of this new urban class solely to the imperatives of the change in the mode of production, as Jones, Ruggie, Spruyt and others point out, the rise of the town dwellers and a commercial entrepreneurial spirit had a multiplicity of causes that cannot be reduced to a single overarching variable. Here, I will not make any attempt to replace the Marxist's master key with one derived from the mode of communication. What I will maintain is that the interests of this new class of urban commercial entrepreneurs flourished in the new communications environment, first with the growth of literacy and the use of written records, and then more dramatically and forcefully with the development of printing. Although Anderson is correct to point out that capitalism set the preconditions for the widespread dissemination of printed material, the relationship between the two is not so easy to disentangle as each, in turn, affected the development of the other. For the rise of capitalism was embedded in, and closely intertwined with, a corresponding transformation in the western
European mode of communication. In other words, the shift from an oral to a print culture was also a shift from the oath to the contract, with all of the consequences for socio-economic organization that ensued. The impersonal bonds of a modern interdependent economy -- organic, as opposed to mechanical, solidarity in Durkheim's terms -- could not be sustained on such a vast level without a high degree of literacy and the permanency and reproducability of printed documents. While nascent capitalist entrepreneurs may have found the oral-manuscript culture of the late Middle Ages to be highly constraining, they thrived in the more hospitable printing environment.

At the most fundamental level, printing complemented the widespread use of what might be called social abstractions -- bills of sale, deeds, court records, licenses, contracts, constitutions, decrees -- that are the essence of modern, contractarian societies. These social abstractions could only emerge, as Stock and Clanchy point out, with a rise in general literacy and a corresponding dependence on written documentation over strictly oral communications -- a process that began, as pointed out in the previous chapter, in the High Middle Ages but was accelerated with the mass reproducability of printing. Printing helped circulate in its many forms a standardized medium of exchange essential for the servicing of a complex division of labour within the newly-emerging urban-commercial centres of western Europe. Consider, in this respect, the widespread use of printed paper currency as opposed to metal coins or other tokens in facilitating a standardized medium of economic exchange. Or consider the dependence of the entrepreneur and the financier on the newspaper, which was an invention new to printing. McKusker and Gravesteijn note that "merchants and bankers in the fifteenth and sixteenth, in
their continuing quest for better ways to speed the flow of business news, turned for help to the most recent innovation in information technology, the printing press.\textsuperscript{84} Thus what might be considered the first forerunner of the newspaper was a published exchange rate printed at the Lyon exchange fairs beginning in the late 15th century, in which the "conto" or fixed exchange rate was circulated in print for those attending the fair.\textsuperscript{85} The Amsterdam Commodity Price Current (\textit{Cours der Koopmanschappen tot Amsterdam}) was published intermittently as early as 1585, and weekly beginning in 1609.\textsuperscript{86} Other commercial and financial newspapers sprouted throughout Europe in the 17th century, including in Augsburg (1592), Bologna (1628), Bolzano (1631), Bordeaux (1634), Danzig (1608), Florence (1598), Genoa (1619), Lille (1639), Lisbon (1610), London (1608), Lyons (1627), Naples (1627), Piacenza (1614), and Verona (1631).\textsuperscript{87} These newspapers served an essential function in providing a standardized publication for the exchange of commercial information. Their presence was both an indication of, and a significant factor in, the rapid growth of urban commercial activity in the 17th century.

At a more practical level, both written and printed materials, and the growth of literacy that naturally accompanied them, were indispensable tools in the day-to-day routines of the urban bourgeoisie. Indeed, standard accountancy practices and record-keeping, such as double-entry bookkeeping, are inconceivable in a purely oral environment. While double-entry bookkeeping emerged in Italy prior to the invention of printing, it was a product of a highly literate-urban populace and spread rather quickly throughout European urban centres once printing and literacy took root elsewhere.\textsuperscript{88} Nor should it be surprising that more ephemeral qualities associated with the capitalist spirit, such as a meticulous rationalism and an abstract cognitive orientation,
flourished in precisely those areas where printing and literacy initially spread the fastest. As a number of theorists have argued, both writing and printing encourage an abstract, rational cognitive orientation by arresting the flow of oral conversation, permitting the comparison and juxtaposition of words and documents, and detaching the content of communications from place, time and personality. Thus in those areas where we find a high rate of literacy and a penetration of printed material, we also find the flourishing of a highly-developed commercial ethos. Perhaps the best example comes from the United Provinces of the Netherlands, where literacy was high and printing was enthusiastically exploited and encouraged by the Protestant state that was incorporated there in the 16th century. According to Dudley, it is no coincidence that many of the defining features of capitalism -- such as the stock exchange and the multinational corporation -- were originally developed in the Netherlands, a region that was in many ways at the forefront of the change in the mode of communication. According to Dudley:

*The result for Dutch society [of exploiting print and literacy to their fullest] was a deeper penetration of market institutions than had existed in previous communities. The examples of the Amsterdam Exchange Bank and the Bourse illustrate this point. The great popularity that these institutions enjoyed from the moment they were found could be possible only in a literate society familiar with the notion that a written document could be just as valuable as gold or silver coins.*

In sum, while the emergence of an urban bourgeois class in early modern Europe was the product of a multiplicity of factors, the social movement as a whole flourished in the new communications environment. Printing not only functionally complemented many of the basic routines of the capitalist entrepreneur, but more fundamentally it provided the means by which social abstractions could circulate on a wide scale, leading to a complex division of labour.
Without the standardization and mass-reproducability afforded by printing, it is unlikely that such a complex penetration of contractual socio-economic relations could have developed as it did. Certainly the oral-manuscript culture of medieval Europe placed significant obstacles in the path of capitalist development. Once that environment changed, however, a complex system of contractarian socio-economic relations began to thrive.

The consequences of this particular distributional change for world order transformation are two-fold: First, the growth of an urban bourgeoisie had what I earlier called a "levelling" effect on patterns of political and economic obligation, at least in urban areas, cutting through the entangled webs of personal loyalties characteristic of the feudal era and opening up the possibility for common rule from a single centre. As Axtmann explains, "The disintegration of feudalism at the 'molecular' level of the manor/village resulted in the displacement of political-legal power upwards to the 'national' level."92 Thus one of the central features of medieval world order -- multiple and overlapping layers of personalized authority -- dissolved among an increasingly important segment of the population.

Second, the rise of a bourgeois class directly contributed to the centralizing drive of state-monarchs by providing finances for standing armies in return for standardized, rational administration of legal and commercial procedures within a territorial space. In Mann's words, the newly emerging capitalists "entered and reinforced a world of emergent warring yet diplomatically regulating states. Their need for, and vulnerability to, state regulation both internally and geopolitically, and the state's need for finances, pushed classes and states toward
a territorially centralized organization." In this respect, the rise of the urban bourgeoisie can be seen as a transitional distributional change insofar as it not only helped to dissolve the architecture of medieval world order (specifically, feudal socio-economic relations), but it gave positive impetus to, and was a constitutive force in, the emergence of modern world order (specifically, the centralization/standardization of territorial rule from a single centre). The following section takes a look at this process from the perspective of centralizing state bureaucracies.

### b. The emergence of modern state bureaucracies

As Garrett Mattingly has pointed out, precursors to the modern state can be traced back far into antiquity. The first bureaucracy arose in ancient Sumeria alongside the development of writing, which, as many have pointed out, is a necessary precondition for its development. However, the roots of the legal and fiscal systems exclusive to modern state bureaucracies in Europe date from the 11th and 12th centuries and, not surprisingly, were closely bound up with the re-establishment of secular literacy and the lay use of written documents. Technical innovations originating in northern Italian communes -- such as administration by an impersonal salaried bureaucracy serving for a limited term and double-entry bookkeeping -- provided important precursors to the form that state bureaucracies ultimately took. Certain ideas were also influential in giving birth to state bureaucracies in Europe, especially the rediscovery of Roman law which helped fix the notion of a distinct "public" realm. And landmark treatises -- such as Richard Fitzneal's *Dialogue on the Course of the Exchequer* written during the reign
of Henry II (1154-1189) -- helped to define the impersonal role of the bureaucratic administrator to the state as an abstract entity. However, the preconditions for centralized administration depended not just on ideas, but more crucially, on the technological capacity to carry them out as well -- a distinctly absent feature of rule for most nascent states in medieval Europe.

Moves towards centralization on the part of aspiring medieval monarchs were difficult to sustain as a result of the constraints of the prevailing social, economic and political environment which, as outlined earlier, was overwhelmingly constituted by personalized, oral communications. Thus while we find the shells of modern states beginning to develop as early as the 12th century in countries like England where written administration was more advanced, the norm for the rest of Europe was a constant tension between the forces of localization and centralization. Long-range administration based on networks of personal or blood ties was ineffective for sustaining cross-generational rule. It had a tendency to dissolve into petty fiefdoms with local privilege -- a pattern that was repeated often throughout the Middle Ages as evidenced, for example, by the dissolution of the Carolingian and Ottonian dynasties. Medieval political rule, in Poggi’s words, "possessed an inherent tendency to shift the seat of effective power, the fulcrum of rule, downward toward the lower links in the chain of lord-vassal relations." Consequently, the political map of Europe in the Middle Ages was determined, accordingly to Mattingly, not so much "by geography, or national culture, or historic development" as it was "by the irrelevant accidents of birth and marriage and death."  

The complexity by which personalized, crosscutting lord-vassal entanglements took root
in the Middle Ages made any attempts at centralization and rational administration within a
territorially-defined space extremely difficult for nascent states. Prior to the rediscovery of
Roman Law, there was no conception of a distinction between private legal and fiscal
prerogatives of local authorities and that of a public realm. In the case of local lords, "On land
under his jurisdiction, public economy and the fiscal obligations related to it were identical with
the domestic economy of his private household."  

Raising consistent state revenues -- especially from one generation of leaders to the next -- was virtually impossible as a typical medieval ruler "knew the total of neither his income nor his outgoings" of his entire domain.  

One consequence of this entangled particularism was that Kings who wanted revenues from their
domain regularly travelled with a large entourage in order to "consume the produce of their
scattered holdings." And since each hommage of lord-vassal obligation was entered into
intuitu personae (that is, personally) the form of rule varied enormously from relationship to
relationship and region to region. According to Poggi:

> the lord's relationship to the ultimate objects of rule, the populace, was mediated
differently by each vassal. The size of the fief, the exact terms on which it was
granted, the rights of rule over it that remained with the lord or that were vested
in the vassal -- as these aspects of the basic relationship varied, so did the
modalities and content of the exercise of rule.

Nonetheless, throughout the 13th and 14th centuries a gradual consolidation and
centralization of state authority ensued despite occasional setbacks -- a kind of "two-steps
forward/one-step backward" process. Although this process was driven by a multiplicity of
factors, primary impetus is given by most theorists to the imperatives of war.  

Over the course of this period, organized warfare developed as a practice among larger territorial units -
- an evolution fuelled by innovations in military technology.\textsuperscript{107} In the context of this new dangerous environment, an imperative was placed on the maintenance of a standing army, and where relevant a war fleet, that could be summoned by a central ruler.\textsuperscript{108} Contrary to the universalist aspirations of neo-realists, it was at this time that a Hobbesian state-survival mentality first took hold as the basis of inter-state relations.\textsuperscript{109} The imperatives of war necessitated a turning inward on the part of central rulers to maintain domestic stability and order, and, more importantly, to find a way to raise constant revenues to finance the war machine.\textsuperscript{110} As outlined above, state rulers found willing allies in the urban bourgeoisie whose interests in order and rational administration converged with those of the central rulers. And happily for the state, the new townsmen were able and willing to provide money in the form of taxes in exchange for the domestic services provided by the state. The specific form that this relationship took varied from state to state, as Tilly and Mann have documented.\textsuperscript{111} But throughout Europe from the 15th to the 17th centuries, the general phenomenon of modern state bureaucracies under territorially-distinct, absolutist rule began to emerge.

Although the movement towards modern state bureaucracies was undoubtedly spurred on by the imperatives of waging interstate war, it was a process that thrived in the new communications environment, which provided the tools necessary for rational bureaucratic administration. Indeed, as pointed out above, a necessary precondition for the emergence of bureaucratic administration is some form of writing. Thus it is not surprising that the development of modern state bureaucracies in Europe was closely bound up with the spread of secular literacy in the High Middle Ages. Like other forms of "fitness" described throughout
this study, the relationship between the new communications environment and this particular political development was mutually reinforcing as pressures for bureaucratization drove secular literacy and a demand for standardized communications, while the development of the latter -- especially the emergence of the printing press -- in turn vastly augmented the scope and scale of bureaucracies. This is evidenced by the fact that, as Febvre and Martin point out, early printers thrived on state commissions for printed administrative records, with state policy actively encouraging the creation of large, national publishing houses. The printed products emanating from these large national publishing houses in turn increased the size of bureaucratic documentation, which necessitated more personnel. This functional complementary manifested itself along a number of different dimensions, which helped reinforce the development of state bureaucracies at this particular historical juncture (i.e., from the 15th century onwards).

The most obvious way in which the new communications environment favoured the interests of centralized state rulers was by facilitating more effective and systematic rewards and sanctions in the governance of outlying regions, particularly through the standardization of legal institutions and systems of direct taxation. As Tilly affirms, "Almost all European governments eventually took steps which homogenized their populations..." With means of standardized documentation provided by printing, state rulers could effectively cut through and transcend the vagaries of personalized, feudal obligations that so often produced discrepancies among locales throughout the King's domain. With printing, regularized and impersonal procedures could be established that did not vary across a territorially-defined space. As an illustration, "between 1665 and 1690 Louis XIV promulgated ordinances and codes that uniformly regulated over all
of France such diverse matters as civil and criminal court procedure, the management of forests and rivers, shipping and sailing, and the trade in black slaves."¹¹⁵ Printed, standardized documentation also fuelled bureaucratic specialization, which had been proceeding apace since the 13th century in more developed bureaucracies, like France and England. For example, the number of state officials employed in the French Chancery rose from 30 individuals in 1316 to more than 120 by the end of the 15th century. To take the case of England, sixty individuals were employed in its Chancery in the middle of the 13th century; by the 15th century, more than a hundred were employed at the Court of Common Pleas alone.¹¹⁶ And the increasing bureaucratic specialization, in turn, generated yet more demands for printed and written documentation. In Guenée's words, "The proliferation of offices and officials inevitably led to a proliferation of the documents without which State action would be impossible and on which its power was based."¹¹⁷

The state's interest in homogenization, as Tilly calls it, was closely bound up with a desire not only to more efficiently and consistently extract financial revenues, but also to maintain domestic order and security through surveillance of the population and territory -- an interest that thrived with the availability of printing. Although many theorists have commented on this interest in a surveillance capacity, one of the more compelling interpretations is Michel Foucault's discussion of the "disciplinary state."¹¹⁸ Foucault argues that in the transition to the modern state, coercion and overt violence as tools for social order were gradually replaced by a more impersonal "micro-politics" of discipline designed to morally regulate or "normalize" individuals through institutional regulation and bureaucratic administration.¹¹⁹ Though Foucault
is more concerned with the ideas that lay behind this transition, it is easy to see the way the material instruments of technology at the disposal of state administrators were crucial in facilitating this re-orientation.120

Perhaps the best example of the way printing helped to empower the "disciplinary state" is the reproduction of printed maps used for administrative purposes. As Barber notes with respect to England, by the 16th century state ministers "came to expect a greater precision in maps than had their predecessors, and several became more sophisticated in their evaluation of, and their awareness of the potential uses of, maps for government." And he goes on to say that the government of the time "seems to have shown a growing appetite for printed maps, which were cheaper, increasingly plentiful, and less prone to scribal errors in transmission than their manuscript counterparts."121 In 1610, a State Paper Office was formally established in England to house the ever-increasing number of official maps.122 Likewise, Buisseret notes with respect to France: "At the time of Louis XIV's accession...French governing circles possessed a well-developed sense of the usefulness of maps, and there were cartographers capable of responding to their needs....[through] an abundance of presses, mostly concentrated in Paris, capable of printing and diffusing large maps in considerable quantities."123 For example:

For economic and financial planning, maps were commissioned to show where the various fiscal divisions, or generalites, ran, and where specific taxes like the gabelle (salt tax) were to be paid....Other maps were ordered when great public works like the canal du Midi were being planned; this canal had a very rich cartography associated with it. Others, again, were commissioned to show the sites of the mines in France, or the nature and extent of its forests.124

Another example of the way the printing environment fuelled the disciplinary state was
in the area of public education, as Luke in particular has shown. Consider in this respect the way printing made feasible standardized public "examinations" through which each individual was compelled to pass, helping to create a cumulative, individual "archive" of persons under the state. Luke notes how "Printing enabled the 'power of writing' to become universalized and standardized; teachers like wardens examined, evaluated, recorded, and described those in their charge according to standardized (administrative) forms based on underlying classificatory criteria." These standardized, printed examinations helped to instill a sense of rank in the population which, as Foucault describes, defined "the great form of distribution of individuals in the education order....an alignment of age groups, one after another; a succession of subjects taught and questions treated..." In this way, standardized public education in the form of printed school textbooks and printed school ordinances served the disciplinary interests of the state, which promoted a uniformity of belief among the population through compulsory schooling of the young.

In sum, the movement towards modern state bureaucracies, which began in the High Middle Ages, was "favoured" by the change in the mode of communication, first with the gradual increase in secular literacy and then, more dramatically, with the introduction of printing. Printing fuelled the strategic interests of nascent state bureaucracies by providing the means by which standardized documents -- from school textbooks, to public ordinances and fiscal regulations, to maps of the realm -- could be mass reproduced and disseminated. In this way, printing provided the tools by which centralizing rulers could promote homogenous policies across territorially-defined spaces and thus dissolve the cross-cutting and overlapping jurisdictions.
characteristic of the medieval world order. Moreover, as printing provided a way by which documents could be mass produced at little cost, a system of inter-generational rule could be established thus freezing the tendency repeated throughout the Middle Ages for centralized rule to wither following the death of influential personalities.

Conclusion

In this chapter I have described how the introduction of printing in medieval Europe brought about specific distributional changes that altered strategic incentives, helping to empower certain actors and social forces at the expense of others. Most immediately affected by the advent of printing was the transnational authority of the Roman Catholic Church, which had come close to establishing a theocratic papal government over much of western Europe in the High Middle Ages based on a monopoly of the reproduction of knowledge. The Church’s preeminent position in medieval world order was undercut by forces whose strategic interests coincided with, and were augmented by, the advent of printing -- the Protestant Reformation and scientific humanism. The new communications environment facilitated the interests of these two social forces by permitting the mass reproduction and widespread transmission of ideas outside of the papal-monastic network. The Church’s interests, on the other hand, were significantly disadvantaged by the change in the mode of communication, as evidenced by its explicit condemnation of the printing press once its full potential had been unleashed.

The chapter also explored the way in which distributional changes associated with printing
helped facilitate constitutive features of modern world order: specifically, contractarian socio-economic relations among the new urban bourgeoisie, and modern state bureaucracies. The printing environment "favoured" the demands of contractarian socio-economic relations by permitting the widespread use of social abstractions crucial to modern, interdependent economies. This particular social force was vital to the development of modern political rule insofar as its interests in standardization and order converged with those of centralizing state monarchs, who were willing to provide domestic stability in exchange for the ability extract revenues through taxes. The capabilities of printing -- especially the mass reproduction of standardized documents -- also helped to empower the disciplinary state, which had a vested interest in both the homogenization of the population and the standardization of administration. Although these distributional changes were crucial in the medieval-to-modern transformation of world order, they do not tell the whole story. The next chapter explores the relationship between the change in the mode of communication and the transformation of social epistemology.

Notes


5. See Le Goff, Medieval Civilization, p. 148.


10. Ibid., p. 375.


12. Ibid., p. 172.

13. For a discussion of works that make such strong claims, see Eisenstein, The Printing Press, pp. 303-329.


15. Ibid., p. 134.


19. Ibid., p. 17.

20. Ibid.


22. Ibid.

23. Edwards, Printing, Propaganda, and Martin Luther, p. 15.

24. Ibid.

25. Ibid.
26. Ibid., p. 16.
40. Ibid., p. 355.
41. Ibid., pp. 415-416.
43. Ibid.
44. As related in Edwards, Printing, Propaganda, and Martin Luther, p. 14.


52. See Le Goff, Intellectuals in the Middle Ages, pp. 107-119; and Cantor, The Civilization of the Middle Ages, pp. 442-448.


57. Ibid., The Printing Press, p. 517.

58. Ibid., pp. 88-113; On the esprit de systeme, see Foucault, The Order of Things.


61. On the relationship between the idea of progress and the mode of communication, particularly as it is expressed by thinkers such as Condillac and Condorcet, see Heyer, Communications and History, Part 1. The Eighteenth Century.


63. The classic work here is Bloch, Feudal Society, Vols. I and II.


67. See Stock, *The Implications of Literacy*, for a detailed discussion of literacy levels in different regions and periods throughout the Middle Ages.


69. Clanchy, *From Memory to Written Record*, p. 272.


74. *Ibid.*, p. 537; See also Braudel, *The Structures of Everyday Life*, pp. 436-477 for a lengthy discussion of money and barter from the late Middle Ages through to the 18th century.


83. Stock, *The Implications of Literacy*; and Clanchy, *From Memory to Written Record*. 138

85. Ibid., p. 23.

86. Ibid., pp. 43-84.

87. See Ibid.


89. Of course the classic work on the capitalist spirit is Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, [Translated by Talcott Parsons] (New York: Charles Scribner's Sons, 1958). However, given Weber's thesis linking the rise of the capitalist ethos to religious impulses, it is not surprising that he pays no attention to the change in the mode of communication at the time - - a shortcoming that has been noted by a number of communications theorists, the most vociferous of which is undoubtedly Eisenstein. See Eisenstein, *The Printing Press*, pp. 378-402.


96. This is the thesis of Clanchy's *From Memory to Written Record*; See also Joseph Strayer, *On the Medieval Origins of the Modern State*, (Princeton: Princeton University Press, 1970).


98. On the rediscovery of Roman Law and its relation to centralizing state bureaucracies, see

99. See Cantor, The Civilization of the Middle Ages, pp. 398-399; See also Clanchy, From Memory to Written Record, p. 19.


102. Webber and Wildavsky, A History of Taxation, p. 149.


104. Ibid., p. 168.

105. Poggi, The Development of the Modern State, p. 27;

106. Otto Hintze once claimed (perhaps too strongly) that war was "the flywheel of the whole political enterprise of the modern state." As quoted in Axtmann, "The formation of the modern state," p. 29. A good overview of the "war-made-the-modern-state" thesis is provided in Axtmann's article. For other sources, see the following endnote.

107. The definitive sources here are McNeill, The Pursuit of Power; Mann, Sources of Social Power; and Tilly, Coercion, Capital, and European States.

108. For an outstanding (and relatively succinct) narrative of these processes, see Poggi, The Development of the Modern State, Chapter IV.

109. For the contrary view, see Waltz, Man, the State, and War; and Waltz, Theory of International Politics.

110. For a quasi-Marxist, though widely accepted, account see Anderson, Lineages of the Absolutist State; See also James Anderson and Stuart Hall, "Absolutism and Other Ancestors," in Anderson (ed.) The Rise of the Modern State, p. 31.

111. Tilly, Coercion, Capital and European States; and Mann, Sources of Social Power.

112. This is Clanchy's thesis in From Memory to Written Record.


116. These figures are taken from Guenee, States and Rulers, p. 127.

117. Ibid.


119. For an overview discussion of Foucault's ideas in this respect, see Axtmann, "The formation of the modern state," pp. 38-40.

120. Foucault himself briefly alludes to the crucial role played by documentation, or what he calls a "network of writing," as part of the mechanism of discipline, but is remiss in not mentioning print in this regard. See Discipline and Punish, p. 189. For discussion which argue that Foucault is remiss in not discussing print, see Luke, Pedagogy, Printing and Protestantism, p. 3; and Heyer, Communications and History, pp. 141-155.


122. Ibid., p. 83.


124. Ibid., p. 99.


126. Ibid.


Chapter Four: Print and the Medieval to Modern World Order Transformation: Changes to Social Epistemology

Introduction

While distributional changes facilitated by the new mode of communication help explain the transition from the medieval to the modern world order, they do not tell the whole story. Ruggie explains that:

*The demise of the medieval system of rule and the rise of the modern resulted in part from a transformation in social epistemology. Put simply, the mental equipment that people drew upon in imagining and symbolizing forms of community itself underwent fundamental change.*

In this chapter I turn to the second of the conceptually distinct effects that arise from a change in the mode of communication: changes in social epistemology. As outlined in the theoretical chapter, social epistemology refers to the web-of-beliefs into which a people are acculturated and through which they perceive and act on the world around them. It encompasses all of the socially constructed ideas, symbolic forms, and cognitive biases that frame meaning and behaviour for a population in a particular historical context. According to the ecological holist perspective advanced here, social epistemology is not a mere "superstructure" that is ultimately reducible to some material "base," but has an independent, constitutive effect on the nature or character of politics and social order. Since these social constructs, symbolic forms, and cognitive biases that comprise the social epistemology of an era obviously blanket a wide spectrum of diverse traits, for analytical purposes we must break them down into some
manageable (though not necessarily exhaustive) set. In this chapter (and in chapter seven) I examine three elements of social epistemology: individual identity; spatial biases; and imagined communities. As will be shown below, changes in all three of these elements of social epistemology were crucial in providing what might be called the "metaphysical" underpinnings of modern world order.

The purpose of this chapter is to trace how changes in these defining symbolic forms and social constructs were in no small part facilitated by the shift in the mode of communication -- namely, the development of printing. This is not to say that they were, in a crude monocausal sense, generated by it, nor even that printing was the sole facilitator. To be sure, the emerging modern social epistemology was a product of many different causal factors having roots that reach back into the late Middle Ages and beyond. Nevertheless, by viewing changes in social epistemology through the lens of the mode of communication we can see how a comfortable "fit" obtained between certain symbolic forms and printing that may help explain why they resonated so strongly at this particular juncture. Printing functionally complemented some of the important latent components of social epistemology that would later be so important in providing the basis upon which political authority was differentiated in modern Europe.

a. Individual identity

Probably the most striking and important shift from the medieval to the modern cosmology was in terms of individual identity. As Dumont explains, there are two different
notions of individualism: one, the indivisible sample of the human species found in all societies and cultures; and, two, "the independent, autonomous and thus (essentially) nonsocial moral being, as found primarily in our modern...ideology of man and society."² Only the latter, ideological notion of "individualism" concerns us here. Dumont points out that "some of us have become increasingly aware that modern individualism, when seen against the background of the other great civilizations that the world has known, is an exceptional phenomenon."³ In other words, the modern notion of individualism is a historically-contingent moral idea, one not linked to all human beings in all times and places, despite the best intentions of some naive liberal teleologists or methodological individualists to portray it as such.

Certainly elements of modern individuality can be found in the Christian religion, which upheld the possibility of every person's salvation regardless of status in the temporal realm (though here individuality was subordinate within a strictly hierarchical view of natural order).⁴ And traces of what might be considered characteristic features of "modern" individuality can be seen in sporadic flourishes among medieval intellectuals arising as early as the 12th and 13th centuries.⁵ Another precursor can be found in the teachings of Franciscan piety, which furthered a religion centred on personal experience and private devotion, and which was popular within the newly emerging towns of the 13th century.⁶ But it is only in modern Europe that individualism is first exalted as a defining principle of individual identity in marked contrast to the medieval "Chain of Being."⁷

The individual's place in the medieval order followed the Augustinian view of "the
arrangement of equal and unequal beings, appointing to each the place fitting for him."\(^8\) Thus inequality and difference were taken for granted parts of an organic image of society, one that expressed functional differentiation among constituent parts. The clearest expression of this idea was the division of society into the Three Orders: the *bellatores*; the *oratores*; and the *laboratores*.\(^9\) As Lyon explains, a person's place in medieval cosmology was the antithesis of modern individualism:

> When time and space have a beginning and an end men are also fixed in status, and the whole message of their culture is to remind them of that place and to warn them that only sorrow can result from any attempt to break the chains that tie them to family, trade, religion, and class....Such a lock-step is consistent with a world in which the final metaphysical solutions had been willed into being, and the person who brooded upon himself was considered ill with melancholy from an excess of black bile in his system.\(^10\)

Most theorists tend to give weight in the emergence of individualism to historical and sociological factors that were outlined in the previous chapter, especially those concerning the rise of towns and commercialism, and the individualist thrust of Protestantism which helped break through the "natural" order of the Great Chain of Being. C.B. Macpherson, for example, has written of a distinct "possessive individualism" that crystallized among the urban bourgeoisie in early modern Europe -- "a conception of the individual as essentially the proprietor of his own person or capacities, owing nothing to society for them."\(^11\) This possessive individualism was not exclusive to moral theorizing, but was echoed throughout many spheres of society. It was mirrored in the prevailing "atomism" that informed both politics and science, as illustrated in the social contract theorizing of Hobbes and Locke and the radical individualism and inner compulsion expressed by Rene Descartes.\(^12\) As Charles Taylor explains, atomism echoed "those
philosophical traditions...which started with the postulation of an extensionless subject, epistemologically a *tabula rasa* and politically a presuppositionless bearer of rights."

As many political theorists have explained, this modern sense of autonomous individuality found its world order counterpart in the notion of state sovereignty, which, like individualism, "betokens a rational identity: a homogenous and continuous presence that is hierarchically ordered, that has a unique centre of decision presiding over a coherent 'self', and that is demarcated from, and in opposition to, an external domain of difference and change that resists assimilation to identical being." Indeed, the two (individualism and state sovereignty) are complementary ontological counterparts. Just as politics and society within emerging states gave way to a notion of interactions among atomistic actors, so too did the picture of interactions among political units. Ruggie in particular has shown how this "self-image" of individuals-as-atomistic-actors was gradually transposed onto the world order sphere, with territorial rulers seeing inter-state politics as a whole through the same lens -- that is, as "atomistic and autonomous bodies-in-motion in a field of forces energized solely by scarcity and ambition." Likewise Dumont explains how "the hierarchical Christian Commonwealth was atomized at two levels: it was replaced by a number of individual States, themselves made of up individual men." This self-image is reflected in Hobbes' view of the state as a "multitude so united in one person." In the words of Otto Gierke:

*The people is made co-extensive with the sum of its constituent units; and yet simultaneously, when the need is felt for a single bearer of the rights of the People, it is treated as essentially a unit in itself. The whole distinction between the unity and the multiplicity of the community is reduced to a mere difference of point of view, according as *omnes* is interpreted as *omnes ut universi* or as *omnes*...*
What role did printing play in this shift of world views so central to the constitution of modern world order? In *The Invention of the Self*, John Lyon asserts that "the invention and spread of movable type is probably the most important mechanical contributor to the idea of the unique self..." Of this contribution, there are many particular aspects. First, printing contributed to the distinctly modern idea of the sovereign voice, the single, authoritative individual. Ong explains that "the printed text is supposed to represent the words of an author in definitive or 'final' form....it tends to feel a work as 'closed', set off from other works, a unit in itself." Today, such notions are taken for granted; yet it was not always so. Only with the advent of printing did the idea of a "copyright" begin to take shape. For example, it was not until 1557 that a Stationers' Company was incorporated in London to oversee and ensure printer-publisher rights.

Prior to that time, the medieval "intertextual" practice held sway. According to Chaytor, "to copy and circulate another man's books might be regarded as a meritorious action in the age of manuscript; in the age of print, such action results in law suits and damages." The Middle Ages did not possess the same conception of "authorship" that has prevailed throughout modernity -- a conception that may, in fact, be eroding with the emergence of hypermedia today (as will be shown in chapter seven). Indeed, no special Latin word even existed with the exclusive meaning of plagiarist or plagiarism. The lack of a clear conception of the "author" was due in no small measure to the fact that medieval manuscripts were often the product of many authors, or even none to which the work could be attributed, as many were left
Glosses and marginal comments were habitually worked into subsequent copies of texts. A good example is the Magna Carta, which survives today in a number of non-identical copies, varying because scribes made revisions of their own during the re-copying process. Susan Reynolds explains that exact duplication was not the scribe's overriding concern: "The charter mattered, but what mattered to both compilers of statute books and writers of chronicles was its gist, not its exact words." As Ong points out:

*Manuscript culture had taken intertextuality for granted. Still tied to the commonplace tradition of the old oral world, it deliberately created texts out of other texts, borrowing, adapting, sharing the common, originally oral, formulas and themes...*  

The lack of any conception of authorship may have also been due to the fact that as the dissemination of popular literature depended mostly on oral transmission, it was impossible for writers to maintain any literary rights, should they have even had the desire to do so in the first place. Assuming medieval writers did want selfishly to guard their status as "authors" of particular works, their only alternative would be to hoard their own material. "But if they did that," Febvre and Martin point out, "it was impossible for them to enjoy the satisfaction every artist seeks by broadcasting his work to as large an audience as possible." With the introduction of printing, the benefits of authorship, in terms of both personal fame and fortune, became more pronounced. "Contemporary writers who had their names attached to hundreds of thousands of copies of their works became conscious of individual reputation." The "drive-for-fame" as an end in itself became a conscious motivating factor, one that as Eisenstein suggests, may have been encouraged by the "immortality" afforded by the printed word.
Notions of individual identity exclusive to modernity in Europe were also reinforced by the practice of reading in a print culture. Medieval culture, despite the existence of writing, was still very much an oral culture. The written word was read aloud and was often deliberately constructed for oral performance. It was a communal activity. Beginning around the 12th century, however, silent reading began to emerge, first in monasticist scriptoria and then eventually spreading to universities and among lay aristocracy by the 15th century. This new interest in solitary, silent reading flourished in the printing environment, which permitted the reproduction of smaller, more portable books. In this way printing helped to define the social movement of the time to "create a new private sphere into which the individual could retreat, seeking refuge from the community."

Private reading of printed books in a quiet place away from others in turn fostered solitary reflection, and private, individual points of view. Intellectual work became "a personal confrontation with an ever-growing number of texts," which encouraged, among other things, a more personal piety "not subject to the discipline and mediation of the Church." Chartier calls this "privatization" of reading "undeniably one of the major cultural developments of the early modern era." This new sense of privacy fostered by print may have encouraged some of the reconfigurations Ruggie describes:

*Consider, for example, analogous changes in the linguistic realm, such as the growing use of vernaculars, and the coming to dominance of the 'I-form' of speech -- which Franz Borkenau described as the 'sharpest contradistinction between I and you, between me and the world.' Consider analogous changes in interpersonal sensibilities, as in new notions of individual subjectivity and new meanings of personal delicacy and shame. These changes, among other effects, led to a spatial reconfiguration of households, from palaces to manor houses to*
the dwellings of the urban well-to-do, which more rigorously demarcated and separated private from public spheres and functions. 38

While no doubt the shifts Ruggie describes have their origins in a constellation of factors, we can see how printing encouraged such changes in "interpersonal sensibility" by detaching the individual from the communal performance of a manuscript culture, thus fostering isolation and separation. In print culture, private reading mixed with and encouraged new forms of literary intimacy and explorations of the self, which, in turn, demanded a more clear delineation of private spaces within households. 39 Ong elaborates:

Print was also a major factor in the development of the sense of personal privacy that marks modern society. It produced books smaller and more portable than those common in a manuscript culture, setting the stage psychologically for solo reading in a quiet corner, and eventually for completely silent reading. In manuscript culture and hence in early print culture, reading had tended to be a social activity, one person reading to others in a group....private reading demands a home spacious enough to provide for individual isolation and quiet. 40

In sum, the gradual rise of individualism as both a prevailing symbolic form and a predominant moral idea was encouraged by the change in the mode of communication to printing. The mass production of printed material gave rise to new notions of authorship and copyright, while the portability of printed books facilitated the trend towards silent, private reading and intellectual isolation and reflection. The pervasiveness of individualism and atomism as symbolic forms was in turn reflected in the architecture of modern world order, which transposed individual identity to the inter-state sphere and thus helped to dissolve the Christian commonwealth of the High Middle Ages into autonomous sovereign state units.
b. Spatial biases

As outlined above, political identification at both the individual and state levels came to focus on an autonomous centre, "a single fixed viewpoint" in Ruggie's words. Corresponding with this emerging self-image was a more rigid demarcation of political space, a clear separation between insiders and outsiders. In other words, spatial representations of political community became more pronounced in contrast to the medieval world order where borders were less fixed, and faded into one another at certain points. In Dodgshon's words, "The novelty in the way early states territorialised themselves stemmed from the fresh concepts which they imputed to spatial order." Once again, the movement towards more rigid, linear demarcations of political space was the product of a multiplicity of causes reaching back into trends that originate in the Middle Ages. But one reason why this spatial bias resonated so strongly was that it was complemented by the surface form and presentation of printing -- especially its visual bias and linear representation.

As historians of the medieval imagination describe, medieval political rule was not conceptualized by the people of the time in spatio-territorial terms. It was Christendom that defined reality, and here the material world crossed over easily into a spiritual world beyond. Indeed, nature was replete with abstract signs of the sacred, and geography was subordinated to a hierarchical conception of the universe. Notions of reality were more intense and fluid, and less exacting than our own. Harvey notes how "external space was weakly grasped and generally conceptualized as a mysterious cosmology populated by some external authority,
heavenly hosts, or more sinister figures of myth and imagination." The absence of space as a basis upon which to demarcate political authority no doubt reflected the complex, heterogenous nature of rights and obligations of the feudal era, but more subtly, it also reflected the prevailing oral-aural bias of communications. "Hearing," much more than "seeing," predominated both metaphorically and in actual practice. Clanchy describes how "medieval letter script was understood to represent sounds needing hearing." Thus John of Salisbury was not out of the ordinary when referring to letters as *vocum indices*, or "indicators of voices." Consider in this respect the way scrutinizing accounts was referred to as "auditing" -- a label that reflects the fact that individuals primarily had texts read aloud to them even when undertaking commercial accounting.

By contrast to the medieval world order, modern patterns of rule in western Europe came to be seen in terms of a rigidly compartmentalized political space. This linear spatial bias was most starkly apparent in the transformation of European maps, which by the 15th century were "highly linear, incredibly precise...partitioned into distinct parcels, and continuous in the sense that, with only a few exceptions...it is entirely filled." The ideal of political authority gradually crystallized into a sense of spatial exclusion -- into mutually-distinct, contiguous territorial spaces. Flat, rigid, and compartmentalized blocks of sovereign territories increasingly defined the legitimate mode of individuation in modern Europe. What accounts for this shift to a concern with rigid spatial representations of political order? The short answer is no one single variable. The "revolution in the European way of 'seeing' the world," as Buisseret explains, "no doubt emerged from a multiplicity of causes."
Certainly the prevailing notions associated with Euclidean geometry and Newtonian physics were crucial components in determining the cultural forms of the period, as were changes in cartography which accompanied expanding commercial interests around the globe.\textsuperscript{51} The rediscovery of Ptolemaic cartography, which imagined how the globe would appear from a vantage outside and looking down on it, coincided with both a commercial and a security interest in the surveillance of territorial space.\textsuperscript{52} And the confluence of the new physics with this reinvigorated penchant for map-making was especially important in accustoming Europeans to the idea that the world "might be described under a system of mathematical coordinates."\textsuperscript{53} Also decisive were changes in Renaissance painting emphasizing single-point perspective, which "conceives of the world from the standpoint of the 'seeing-eye' of the individual."\textsuperscript{54} New forms of realism in artistic expression helped overturn the symbolism of medieval art which had subordinated accuracy of visual representation to religious hierarchy.\textsuperscript{55}

Given less attention than these other factors by some authors, but no less consequential, was the shift in the mode of communication to printing. One obvious, indirect way in which printing complemented this new mentalité was through the mass distribution of printed maps—a topic that was discussed in the previous chapter with respect to state surveillance. The sheer numbers of printed maps circulating (particularly in standardized school texts) gradually accustomed Europeans to visual, grid-like representations of political order, to sharp divisions between "insiders" and "outsiders." Through their standardization and reproduction, they helped infuse a sense of order and fixity to national borders. But more subtly than the dissemination of maps, printing also helped orient communications in general away from the prevailing oral-
austral bias of the Middle Ages to the visual bias of the early modern period. The dominant mode of communication shifted from speaking and hearing to silent, visual scanning of standardized printed documents. McLuhan elaborates on the connection:

*Psychically the printed book, an extension of the visual faculty, intensified perspective and the fixed point of view. Associated with the visual stress on point of view and the vanishing point that provides the illusion of perspective there comes another illusion that space is visual, uniform and continuous. The linearity, precision, and uniformity of the arrangement of movable types are inseparable from these great cultural forms and innovations of Renaissance experience.*

As McLuhan was fond of noting, printing is a "ditto device" that situates the word in space with precision. It is the mechanical reproduction of "the exactly repeatable visual statement." Initially, early printed books resembled the idiosyncratic surface appearance of medieval manuscripts, varying in style and presentation depending on the printer or the region. But the nomadicism of the early printers, coupled with the expenses of cutting individual type founts and punches, led to a more uniform type-set over time. Once uniform, the surface appearance of the printed page, with its carefully measured margins flush along each border, its ruled lines and standardized roman lettering, conveyed a sense of visual order and linearity that mirrored the spatial bias of the times. A number of innovations new to the printed text, such as alphabetical ordering, sectional divisions, and indexes further complemented an abstract, rational cognitive orientation favouring uniform spatial order and linearity. And the spread of standardized, printed pages, in turn, helped to shift the bias of communications away from speaking and hearing to silent, visual reading. A new "perceptual field" opened up, in Lowe's words, as typography became embedded in western European culture. This perceptual field was
characterized by "the primacy of sight" and the corresponding "order of representation-in-space" facilitated by printing and "evident in the town planning, road construction, and landscape gardening of the period."60

As with the new physics, geometry and cartography of the time, a print culture also contributed to the spatial orientation of modern world order: visual, rational, linear thinking translated into a highly rigid and compartmentalized ideal view of political rule -- an ideal to which state practice and the map of Europe gradually conformed. Printing helped re-orient the bias of communications away from speaking and hearing to silent reading and visual order. Without the standardization of printing and the gradual increase in literacy that accompanied the mass distribution of printed material, the overwhelmingly oral-aural bias of the medieval period might never have been dissolved. The early modern stress on linear, parcellized, territorially-discrete units of political authority flourished in the new typographic media environment where the mode of communication was predominantly through the linear, standardized printed page.

c. Imagined communities

One of the most important consequences of the new mode of communication for social epistemology as it relates to world order was the way it helped to foster the emergence of a new, distinctly modern, imagined community: the nation. The development of printing helped fuse the idea of a distinct national language with a sense of common identity that would gradually become one of the central defining features of the modern European world order. As with other
symbolic forms and social constructs discussed in this chapter, printing did not generate nationalism; its roots can be traced back prior to the development of the printing press into the Middle Ages. However, as will be argued below, it is unlikely that nationalism would have developed its essential "linguistic core" were it not for way in which printing standardized and fixed vernacular languages in early modern Europe. Furthermore, printing encouraged both directly and indirectly the "homogenization" drive undertaken by centralizing monarchs, which in turn gave rise to an imagined community based on a shared standardized language.

As with most other characteristics of modernity, a form of proto-nationalism can be traced back into the late Middle Ages.\(^6^1\) Evidence of a fermenting national consciousness can be found in country names: by 1000 the word *Polonia* began to appear; in the 12th century, *Catalonia*; in 1204 Philip Augustus used the description *rex Franciae* for the first time to refer to the *Regnum Francie*, or the Kingdom of France.\(^6^2\) Although the existence of proper names indicates at least an embryonic sense of national consciousness, it was a dim consciousness. Not only was it subordinate to other overarching senses of group identity, but it also lacked the quasi-mythical attachment to a shared language as a "natural" mark of a people and a legitimate basis upon which to differentiate political authority.

To be sure, speakers of various local dialects recognized linguistic differences during the late Middle Ages, especially when diverse groups were brought together during the various Crusades.\(^6^3\) At times these differences formed an elementary sense of collective identity. For example, when the University of Paris was established in the early 13th century, participants
from around Europe grouped themselves according to their language, or nation. But vernacular language itself was rarely a defining site of symbolic or political contestation as it was to become in the 18th and 19th centuries. According to Chaytor, "No ruler dreamt of attempting to suppress one language in order to impose another upon a conquered race." Certainly Latin was used and thus established a sense of transnational identity among elites, but the various regional vernaculars and local dialects did not elicit strong emotional bonds among their speakers -- at least not enough to form the fundamental basis of political differentiation and legitimation. As Guenee relates, in the 13th century "linguistic boundaries had no relation to political frontiers" and "no one would have thought that a State should correspond to a 'nation'."

Apart from the hegemonic role of Church-Latin, an important impediment to the fusing of language and nationality prior to printing was the fluidity of language in an oral culture. Written languages never achieved the fixity that was established in print, following closely in their evolution the changes of the spoken word. "For this reason, the French of the Chansons de Geste, for example, in the 12th century differs greatly from that written by Villon in the 15th." As Chaytor explains:

*The written or printed language professes to represent the standard tongue; from this the spoken language tends continually to diverge, through its readiness to follow individual innovations which become fashionable. The bulwark of resistance to these is the printed language, which is modified only when new forms have become so widespread that they cannot be ignored. When this stage has been reached...the basis has been laid for the formation of a national linguistic consciousness, and a language is felt to be the expression of tribal or racial characteristics. For print alone can secure the indispensable conditions of standardisation, the substitution of visual for acoustic word-memory.*
In the 16th century, with the advent of printing, this type of "linguistic drift" slows considerably. By the 17th century European vernacular languages assumed their current, modern forms.

Ernst Gellner has shown persuasively how this trend towards standardized, uniform national languages was closely bound up with the interests of centralizing state monarchies and the imperatives of industrialization. For Gellner, a high level of competent vernacular literacy, coupled with the standardization of printing (what he calls a "standardized medium"), are critical tools in providing a "common conceptual currency" that is an essential prerequisite for a complex division of labour. As a consequence, "the monopoly of legitimate education" in the early modern era becomes essential to the state in structuring the national work force, whose impersonal "communications must be in the same shared and standardized linguistic medium and script [sic]." According to Gellner, one result of this deliberate homogenization campaign was that an imagined community based on shared linguistic identity began to emerge - - one that was deliberately encouraged by centralizing monarchs through mass public education and the promotion of a literate, educated work-force necessary for the industrialization drive. By the 19th century, this sense of community based on shared linguistic identity would gradually evolve into the powerful ideology of modern nationalism.

Gellner's explanation of the rise of nationalism is one that is shared by both Chaytor, and Febvre and Martin. According to Febvre and Martin, the printing press provided the means by which state ministers and cultural elites could encourage "a process of unification and consolidation which established fairly large territories throughout which a single language was
written. In all of the major countries in Europe, a process of vernacular standardization was undertaken -- a process that was not only vastly encouraged by printing, but would have been virtually impossible without it. Through the means of mass printing, standardized conventions were established with respect to spelling, grammar and vocabulary. By fixing one dominant dialect as the predominant mode of speech, printing helped reduce other local dialects to the status of regional or local patois, thus undermining more parochial identities while at the same time legitimating a common, standardized language within territorial boundaries. The legitimating of singular "national" languages, in turn, became an important basis of differentiating people from people and state from state, fragmenting the transnational hegemony of Church-Latin with various national vernaculars. It is then but a short step, as Chaytor argues, to regarding "the official language as the national heritage and an expression of national character," especially if this national character is deliberately cultivated by state officials who have a strategic interest in the homogenization of the populace. In other words, the properties of printing, in conjunction with a conscious unification and homogenization drive, led to the exaltation of language as a quasi-divine mark of shared national identity and a visible affirmation of political differentiation.

A slightly different, but no less persuasive, account of the relationship between printing and nationalism is developed by Benedict Anderson in Imagined Communities. As Anderson argues, "nations" are but one specifically modern variant of socially constructed "imagined communities" whose origins can be traced to the change in the mode of communication to printing. According to Anderson, the very possibility of imagining the "nation" could only arise
once the belief that sacred script-languages offered privileged access to ontological truth began to erode. A further contribution to the emergence of the nation was a shift in temporal horizons from medieval cosmology to "homogenous, empty time." Both of these shifts, according to Anderson, can be attributed to the development of printing and its interaction with capitalism, which assured widespread distribution of the new mode of communication. "The convergence of capitalism and print technology on the fatal diversity of human language created the possibility of a new form of imagined community, which in its basic morphology set the stage for the modern nation."79

Unlike Gellner, Chaytor, and Febvre and Martin, Anderson places less emphasis on overt manufacturing of national identity by state elites, and more on the convergence of a number of largely contingent material and sociological variables. However, the two interpretations do not detract from each other, as a state interest in homogenization would only further the "blind" convergence of other factors to which Anderson points. And Anderson's analysis complements those outlined above by bringing to light other, perhaps less consciously-directed, factors that helped facilitate a sense of national-linguistic identity. For Anderson, the critical variable in this respect is the newspaper, which through its simultaneous daily consumption provides an image of "a sociological organism moving calendrically through homogenous, empty time" -- an analog to the nation.80 The newspaper provides a sense of shared national experiences, with each communicant aware that the same reading experience is undertaken simultaneously with thousands, perhaps millions, of others with whom s/he has had no personal contact.81 Anderson's emphasis on the largely indirect role of the newspaper in the development of
nationalism is similar to one developed much earlier by McLuhan. Like Anderson, McLuhan argues in *The Gutenberg Galaxy* that through newsprint a people *sees* itself for the first time:

> The vernacular in appearing in high visual definition affords a glimpse of social unity co-extensive with vernacular boundaries. And more people have experienced this visual unity of their native tongues via the newspaper than through the book.82

Although the emergence of nationalism as an ideological force did not reach its peak until the late 18th and early 19th centuries, its "incubation" period reaches back much further into the late Middle Ages. However, with the advent of printing a critical barrier to its development was removed; linguistic drift of vernaculars declined markedly and a standardized "national" language emerged "below" the transnational Church-Latin and "above" the various local or regional dialects. As a result of the emergence of national languages, the deliberate cultivation of a homogenous population by state elites, and the widespread dissemination of printed material, a sense of imagined community arose throughout Europe based on a shared language of a people. Between the late 18th and 19th centuries, this sense of imagined community became the legitimate mode of differentiating political authority, and one of the pillars of modern world order.

**Conclusion**

Changes in social epistemology are critical elements in the transformation of world orders. Shared symbolic forms and cognitive biases provide the critical "metaphysical underpinnings" of the architecture of political authority -- in particular, the distinct ways in
which political communities are imagined. Although positivists and materialists have for too long slighted the importance of *mentalites collectives* in structuring and orienting political behaviour, a new theoretical sensitivity is emerging across the social sciences that rectifies this shortcoming. The historically-contingent web-of-beliefs into which a people are acculturated are now widely recognized as a crucial aspect of differentiating culture from culture and epoch from epoch. A critical area of research, then, is the processes by which social epistemology undergoes transformation.

In this chapter, I examined the way in which the change in the mode of communication to printing contributed to the transformation of social epistemology along three dimensions, each of which was shown to have an important bearing on the character of European world order: First, in generating new forms of authorship and copyright, and by complementing the trend towards silent, private reading and intellectual separation, printing contributed to the distinctly modern sense of atomism and individualism as a prevailing symbolic form and moral idea. The pervasiveness of this symbolic form was, in turn, mirrored at the world-order level by the emergence of autonomous sovereign state units. Second, the linear surface appearance of the printed page helped reorient communications from an oral-aural to a visual bias. In doing so, it complemented the emerging spatial bias of early modern Europe toward highly rigid and linear representations of political community. Lastly, the fixity and mass reproducability of printing helped fuse a sense of group identity around fixed vernacular languages, thus contributing to the modern imagined community of the nation.
Undoubtedly, the medieval-to-modern transformation of European world order was driven by a wide confluence of factors, from broad environmental changes to changes in ideas, thus making it futile to suggest any single "master variable." In part one of this study, I have argued that the change in the mode of communication that occurred during this period played a critical role both in terms of altering the distribution of power among social forces and in re-threading the dominant web-of-beliefs of the time. However, I would be contradicting my theoretical perspective if I argued that it was the sole variable or prime mover responsible for this transformation. Nonetheless, because communications are implicated in all spheres of life, from production to security to culture, a focus on the mode of communication did provide a useful lens through which to view transformation of political authority as a whole. Using the same analytical and theoretical lens, then, in part two of this study I turn to an examination of the contemporary transformation of world order at a planetary level.

Notes

3. Ibid., p.23.
4. See Ibid., pp. 23-60; See also, Richard Matthew, "Back to the Dark Age: World Politics in the Late Twentieth Century," (Paper delivered at the ISA Annual Meeting, Chicago, February 1995).
5. See Le Goff, Intellectuals in the Middle Ages; See also, Guenee, States and Rulers, p. 32, for a link between the nominalism of William of Okham and individualism. Guenee notes how philosophical/epistemological beliefs often translated later into political doctrines in this way:
And so, for example, the great realist-nominalist debate (where for so long the realists, convinced of the reality of general concepts, were set against the nominalists, for whom the individual alone existed) largely determined the poles of political thinking: whilst a realist readily sacrificed a part to the whole, the individual to the State, for a nominalist like William of Okham the individual was all-important and the common good no more than the sum total of individual interests. The 'democratic' trends characteristic of the fourteenth and fifteenth centuries, which set the conciliar movement against the Pope and Estates against the princes, coincided with an upsurge in nominalism.


8. As quoted in Guenee, *States and Rulers*, p. 43.


23. For McLuhan's discussion of the "authorless" Middle Ages, see *Gutenberg Galaxy*, pp. 160-163.


27. Ong, *Orality and Literacy*, p. 133.


32. For discussion, see Chartier, "The Practical Impact of Writing," p. 125.


40. Ong, Orality and Literacy, p. 131.


42. Dodgshon, The European Past, p. 164.

43. For a good overview, see Le Goff, Medieval Civilization, chapter 6; and Le Goff, The Medieval Imagination, Part Two: Space and Time, pp. 47-82.


46. Clanchy, From Memory to Written Record, p. 285.

47. Ibid.

48. Ibid., p. 267.


52. See Buisseret, (ed.) Monarchs, Ministers, and Maps; and Harvey, The Condition of Postmodernity, pp. 240-253.


54. Harvey, The Condition of Postmodernity, p. 245.


57. McLuhan and Fiore, *The Medium is the Massage*, p.49.


61. For a discussion, see Guenee, *States and Rulers*, pp. 50-65.


64. See Le Goff, *Intellectuals in the Middle Ages*, pp. 73-74.

65. Chaytor, *From Script to Print*, p.22.


68. Chaytor, *From Script to Print*, p.34.


70. *Ibid.*, p. 34.

71. *Ibid.*, pp. 34-35. I put [sic] here to indicate that what Gellner calls "script" is more properly termed "print" — a label that Gellner does not use explicitly, though as I point out above, is implicit in his notion of a "standardized medium."

72. Gellner's argument chimes with, among others, that of Charles Tilly, who suggests that state-makers had an "incentive" to "homogenize." First, because a more homogenous population was likely to be more loyal; and second, because "centralized policies of extraction and control were more likely to yield a high return to the government...where the population's routine life was organized in relatively uniform ways." See Charles Tilly, "Reflections on the History of European State-Making," p. 79; See also Anderson and Hall, "Absolutism and Other Ancestors," (p. 32) who briefly mention the role of printing in promoting "a more standardized vernacular language from the various dialects in their territory" which gradually undermined Latin.

74. For an excellent discussion, see Febvre and Martin, *The Coming of the Book*, pp. 319-332; See also Eisenstein, *The Printing Press*, pp. 117-118.

75. Chaytor, *From Script to Print*, p. 45.

76. In the long-run, Latin became a "dead language," retained only in places, like the Catholic mass, that were bound to the old order through tradition. See Febvre and Martin, *The Coming of the Book*, p. 319. Though the fate of Latin was "sealed" at this time, in the short-run it stubbornly survived as an "international" means of communication, among many European scholars, for example. See pp. 322-323. In Benedict Anderson's words, "...the fall of Latin exemplified a larger process in which the sacred communities integrated by old sacred languages were gradually fragmented, pluralized, and territorialized." Anderson, *Imagined Communities*, p. 19.


PART TWO

Hypermedia and the Modern to Postmodern World Order Transformation
Chapter Five: Transformation in the Mode of Communication:
The Emergence of the Hypermedia Environment

A web of glass spans the globe. Through it, brief sparks of light incessantly fly, linking machines chip to chip and people face to face.¹

Introduction

This morning, I awoke at 7:30 am PST and turned on my personal computer. After issuing a few commands, I had connected myself remotely to the Internet and began reading the 58 electronic mail messages that had collected over night. The majority of the messages were "postings" from two of the six electronic discussion groups of which I am a member -- the International Political Economy-NET and the Mediev-L medieval discussion group. On this particular day, the content of the messages on the two discussion groups reflected a variety of on-going discussion "threads" ranging from the relevance of Aristotle to the early modern state-building process, to Chomsky's views on the media, to the fate of the Chiapas Indians in Mexico. Twelve of the 58 messages were personal: two from a colleague in Tokyo "forwarding" me articles he had recently "downloaded" from the "net" on Japanese studies of electronic communities; one from a colleague based in Taipei offering his reply to my last message on the topic of global consumer culture; three from a professor of psychology at Northwestern University with whom I engage regularly in "on-line" discussions; one from a colleague in Washington, D.C. providing me with details on an upcoming book project; one from a colleague in Pennsylvania outlining his views on the academic job market; two from a colleague in London, Ontario offering critical comments on my interpretation of Richard Rorty and philosophical realism; one from a colleague in San Rafael, California confirming that he had
received my last message; and one from a colleague across town asking when I would be next on campus. The day was not unusual.

From the perspective of an average person living even 10 or 15 years ago, such a morning routine would likely have been considered the stuff of science fiction. Yet today it is a routine that is carried out by millions of other individuals around the planet. It illustrates the extent to which the mode of communication has undergone dramatic and fundamental change in a very short period of time -- a change that is leading to a new communications environment that I refer to as hypermedia.

The purpose of this chapter will be to map this emerging communications environment - to trace its sociological and technological roots and to provide an outline of its central properties, or "nature." More so, perhaps, than previous changes in modes of communication, no single technological innovation or instrument of technology signals this transformation. Rather, the emergence of hypermedia reflects a complex melding and converging of distinct technologies into a single integrated web of digital-electronic-telecommunications -- a process that has roots reaching back to the late 19th century, and which encompasses a series of technological innovations through the 20th century, culminating in the digital convergence beginning in the late 1960s/early 1970s.

Perhaps because of this convergence of once-discrete technologies, many observers have tended to focus on various distinct parts of the communications environment rather than the
environment itself in its entirety. The result has been a proliferation of terms and labels that designate a particular component of the environment, none of which satisfactorily captures the new mode of communication as a whole. For example, while "information" is certainly more abundant in the new media environment, it is not unique to it, as all prior modes of communication have distributed information in some particular way -- even primitive oral cultures. Likewise, "information superhighway" describes only one small aspect of the new communications environment -- the transmission element. Similarly, the term "cyberspace" has taken on meaning as a reference to the artificial "space" one enters on computer networks, but it is not generally associated with television or faxes. While not wishing to add unduly to academic and popular jargon, borrowing from Jean Baudrillard I have chosen the term hypermedia to designate the emerging communications environment. This term captures not only the convergence of discrete technologies, it also suggests the massive penetration and ubiquity of electronic media characteristic of the new communications environment. Furthermore, the prefix "hyper" (meaning "over" or "above") emphasizes two central characteristics of this environment: the speed by which communications currently take place, and the intertextuality or inter-operatibility of once-discrete media. As will be described below, the hypermedia environment is not just the television, the computer, the fax machine, the cellular phone, the satellite reconnaissance system, or the hand-held video camera -- it is all of the above and more linked together into a single seamless web of digital-electronic-telecommunications.
The pre-history of hypermedia: technological and sociological roots

As with other innovations in communication technologies, the development of hypermedia did not occur *de novo*, but was contingent on a series of interdependent technological, sociological, and material factors. The "pre-history" of hypermedia thus dates back to the middle of 19th century when social forces drove technological research and development into ways to improve long-distance communications. Although smoke and fire signals had been employed by humans for centuries to communicate messages over distances, they were too simple to be employed for anything beyond the most basic of tactical communications. More complex communications, such as that found in the spoken, written and printed words, had been constrained by the existing mode of transportation of the time. Thus prior to 1840 complex communications could move only as fast as the swiftest of technologies -- the train -- which had a speed of about 35 miles per hour.⁴

It is entirely conceivable that such constraints would have remained constant had social forces not developed focusing attention on ways to overcome them. But such was clearly not the case in the latter half of the 19th century, which witnessed in the span of a single lifetime such communication innovations as photography and telegraphy (1830s), rotary power printing (1840s), the typewriter (1860s), transatlantic cable (1866), telephone (1876), motion pictures (1894), wireless telegraphy (1895), magnetic tape recording (1899), radio (1906), and television (1923).⁵ As Beniger has brilliantly described in *The Control Revolution*, these innovations can be seen as responses to "control" crises arising out of the Industrial Revolution: that is, attempts
to coordinate and manage ever more complex and integrated systems of production, distribution, and consumption of goods and services. In the United States especially, these control crises were particularly acute given the vast spaces opened up by westward territorial expansion, and not surprisingly, it is in North America that most of these innovations originate. Beniger describes how the intensifying industrialization process focused attention on ways to improve communications in the service of managing production, distribution and consumption:

_Suddenly, in a matter of decades, goods began to move faster than even the winds themselves, reliably and in mounting volume, through factories, across continents and around the world. For the first time in history, by the mid-nineteenth century the social processing of material flows threatened to exceed in both volume and speed the system's capacity to control them. Thus was born the crisis of control, one that would eventually reach, by the end of the century, the most aggregate levels of America's material economy._

Because transportation capabilities were improving at such a great pace and over such large distances, it became an imperative to establish more effective means of communicating information over these large distances. Safety problems were especially acute, particularly the coordination of train traffic. Railroad companies had actually held back the development of planned new lines because of safety problems, a situation that was magnified by a series of spectacular accidents due to poor communication and coordination. Commerce was being transported so swiftly that firms had difficulty keeping track of inventory and movements of distributed products over large distances, and were unable to track consumer demand effectively.

It was largely in response to these converging pressures that Samuel Morse focused his
energy on the development of the telegraph in the 1830s. To be sure, Morse was not alone in his experimentation; in the 1820s and 1830s scientists in France, Russia, Germany and England worked feverishly to respond to the social needs for more efficient long-distance communication - a reflection of converging social forces in this direction. But it was Morse who constructed the first practical working electromagnetic telegraph in 1838, demonstrating it to sceptical audiences for years thereafter. In fact, it was not until 1844 that Morse was given a grant by the Congress to construct an experimental line from Washington-to-Baltimore through which he uttered the famous line, "What hath God wrought?" One day after Morse's public demonstration, the Baltimore Patriot newspaper employed the same Washington-to-Baltimore line to report on a vote in the House of Representatives, concluding that the telegraph represented "the annihilation of space." For the first time, messages could travel faster than messengers. Although communication was no longer strictly tied to transportation, telegraph lines were installed in the right-of-ways of railway lines, and were used initially to coordinate rail traffic. Not long afterwards, however, the telegraph came to serve a more broad commercial and administrative function, greasing the wheels of commerce and unifying price and market systems across the continent. By 1862, 150,000 miles of telegraphic cable had been laid around the world, including 15,000 in Great Britain and 48,000 in the United States, spinning the first tentative webs in what would later become the wired world of hypermedia.

The telephone followed soon in the wake of the telegraph, offering the additional advantage of simultaneous transmission of two-way communications. Invented by the Canadian Alexander Graham Bell in 1876, the telephone was introduced into a world already fired by the
"lightning wires" of the telegraph, and as a consequence, legal tussles ensued among the newly-founded Bell corporation and the telegraphic monopoly Western Union over the rights and uses of the new device. But the telephone spread rather quickly once the legal entanglements were settled. From 1880 to 1893 the number of telephones in the United States grew from about 60,000 to 260,000, with about two-thirds of those located in businesses. By 1934, 33 million telephones were in operation worldwide. Although it was initially confined to commercial enterprises and government offices, the telephone eventually provided two-way interactive voice links among individual households, a characteristic that would gradually become one of the central defining features of hypermedia.

Coincidental with these developments in telecommunications, another portentous innovation in communications technology was occurring that provided yet a further seed in the development of hypermedia: the daguerreotype, or the photograph, invented by Louis Daguerre in 1838. In developing an instrument that serves not merely "to draw nature" but "gives her the power to reproduce herself," Daguerre was building on the ancient human practice to visually reproduce worlds of nature and imagination -- a practice that is one of the earliest hallmarks of the species itself. Photography, or "writing with light," was initially restricted to idle spectacles, but technological developments in the use of negatives improved the reproductive quality of photographs such that by the 1890s they had become a staple in commercial advertisements, especially in newspapers and magazines. The technology was the first in a series of image spectacles running through the turn of the century, from silent moving pictures in nickelodeons, to the Balaban and Katz movie palaces, to large cinema houses.
From these three initial developments in telecommunications and photography, a spate of innovations in communication technologies followed over the latter half of the 19th and early 20th century, including most importantly the radio, and then later the television. The former was an outgrowth of the wireless telegraph developed by Guglielmo Marconi, and did not really take off until after World War I with the gradual incorporation of hobby radio broadcasts into commercial enterprises. While the television set was invented in 1923, and the first broadcasts were in 1939, it did not emerge as a popular medium until after World War II, a period that will be covered in more detail below. Although the telecommunications technologies built on similar basic scientific principles of electromagnetics, each of the media remained discrete: the television, the photograph, the radio, moving pictures, and the telegraph all clearly entailed separate communications components. One could watch television, or listen to the radio, or look at a photograph, but each entailed a physically separate and distinct act.

The sudden sweep of communications innovation in such a short period of time had a significant impact on the social epistemology of the time. As many observers have pointed out, these changes reverberated throughout various counter-cultural and avant-garde spheres in the early part of the 20th century, including art, poetry, and popular music. At a more general level, the "mass" audience that was created with vernacular printing reached its apogee with these innovations, as government-regulated national monopolies were created across the industrialized countries to broadcast television and radio to mass audiences within sovereign-territorial jurisdictions. It was with this single-point/mass broadcast paradigm in mind that critical theorists would later ruminate on the rise of the "One-Dimensional Man" whose life was structured by

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pervasive mass propaganda --- a model deeply informed by the ways in which totalitarian regimes were able to make effective use of the mass media leading up to World War II.21 Somewhat ironically, however, it was the imperatives of that war and the Cold War that followed that spurred on the next wave of technological innovations in communications that would lead gradually to the development of hypermedia.

_The Cold War and military research and development_

While the technological innovations of the late 19th/early 20th centuries were closely bound up with commerce and the imperatives of industrial production, it was World War II and the ensuing Cold War that fuelled research and development into the next wave of technological change in communications. According to Molina, a complex of capital-government-military-science interests converged during and following World War II to become the dominant social constituency behind the development of microtechnology, particularly in the United States where the pressures of the Cold War were, of course, most acute.22 While each of these social interests complemented and fed off each other, clearly it was the military interests that played the leading role in shaping and constraining the development of technologies at this time. Later, commercial interests both within and outside the United States would gradually overtake the U.S. military as the dominant social force behind microelectronic development, especially as the Cold War subsided. Out of this confluence of technological innovation, military re-structuring, commercial marketing, and consumer demand came the rapid explosion of hypermedia in the late 1980s/early 1990s.
The convergence of interests among the groups forming the Cold War complex described above actually dates to the onset of World War II. The harnessing of national energy towards the war effort brought together both private capital and government expenditures behind a common cause, and accelerated research and development of electronic communications within and often between the major industrialized countries. Prior to World War II, military research had primarily exploited civilian-commercial technologies to the needs of war. World War II reversed this relationship, placing military interests at the forefront of research and development - - a relationship that was later buttressed by the well-known "spin-offs" argument, whereby military research was seen as useful insofar as civilian applications could be derived from militarily-inspired technologies.\textsuperscript{23} World War II research on radars, computers, miniaturization, and guided missiles transformed the electronics industry. The U.S. radar programme in particular was a vast undertaking, employing the cooperative efforts of major R&D centres, such as Bell Labs and the Massachusetts Institute of Technology Radio Laboratory, and costing as much as $2.5 billion -- more than the entire Manhattan "Atom Bomb" Project.\textsuperscript{24} The vast research drive led to a large number of significant developments in electronics in a short period of time, all of which arose out of, and were shaped by, military interests. For example, the first digital computer, the ENIAC, was financed as a military-science project designed to calculate ballistic missile projections.\textsuperscript{25} Taken as a whole, the research undertakings of World War II generated not only new technologies and a new complex of interests, but also a "greater understanding of electronic technology, and an army of electronic enthusiasts."\textsuperscript{26}

The intense focusing of research interests on military projects that was sustained through
the war tailed off sharply immediately following the allied victory. In the United States, government shares of electronic industry sales declined to only about 25 per cent of the total. But the decline was short-lived. The onset of the Cold War re-booted the complex of interests that was moribund since the war, once again focusing research and development on military-related projects. By 1953, government shares of electronic industry sales had risen to over 60 per cent of the total. According to Molina, the influence was far-reaching, affecting all sectors of the electronics industry with the partial exception of telecommunications, which had already established a formidable private monopoly research and development enterprise under the Bell System. Even so, the Bell Labs were often closely intertwined with, and thrived on, military-sponsored contracts for new research and development. "Nowhere was this influence more decisive," writes Molina, "than on the development of the emerging technologies and industries of computers, industrial control systems and, above all, semiconductors." Through the 1950s and 1960s, the Cold War hostility fuelled the demand for more efficient, smaller, and speedier communications technologies. One of the more decisive influences on electronic developments was the so-called "space race" unleashed with the successful launch of the Soviet Sputnik satellite in 1957. Not only did the "space race" breed a well-funded civilian program in the National Aeronautics and Space Administration, or N.A.S.A., but also a tightly-controlled, top-secret complex of space-based intelligence programs was funded, initiating top-secret research into optics, electronics, and computers primarily designed for space-based reconnaissance. The perceived "zero-sum" nature of the Cold War conflict added an urgency to the research into more advanced communications technologies, particularly as the Soviet Union was widely perceived as taking "the lead."
During this period, military-funded research brought about such crucial electronic advances as the transistor, the silicon transistor, and the integrated circuit. The latter was an important stepping-stone to the development of hypermedia, allowing the manufacture of multiple electronic functions and components on a single microchip.\(^{31}\) Closely intertwined with these innovations in components technologies was the evolution of the computer, beginning with the already mentioned ENIAC. Although the designers of the ENIAC, Mauchly and Eckert, had created a commercial enterprise in 1951 to market their own computer, the UNIVAC 1, "there was little commercial recognition of the potential of computers."\(^{32}\) As Sharpe notes:

*Until 1951, the computer industry was essentially non-commercial: each machine was one of a kind, and support came primarily from universities and government. In fact, it can be plausibly argued that without government (and particularly military) backing, there might be no computer industry today.*\(^{33}\)

During the height of the Cold War, the military remained the primary driving force behind the most significant developments in electronic computing and communications. In 1959-1960, the U.S. space-defence sectors still accounted for over 70% of all computer sales.\(^{34}\) This dominant social force driving the research and development of electronic communications had an important shaping influence on the nature and direction of technological innovation. Many of today's more consumer-oriented electronic products -- such as virtual reality systems or computer games -- were direct outgrowths of military technologies, e.g., air force flight simulators.\(^{35}\) But the secrecy by which such research and development was carried out limited the extent of commercial applications, and the most sophisticated of communications technologies were typically confined to the military because of classification procedures.
By the late 1960s, however, the influence of the military in this complex began to decline and corporate-commercial interests began to rise. According to Molina, "The relative influence of government-military constituents waned as the emerging technologies and industries matured and corporate capital was able to exploit the vast opportunities offered by the commercial sector." In the United States, the government purchase of semiconductors dropped from 50 percent of the total in 1960 to a low of 6 percent in 1973. Perhaps the best illustration of the shift is in the area of personal computing. The microprocessor, which was probably the single most significant technological innovation in the development of hypermedia, was produced entirely for commercial applications by the U.S. company Intel in the early 1970s. By integrating components needed for the central processing unit of a computer onto a single microchip, the microprocessor dramatically reduced the costs of computer hardware. As a result, a wide variety of small commercial computer enterprises arose to build a market in personal computing -- a strategy that initially was smugly dismissed as futile by larger corporate giants, like I.B.M. Of course, the outstanding example in this respect is the Apple Corporation, founded by college dropouts Stephen Wozniak and Steven Jobs, but many other similar fast-rising enterprises capitalized on the burgeoning home computer market beginning in the late 1970s.

At the same time as the home computer market was blossoming, companies based in Japan and Europe were tapping into the home electronics market, particularly in the markets for colour television and stereo components. U.S. corporations that had traditionally thrived on regular defence outlays began to face stiff competition from these overseas firms at the same time.
as defence procurements were falling sharply in the 1970s. The result was that a wedge was inserted into the capital-science-government-military complex that had sustained military-oriented research and development into electronic communications through the Cold War. While the so-called "second" Cold War of the early 1980s was able to resurrect partially the complex through such high-financed military projects as the Strategic Defence Initiative, the momentum had clearly swung to the commercial sector, as private corporations began to engage in transnational joint ventures and strategic alliances to spread the costs of research and development and to gain entry into foreign markets for consumer electronic applications.

The death-knell to the complex has been the abrupt end to the Cold War. Corporations that were once able to rely on military research and development contracts have now been forced into "restructuring" schemes to adapt to new conditions. A new complex has formed as communications-related industries and corporations from around the world, encouraged by national governments, are now focusing on the largely untapped "home" or private market. Corporate-funded research centres, such as the MediaLab at M.I.T and the Palo Alto Research Centre in California, are beginning to replace military-funded research centres as the drivers and shapers of technological innovations. Their explicit goal, as stated by the directors and top researchers of both companies: ubiquitous computing, or an infusion of communications technologies so deeply into everyday life that they become virtually invisible -- a new environment. This confluence of seemingly unending dramatic and revolutionary changes in communications technologies, coupled with a desperate search for new markets unleashed by the end of the Cold War, and coloured by a pervasive "hype" about a coming communicopia, has
led by the 1990s to a virtual stampede of interests focused on developing consumer and business applications of sophisticated electronic technologies. As Grossman aptly put it: "Driving it all is one simple, irresistible money-making idea -- the prospect of converting every home and workplace into a computerized box office, shopping mall, video arcade and slot machine, open for business all day long, every day of the week." Today, the shift in orientation is noticeable in a variety of subtle ways. New products have been tailored to make sophisticated technologies more practical, or "user-friendly." Icons, or images, have replaced text-based controls as computer operating tools. Advertisements for multimedia applications now prominently feature small children, the elderly -- even nuns! All of these changes represent a shift in corporate strategies from military to consumer/business applications.

Complementing this corporate drive has been a push "from above" so to speak, as governments around the world have sought to reap the benefits of the "information revolution." Almost every major state has undertaken government-sponsored studies on the impact of new communications technologies, perceiving in an almost quasi-mythical way the economic possibilities inherent in hypermedia. In Singapore, it is the "Vision of an Intelligent Island"; in South Korea, it is the "Initiative for Building the Korea Information Infrastructure"; in the European Community, it is "Europe and the Global Information Society"; in Canada, it is "The Canadian Information Highway." Most prominent in this respect has been the Clinton Administration, and in particular, Vice-President Al Gore, who has been a relentless advocate of what has been popularly called "the information superhighway." Out of this fusion of revolutionary technological innovations and a new corporate-government complex of social forces
has come the change in the communications environment to hypermedia. The remainder of this chapter describes in more detail this environment.

The properties of the hypermedia environment

As alluded to above, there is no one single technological innovation or instrument of technology that signals the development of hypermedia. Instead, technological developments in three areas have been particularly crucial in the emergence of a new media environment: digitization; computerization; and improvements in transmission capabilities, particularly fibre optic cables and wireless.

*Digitization:* Digitization refers to the encoding, transformation, and transmission of all information -- whether audio, video, graphics or text -- into a series of binary numbers, i.e., 1s and 0s. This revolutionary means of translating information is superior to analog systems primarily because when information is translated into binary numbers, a potentially infinite number of copies can be made of originals without suffering degradation. Likewise, unlike analog signals, digital information is more reliable over longer distances since only an on/off configuration requires translation rather than a continuously modulating frequency. Furthermore, digitization allows the integration of previously distinct media in the same system. All information once digitized becomes potentially inter-translatable regardless of whether it is audio, video, or text. As Brand notes, "with digitization the content becomes totally plastic -- any message, sound, or image may be edited from anything into anything else." The universal
character of the digital signal is thus especially important for transmitting different media along the same communication channels. According to Saxby:

*In the case of analogue channels, the signal varied continuously according to the information in transmission, which meant in practice a different channel for each type of signal -- for example telephone or radio broadcast. With digital channels, the only difference to be considered was the binary transmission speed necessary to transmit the information, whether it took the form of data, image or the human voice.*

*Computerization:* The digital "revolution" would not have had such a significant impact, however, were it not for the computing technologies that were eventually developed to exploit its potential. Some of the crucial innovations in computing technologies were outlined above, but the critical one was the development of the micro-processor, or what has been called the "computer-on-a-chip", in 1969, and which was marketed in 1971. These first silicon-based micro-processors included about 4000 transistors on each chip and cost about $150 each. The micro-processor revolutionized electronic communications by speeding up computation time with increasing capacity all the while shrinking the size of equipment. As Augarten commented:

*Although Intel did not realize it at first, the company was sitting on the device that would become the universal motor of electronics, a miniature analytical engine that could take the place of gears and axles and other forms of mechanical control. It could be placed inexpensively and unobtrusively in all sorts of devices -- a washing machine, a gas pump, a butcher's scale, a juke box, a typewriter, a doorbell, a thermostat, even, if there was a reason, a rock. Almost any machine that manipulated information or controlled a process could benefit from a micro-processor.*

Since then, the performance levels and capabilities of computer chips have continued to make dramatic improvements, generally following what has been referred to as Moore's Law.
(after the former head of Intel, Gordon Moore who coined the rule), that the number of transistors stored on a silicon chip would double each year following its inception. To be precise, the number of transistors fabricated on a silicon chip has proceeded through eight orders of magnitude since the transistor was first invented in 1948. Today, the most advanced commercial silicon chips are manufactured with ultraviolet light, further increasing the computing power on ever-more tiny chips. Transistors having dimensions smaller than a micron (a millionth of a meter) are now routinely fabricated in numbers approaching tens of millions on a single semiconductor chip. Although there are physical limits to such trends, researchers believe that the progression will continue into the next century. The resulting expansion of computing capabilities and storage capacities has been enormous. In 1961 the most sophisticated computer could handle 34,000 arithmetic operations per second; in 1981 800,000 arithmetic operations could be handled by a single computer; today, each microprocessor (and not an entire computer) can handle up to a billion instructions per second. In 1970, a disk pack the size of a birthday cake was required to store in immediately accessible form a million characters of text; by the 1980s that many data could be stored on a 3 and 1/2 inch diskette; today, it can be stored on a semiconductor device no larger than a credit card.

Transmission capabilities: The third area in which technological developments have been crucial to the emergence of hypermedia is innovations in transmission capabilities. In the hypermedia environment, digital information can now move through a variety of physical media, including fibre optic cables, coaxial cables, and copper wires, or through the electro-magnetic spectrum in the case of wireless communications. Of these various transmission channels,
without a doubt the most significant development is fibre optics cables, which are composed of multiple fine glass wires that vastly augment the relative carrying capacity of cables. In comparison to traditional copper-wire telephone lines, which have a maximum carrying capacity of about one million bits per second, optical fibre carrying lightwaves is now able to handle about a billion bits per second. No practical upper limit on this capacity has yet been determined. Since 1975, the transmission capabilities of optical fibre has increased ten-fold every four years. Today, even though fibre uses less than 1% of its theoretical carrying capacity, it can still transmit the contents of the entire Encyclopedia Britannica every second. Moreover, fibre optic lines are much smaller than traditional coaxial and copper-wire lines, enabling many more physical transmission channels in the same space.

One limitation to fibre optic lines, however, is the installation expenses associated with replacing existing copper-wire and coaxial cables -- especially to individual households. As a consequence, most of the fibre optic lines that have now been installed in the major industrialized countries act as connections between individual "nodes" or cities, with the final "drop" to homes and some businesses still being copper-wire in the case of telephone and coaxial in the case of cable television. However, further innovations in transmission capabilities, particularly asymmetric digital subscriber loop (ADSL) technologies, are enhancing the bandwidth capacity of existing copper-wire and coaxial cables such that high-speed digital links are available for the so-called "last mile" link. The result is that individual homes can by-pass direct fibre optic links while still being able to link into the high-speed digital environment of hypermedia. For example, while 98% of Canadian households still have copper-wire telephone connections, the
intercity network is entirely digital (including fibre optic cables, satellites, and microwave transmissions) carrying traffic at speeds up to 2.5 Gigabits per second (the equivalent of 32,000 simultaneous voice conversations).66

Fibre optics, and traditional copper and cable wires, are not the only means by which information is transmitted today; wireless transmissions, via both microwave towers and satellites, adds yet another dense layer of transmission capabilities to the hypermedia environment. The radio portion of the electromagnetic spectrum is used to transmit electronic signals in a frequency spectrum ranging from low-medium frequencies (10-30,000 KHz) to high frequencies (3-30 MHz) to very and ultra-high frequencies (30-100 MHz) to microwave frequencies (3,000-12,000 MHz).67 Each of the frequency ranges has particular strengths and weaknesses depending on the type of communications being transmitted. Moreover, because the electro-magnetic spectrum is a limited natural resource, there are constraints on the amount of communications that can be transmitted.68 However, as with cable and copper wires, compression techniques to enhance bandwidth over the airwaves have been achieved in wireless communications to squeeze more carrying capacity into the electro-magnetic spectrum essential for the accommodation of wireless cellular phones, pagers, and other mobile computing devices now flooding the market.69

Satellite systems, operating in the microwave band, are placed in a space-based geostationary orbit 22,300 miles above the earth’s equator. At this distance, the period of rotation coincides with that of the earth, causing the satellite to appear stationary. The orbiting
satellites perform a function similar to that of ground-based microwave relay stations, transmitting electronic information to ground antennas which then relay the information to cable, fibre optic or copper wires. Because a satellite situated in geostationary orbit is visible to 43 percent of the earth's surface, a satellite situated over, for example, the Indian Ocean, can beam simultaneously to the United Kingdom and Japan.\textsuperscript{70} Three communications satellites positioned at appropriate distances from each other can cover the entire globe with the exception of the poles.\textsuperscript{71} However, as with the radio spectrum, there are a limited number of "parking spaces" or "slots" for satellites in the geo-stationary orbit. As a consequence, there has been a considerable battle over the principles upon which such "slots" should be distributed, with richer countries -- and in particular the United States -- arguing on the basis of "first-come, first serve," while the less developed countries have attempted to achieve a more internationally-equitable distribution.\textsuperscript{72} More recently, low-earth orbiting (LEO) satellites have been proposed for mobile communications systems, the most famous of which is Motorola's planned Iridium system which will employ approximately 66 LEO satellites to allow phone communications from point-to-point of any part of the planet. The Motorola satellites will be launched in the late 1990s, with as many as seven other planned systems following soon thereafter.\textsuperscript{73}

The result of these three technological innovations, in conjunction with social forces, has been a convergence of both media and industries into a single, integrated planetary web of digital electronic telecommunications. Today, not only are text, video, graphics, and audio inter-translatable, but once-discrete technologies that have been associated traditionally with different communications spheres -- particularly computers, telephones, and televisions -- are becoming
indistinguishable in terms of the information that they provide. They are, in the words of an Economist survey, "being whirled into an extraordinary whole."74 The days when one processed text on a computer, watched the television, and spoke into the telephone are drawing to a close. As Gleick aptly put it, "These little boxes will be connected, one way or another, to that vast, entangled, amorphous creature known to those in the business simply as the network."75

Indeed, only two obstacles stand in the way of the full and immediate creation of that single seamless planetary web of digital electronic telecommunications: industry competition and government regulations. The technological convergence outlined above has suddenly thrust together once self-contained industries in both competition and cooperation as firms traditionally bound within one sector now find themselves under challenge from firms in other sectors, and visa versa. The most acute battle-line is drawn between cable and telephone companies as each is increasingly providing services that are indistinguishable from the other. But other industries -- in particular consumer electronics, publishing, and information services -- are entering the battle as well.76 However, existing government regulations that were tailored for the communications of the pre-convergence environment still maintain regulatory fences that prevent direct competition. And not only are these regulations a barrier within individual national jurisdictions but they also pose problems for international interconnectivity as well. As one author commented:

_The problem is simple. Although the industrial world is already rich with telecommunications networks and computers, these systems can't always link up with each other because of differing standards and protocols, not to mention old-
fashioned telephone monopolies that still control who has access to the wires and switches in many states. So "building" the information superhighway is partly a question of removing barricades on both sides of the Atlantic.77

On the one hand, the result has been a concerted push by private corporations and governments around the world for regulatory changes, often in the face of strong political counter-pressures to keep the status quo intact.78 Debates have been fierce in both the developed and developing worlds regarding the appropriate regulatory framework to facilitate the technological convergence favoured by large private capital interests while still ensuring "universal access" and "affordability" for the average consumer. To date, the forces of "liberalization" have clearly gained the momentum, having the support of both big business and large governments -- in particular, the United States.79 For example, U.S. Vice-President Al Gore's push for a single "planetary information network" is interpreted by many as a concerted effort to open national telecommunications industries around the world to private enterprise and competition.80 One of the more recent and forceful adoptions of liberalization policies has been the planned break-up beginning in 1996 of the German state telephone monopoly Deutsche Telekom, which is expected to be the second largest privatization in the world, the largest being the $70 billion sale of stock in Japan's telephone monopoly in the late 1980s.81 Even China's Ministry of Posts and Telecommunications has made liberalization moves to allow foreign access to their telecommunications infrastructure.82

On the other hand, communications firms around the world have entered into a frenzied spate of cross-border, multi-media joint ventures and alliances designed to side-step existing regulations as well as reduce the costs and risks of operating in what is gradually evolving into
a single common marketplace. The number and scope of these alliances is truly staggering and difficult to track on a day-by-day basis, as firms enter into talks only to have them scuttled by legal entanglements or disagreements. The pace of alliances and dealmaking is most furious within the United States. In 1994, some of the largest multi-media mergers were completed in the United States, including AT&T and McCaw Cellular, valued at $11.50 billion; Viacom and Paramount, valued at $9.6 billion; and Viacom and Blockbuster, valued at $7.97 billion. Exemplifying the trend towards tangled cross-border alliances, the Microsoft Corporation of the United States entered into partnership with eight other firms in 1994, including Telstra Corporation of Australia, Deutsche Telecom of Germany, and Rogers Communications of Canada. The cellular telephone company PacTel, based in the United States, has shareholdings in cellular networks in Germany, Portugal, Japan, Sweden, and Belgium. As privatization of former state communications monopolies proceed, these cross-border, multi-media mergers will only become more dense and complex.

It is too early to predict exactly what type of regulatory arrangements will be reached that will reconcile global standards and interconnectivity with existing national jurisdictions. Nor is it clear exactly what type or types of business enterprises will emerge from the dizzying series of on-going transnational strategic alliances and mergers in the communications industries once (or if) the dust settles. However, what presently exists might best be characterized as a web of webs of still separate but increasingly linked communications systems, such as the telephone, movies, television, personal computers, cellular phones, faxes, and more. Each of these systems is gradually becoming inter-connected and inter-operable as regulatory and technical
barriers standing in the way of complete integration are toppled. Some new systems -- like the latest generation of multi-media computers -- are neither telephones, televisions, nor computers, but a complex amalgam of all three. However, it is doubtful that a single device like the multi-media computer (what Stewart calls "a full-featured information appliance") will emerge as the sole means of communicating in the hypermedia environment. Instead, what appears to be the case is that a number of functional devices -- some situated in the home (computers/televisions/telephones/multi-media systems), some hand-held or portable (cellular phones/personal digital assistants/camcorders/laptop computers), and some that are remote (satellite reconnaissance systems/surveillance cameras) -- will coexist in a globally-networked web of digital communications. These devices now have the potential to interconnect with each other seamlessly, some at the speed of light, with information moving through the air, bouncing off of satellites, through upgraded existing copper-wires and cables, and through fibre optic wires. Rather than a single instrument of technology or means of communication, then, it is this complex, digitally-integrated web of communications as a whole that defines the hypermedia environment.

The paradigm of the new mode of communication -- and clearly the emerging infrastructure for the hypermedia environment -- is networked computing, and in particular, the loose conglomeration of worldwide networked computers known as the "Internet." As Grossman explains, "the Internet serves as a remarkable example of the 'law of unintended consequences' run amok." As is well-known by now, the Internet actually began as a U.S. military experiment in the 1970s to design a computer network called ARPANET that would withstand
a nuclear attack. The fundamental principle of the network was a distributed form of communications without central control. Messages would be split up and sent along dispersed routes so that if parts of the network were lost in a military conflagration, messages would still arrive at their destination. The ARPANET eventually evolved into a communications tool for public research organizations and universities in the United States, to be followed by other similar systems elsewhere. Using what was originally intended to be merely a side-bar feature of the network -- electronic mail -- discussion groups proliferated on a wide-range of esoteric topics and issues. By the time Internet became the successor to ARPANET in the late 1980s/early 1990s, networked communications had exploded to include private individuals around the world linked through a truly anarchic web of computers, searching and sharing data-bases and entering into unmediated "on-line" discussions.

As the editors of a recent special issue of Scientific American put it, "the Internet has grown so fast in so many places that no one really knows how big it is or how many people use it." The migration to the Internet in the 1990s has been remarkable as government agencies, research organizations, universities and colleges, businesses, individuals both young and old and of both sexes scramble to get a piece of the action. In 1993 the President, the Vice-President, and the First Lady of the United States all acquired Internet addresses (president@whitehouse.gov; vice-president@whitehouse.gov; and root@whitehouse.gov). In 1995 Canadian Prime Minister Jean Chretien was the first head of state to participate in an "on-line" computer network conference. The result has been an explosion of growth in Internet users according to measurements undertaken by the Internet Society. For example, the number of
host computers, or network "nodes," around the world has grown from 1,000 in 1984 to 10,000 in 1987 to 100,000 in 1989, to 1,000,000 in 1992, and to 4,851,000 in 1994. One million new hosts were added in the first six months of 1994 alone, many of which came from outside the United States. In that same first six months of 1994, Germany experienced a 51% increase in hosts; France 117%; Spain 79%; New Zealand 157%; Hungary 169%; Mexico 45%; Chile 170%; and Malaysia 204%. Although the figures are rapidly made obsolete by exponential growth, it is estimated that there were over 40 million individual Internet users in 159 countries by the end of 1994.96

Although the Internet can often be unwieldy to navigate, improvements in software and navigation tools, such as the World Wide Web, MOSAIC, Wide Area Information Servers (WAIS), and Gopher, are making browsing and searching the Internet much more user-friendly.97 Cashing in on the burgeoning market, a number of private computer networks (e.g., America On-line, Compuserve, Prodigy, and more recently Microsoft) have also emerged as appendages to the Internet, providing a much more accessible gateway.98 Subscribers to the Internet and these private services search data bases, exchange text, audio, graphics, and video information, and discuss topics on electronic Bulletin Board Systems (BBS's), USENET newsgroups, and listserves.99 The number of active USENET newsgroups worldwide now totals around 10,000, with BBS's estimated at around 240,000. Although many are specialized academic discussion groups, others reflect a bewildering variety of ultra-arcane and esoteric topics, like alt.personals.spanking.punishment or alt.barney.die.die.die. But in providing globally-networked, interactive two-way digital communications, loosely linked together in an
anarchic web-of-webs of private and public computer organizations, networked computing is probably the best illustration of the "paradigm" of communications in the hypermedia environment.

What is the geographic distribution of hypermedia? From one perspective, the hypermedia environment is truly planetary in its scope considering the extent to which satellite communications ensures that no area of the planet is beyond the reach of hypermedia penetration. Military, commercial, and environmental remote sensing satellites have mapped every square inch of the planet. Communications satellites provide computer and telephone links from even the remotest of regions, and global television networks and direct broadcast satellites beam programs to every continent on earth. There is no doubt that the hypermedia environment now blankets the planet in a dense network of digital electronic telecommunications. From a control perspective, however, the distribution of hypermedia is clearly concentrated in the Northern hemisphere of the planet, with the wealthiest countries typically accounting for both the highest penetration rates of personal computers, telephones, and televisions, as well as the largest volumes of communications flows. The starkest illustration of the disparities is that 4.7 billion of the world’s 5.7 billion people still do not have a telephone. The least telecommunications-developed country -- Cambodia -- has a teledensity of only 0.06 telephones per 100 people. The 47 least developed countries have an average teledensity of 0.25 per 100 people. Nonetheless, the fact that the most dense penetration rates of hypermedia also happen to correspond to the most wealthiest and powerful segments of the planet is certainly not insignificant in terms of world order transformation -- especially in light of the planetary reach.
of hypermedia outlined above.

Conclusion

In sum, the change in the mode of communication was driven by a complex set of technological, social and material factors reaching back to the late 19th century. Largely in response to the Industrial Revolution, and building on newly founded scientific principles of electro-magnetics, a series of innovations in communications technologies occurred rather suddenly in the mid- to late-1800s. While the telegraph, and later the telephone, opened up the possibility of complex communications over distances, the photograph, and later the moving picture and the television, provided the first in a series of image spectacles. The onslaught of two World Wars and the ensuing Cold War significantly altered the urgency and trajectory of research and development into electronic communications, and formed the basis for a complex of government-science-military-capital interests centred mostly in the United States. It was out of this complex of interests that some of the more important technological precursors to hypermedia arose, including most importantly the computer. However, by the 1970s this complex began to dissolve and was gradually replaced by a more consumer- and business-oriented push behind the research and development of electronic communications. Corporations outside the United States -- in particular those based in Germany and Japan -- began to compete with American firms in the consumer electronics market at the same time as government expenditures in defence began to erode. The abrupt end to the Cold War added an urgency to corporate restructuring, and a new science-government-capital complex began to emerge centred
not on military applications of electronic communications, but the burgeoning entertainment, home-consumer, and business applications market. The conjunction of this new complex with a series of technological innovations brought about, by the late 1980s, the emergence of the hypermedia environment.

The central properties of this new communications environment might best be characterized in McLuhan's terms, as a planetary "central nervous system" composed of a network of networked communications devices -- telephones, televisions, computers, camcorders, portable digital assistants, and fax machines -- all linked together into a single integrated web of digital electronic telecommunications that never shuts down, that constantly moves information in an instantaneous flow at the speed of light through fibre optic cables, through orbiting satellites, through the air, or through cable and copper. It is increasingly a "ubiquitous" computing and communications environment, deeply saturated by the tools of hypermedia in every facet of life -- from the tiny computers that invisibly operate household appliances to the surveillance cameras in the bank and on the street corners, to the automatic teller and "interac" machines that read and process digital "smart" credit cards, transmitting digital financial information instantaneously to financial institutions, to the 35, 58, or 120 channel television systems that "narrowcast" programs to specialized audiences around the world, to the cellular phones, personal digital assistants, and laptop computers that offer mobile telecommunications. It is a communications environment in which all media are inter-textual or inter-translatable. Video, audio, text, and graphics are all similarly reduced to binary digits, and thus can travel through the same channels, and be processed in the same way, to be displayed on the same
screen. It is an interactive environment, in which communication flows in two-directions rather than from a single centre. Everyone has the potential to reach everyone else instantaneously in the hypermedia environment — "publication" and "broadcasting" are open to all who are connected. The remaining two chapters examine the way in which this new communications environment may be transforming the architecture of modern world order.

Notes


2. The term "cyberspace" was coined by science fiction writer William Gibson in Neuromancer, (New York: Ace Books, 1984). "Information" and "information superhighway" are used widely in popular magazines and newspapers to refer to what I call "hypermedia."


4. See Postman, Amusing Ourselves to Death, p. 64.


6. Ibid., p. 217.


Communications in History, pp. 167-172.

13. Ibid., p. 172.


16. Ibid.; See also, Alexander Marshack, "The Art and Symbols of Ice Age Man," in Crowley
and Heyer, (eds.) Communications in History, pp. 10-20.

17. Ulrich Keller, "Early Photojournalism," in Crowley and Heyer, (eds.) Communications in
History, pp. 193-200.

Communications in History, pp. 201-206.


Press, 1983); and Lowe, History of Bourgeois Perception, especially chapter six.

21. In particular, I am referring to the work of the early Frankfurt School of Critical Theorists,
especially Herbert Marcuse, One-Dimensional Man: Studies in the Ideology of Advanced
Industrial Society, (Boston: Beacon Press, 1964). For a general overview, see David Held,
Introduction to Critical Theory: Horkheimer to Habermas, (Berkeley: University of California
Press, 1980).


Rosing and Derek de Solla Price, (eds.) Science, Technology and Society: A Cross-Disciplinary
16..


25. Ibid., p. 38.

26. David Noble, Forces of Production: a social history of industrial automation, (New York:

28. Ibid.

29. Ibid.


32. Ibid., p. 157.


37. Ibid., pp. 54, 61.

38. Ibid., p. 61.


43. Ibid., p. 132-144. As Molina writes on page 142, "The result is that electronics companies competing in the global and convergent electronics market are not driven by an overriding national interest. Instead, they are pursuing the overriding interest of capital, that is, profits and accumulation in a context of global competition."


48. See Al Gore, "Infrastructure for the Global Village," *Scientific American*, (September 1991). This author was present for (but underwhelmed by) Gore's on-line appearance on the private computer network, Compuserve, in the fall of 1993.


52. This is a point made by Saxby in *The Information Age*, p. 265.


56. *Ibid*.


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62. Angus and Mckie, Canada's Information Highway, p. 25.


66. Angus and Mckie, Canada's Information Highway, p. 30.


68. Ibid., p. 34.

69. See Gleick, "The Telephone Transformed"; "Speak to Me: A Survey of the Computer Industry," The Economist, (September 17, 1994); and "End of the Line: A Survey of Telecommunications," The Economist, (October 23rd-29th, 1993). In late 1993, it was estimated that there were over 30 million cellular telephones in use in some 70 countries around the world, with prices falling at 25% on average per year. See "End of the Line," p. 5.


71. Ibid.


73. See Joe Flower, "Iridium," Wired, (November 1993), pp. 72-77; 118; See also "End of the Line," p. 15.


76. See Elmer-Dewitt, "Take a Trip," pp. 50-51.


79. On this issue in particular, see Drake, "Territoriality and Intangibility"; and Cowhey, "The International Telecommunications Regime."


81. See Nathaniel Nash, "Goldman Wins Big Role in German Sale," New York Times, (November 26, 1994), p. 139. As Nash notes, "Europe is entering a period of about five to eight years in which vast telecommunications assets, mostly state owned, will be sold to the public."

82. Lynne Curry and Andrew Adonis, "China's telecoms regimes under pressure," Financial Times (London), (November 23, 1993); See also, "AT&T China Contract," New York Times, (November 28, 1994); For India, which is experiencing a similar privatization, see John F. Burns, "AT&T Seeks Stake in India's Phone Market," New York Times, (January 6, 1995).


88. Popular media coverage often seems to suggest that the so-called "information superhighway" is something yet to be built. However, this view is mistaken. The infrastructure of the new media environment already exists in the form of the "web of webs" to be described below. Only government regulations and technical barriers, as outlined above, stand in the way of complete integration, and these are fast becoming obsolete. A similar view is expressed by Angus, *Canada's Information Superhighway*, pp. 5, 13.


91. See Angus, *Canada's Information Superhighway*, pp. 36-37; See also, Negroponte "Products and Services," p. 108 who suggests that a good rule of thumb to define how information is being distributed (or should be distributed) is that things that move will have information sent to them through the broadcast spectrum while things that are fixed, like offices and homes, will be sent through wires.


95. The Internet Society is the International Organization for coordination and cooperation for the Internet. The following statistics were acquired directly from the Internet Society through the Internet. Their "world-wide web" address is http://www.isoc.org.

96. *Ibid*.


99. One of the listserves of which I am a member, the International Political Economy-Net, or IPENET, has grown from 64 person in 1993, to 300 in 1994 to close to 1000 today from over 31 countries. On a single peak day in September 1994, 32,000 messages were distributed. These figures are taken from the IPENET E-news #8, distributed on-line on the November 13, 1994 from the IPENET manager, Lev Gonick.

100. Of the approximately 1 billion television sets in use worldwide in 1992, 35% were in Europe, 32% were in Asia, 20% were in North America and the Caribbean, with Africa, the Middle East, and Latin America accounting for the other 13%. See "Feeling for the Future: A Survey of Television," The Economist, (February 12th-18th, 1994).


102. Winsbury, "Who will pay for the Global Village?"
Chapter Six: Hypermedia and the Modern to Postmodern World Order Transformation: Distributional Changes

Introduction

In this chapter, I turn to an examination of the distributional changes that are occurring today as a result of the emerging hypermedia environment. As outlined in the theoretical chapter, distributional changes are changes in the relative power of social forces as a result of a "fitness" between the interests of these social forces and the communications environment. In other words, social forces whose interests are complemented by hypermedia will tend to flourish, while those whose interests do not will tend to be disadvantaged. The claim being made here is not that the change in the mode of communication to hypermedia generates these social forces, but rather that social forces already latent in society will tend to flourish or wither depending on their relative "fitness" with the hypermedia environment.

As throughout this study, my focus is on the way in which these distributional changes impact on the architecture of world order -- in this case, modern world order. The "paradigm" of modern world order is the practice of dividing political authority into territorially-distinct, mutually-exclusive sovereign nation-states -- a mode of differentiation that first arose, as outlined in part 1, in Europe around the 16th and 17th centuries, and from there spread gradually through imitation and force to encompass the entire planet. I use the word "paradigm" deliberately in order to underscore that this mode of differentiating political authority has never been absolute, but has accommodated various infringements in practice and in principle throughout modernity.
Like many other observers, however, I see developments occurring that indicate that this paradigm is being fundamentally transformed -- that modern world order, in the words of both Ruggie and Elkins, is "unbundling."¹ My intention in this chapter is to trace those elements of the "unbundling" process that are linked to distributional changes related to the emerging hypermedia environment.

The chapter will proceed in the following way: First, I will explore the distributional changes that are occurring in international economics -- particularly, the way hypermedia facilitates the transnationalization of production and the globalization of finance. Second, I will examine the way transnational social movements are flourishing in the non-territorial spaces of hypermedia, leading to what has been called a "global civil society." Third, I will assess the relative "fitness" of alternative domestic security arrangements in the hypermedia environment, arguing that hypermedia complements liberal-democratic political organizations, or what are called "negarchies." Finally, I will conclude with some brief observations on the way these distributional changes may be helping to transform the architecture of modern world order.

I. International economics: the transnationalization of production and finance

a. Transnational production

Like other aspects of social organization, production in the modern world order has generally been organized within territorially-distinct, mutually-exclusive sovereign nation-states.
In other words, the production of goods and services, and the organization of economics, was primarily a "national" affair and was undertaken in a "national" context. Because of the state survivalist mentalité into which state leaders were acculturated, economic production was shaped and driven by a desire for self-sufficiency and autonomy.² If Waltz's notion of functionally undifferentiated "like" units never corresponded exactly to state practice, it was a fair representation of the ideal to which all states strove.³

In practice, of course, states have varied enormously in the extent to which they have approximated this ideal. And as Marxists have pointed out, "national" economic production has never been completely de-linked from a world economic system characterized by a variety of dependencies between "core" and "peripheral" economies.⁴ But, in general, economic production has been organized, planned, measured and thus overwhelmingly contained within discrete sovereign-territorial boundaries. The most apparent evidence of this is that the vast majority of economic transactions have been internal or domestic as opposed to international.⁵ Trade among states -- which often reached proportionately high levels relative to Gross National Product (GNP) during times of stability -- has been predominantly of the "arms-length" variety, with nationally-produced goods and commodities being exchanged across state boundaries.⁶ Even if capitalist entrepreneurs had an interest in escaping the self-sufficiency paradigm that bounded production within sovereign-territorial spaces, the existing communications environment placed significant constraints on the degree to which production could become transnationally complex. As Kurtzman notes, "most of the world's economy [during the 19th century] remained as separate islands only tangentially linked by slowly moving steam- and sail-powered ships,
trains, and (beginning in 1844) the telegraph.”

Of course the situation described above refers to general structural characteristics, which in reality have never been static, but have constantly evolved in conjunction with changing technological and social conditions. One discernable evolutionary trend, beginning in the late 19th and early 20th centuries and spurred on by successive developments in transportation and communications, has been a gradual rise in the density of transnational economic ties, including international trade. For example, in the 1835-1968 period (excluding 1920-1945) international trade rose on average by 55 percent each decade. As these ties have grown, so too have questions about the obvious contradiction between transnationalization and the bounded political organization of sovereign-territorial states. In Gilpin’s words, a “dominant motif” among observers of international political economy in the latter 20th century has been “the conflict between the evolving economic and technical interdependence of the globe and the continuing compartmentalization of the world political system composed of sovereign states…” Prior to hypermedia, these trends were centred predominantly on traditional "arms-length" national transactions, with rising figures composed mostly of changes in the volume of international trade. In the hypermedia environment, however, the transnationalization of trade and production has reached a qualitatively different level and represents not merely a change in the volume of cross-border transactions, but a fundamental change in the nature and organization of production itself. In other words, although the transnationalization process has deep antecedents, it has been qualitatively transformed in the new communications environment with the complex diffusion of production across national boundaries.
The starting point for understanding the "fitness" of transnational production in the hypermedia environment is the way this environment facilitates the strategic interests of businesses and corporations that have an incentive to cross political boundaries. Although "rational-actor" models are often properly criticized for their ahistoricism and cultural parochialism, one area where they approximate the motivations and interests of actors is with respect to capitalist organizations whose overriding motivation is the accumulation of profits and the reduction of costs. Of course, actual decisions of individual firms to "go global" depend on a variety of causal factors which may not be so easily squared with such a model, including institutional path-dependencies, leadership culture, internal power-struggles, and national origins. Generally speaking, however, hypermedia creates a conducive environment with strong incentives for those firms that operate transnationally. Moreover, as more firms buy into these incentives, the nature of market competition creates strong pressures on other firms to do likewise in order to survive. This creates a "cascading" effect, with hypermedia facilitating the success of those firms that decide to operate transnationally, which, in turn, motivates other firms to follow suit. The result, in Morgan's words, is that "telecommunications now constitutes part of the central nervous system of far-flung corporate empires, so much so that it is much more than a mere cost item."

The most obvious and forceful way in which hypermedia complements the transnationalization of production is by providing a way to communicate vast amounts of voice, text, and image data instantaneously throughout the world. McKenzie and Lee note that "Now, by touching a few keys and for the cost of a telephone call, modern managers can, via satellites,
send millions of bits of crucial information on design specifications, production costs, or schedules to virtually any point on the globe at almost the speed of light."14 In other words, hypermedia greatly enhances what Hepworth has called "multilocational flexibility" by reducing the prior constraints associated with the risks and costs of operating over large distances for individual firms.15 Corporations value multilocational flexibility primarily because it permits the possibility of crossing political boundaries to evade government regulations, or to search for cheap or specially-skilled labour, low taxes, and other favourable regulatory climates. The reliance of firms on effective telecommunications for multilocational flexibility has meant that many have taken to leasing their own private networks for secure and reliable communications. One example is the Ford Motor Company's private telecommunications network called "Fordnet," which is designed to secure better synergy among Ford's 20,000 designers and engineers located around the world.16 This reliance on private-leased lines by corporations has been one of the primary factors behind the push for "de-regulation" and the break-up of national monopoly cartels in telecommunications.17

One increasingly popular manifestation of multilocational flexibility is the segmentation of different components of the production chain of individual firms into multiple national locations, not only to neutralize swings in currency differentials among national economies, but also to take advantage of "niche" regulatory climates or labour pools around the world that favour specific processes (e.g., marketing, management, "back-room" data processing, and/or research and development).18 As Hepworth notes, "These enhanced economies of scale and scope, deriving from the sharing of information and specialised physical assets (computers and
telecommunications facilities), provide the firm with opportunities for reducing the minimum efficient scale of branch operations (remote plants, sales offices, etc) and extending their degree of geographical dispersal."19 For example, United Technologies operates more than 120 manufacturing plants in 24 countries, with sales and service offices in 56 countries. Production of its Elevonic 411 elevator exemplifies the segmentation of the production chain: the French branch built the door systems; the Spanish division handled the small-geared components; the German subsidiary handled the electronics; the Japanese unit designed the special motor drives; and the United States/Connecticut group coordinated the systems integration.20 Perhaps the most common example of this transnational disaggregation is data-entry, "back-office" jobs -- a phenomenon that has given rise to the term "global office." New York Life Insurance Company, for example, has its claims works done in Ireland, while American Airlines employs more than a thousand data entry employees in Barbados.21

Hypermedia not only complements the transnationalization of production internal to individual firms, it also facilitates it among multiple firms. By making it easier to coordinate strategic alliances, joint ventures, and joint production arrangements among separate firms regardless of the geographical distance that separates them, hypermedia provides a way for individual firms to spread out the risks and costs of research and development, and thus permits an entry into foreign markets that might otherwise be precluded by tariffs or other regulatory restrictions. Although examples of these types of collaborative arrangements can be found prior to hypermedia, they have flourished since its development, becoming a much more dominant feature of the global production landscape.22 According to James and Weidenbaum, "The pace
at which cooperative strategic alliances between firms occur is accelerating, particularly in high-tech, high-growth industries, such as computers, semiconductors, telecommunications, electronics, chemicals, and industrial equipment. "23 In the aerospace and automotive industries, "every major company has formed alliances with foreign competitors in an effort to spread the costs and risks of developing new products, as well as to ensure access to overseas markets."24 Through tele-conferencing systems, faxes, and computer networks (in particular, electronic mail), transnational collaborative arrangements can be as closely coordinated as if they were in the same building. Today, it is not uncommon for design teams located thousands of miles from each other to work on the same design in real-time over computer networks.25

These types of collaborative ventures have also transformed the nature of sub-contracting and traditional supplier-client relationships, with suppliers being drawn more closely into the research and design of their clients' products. Inventories can be adjusted electronically in what has been referred to as "just-in-time" delivery of parts and products.26 Just-in-time interaction (also known as "zero stock systems") could not take place without the use of Electronic Data Interchange, or EDI, which maintains a constant electronic link between companies like Wal-Mart and one of its major suppliers, Procter & Gamble, or Dominoes Pizza, which uses a computer network called "Domilink" to coordinate supplies among its 1,100 workers located at 28 North American sites.27 Such complex electronic links reduce the constraints of operating supplier-client relationships over large distances as inventories can be constantly monitored from afar and deliveries adjusted for travel time depending on the product concerned. These electronic connections link companies from all parts of the production chain both domestically and
internationally into a rapid-response/mutual adjustment system that often begins the moment the bar-code is scanned at the retail register when the product is purchased.28

Examples and illustrations of these new complex transnational collaborative ventures abound. The computer maker Unisys is both a customer of, and supplier to, IBM and Honeywell in the United States, BASF, Philips, and Siemens in the European Community, and Fujitsu and Hitachi in Japan. "Together, these companies engage in joint ventures, coproduce, serve as sources for each other, share output, and compete."29 More than one-half of Corning Glass's revenues comes from joint ventures -- two thirds of which are with foreign companies, including Siemens in West Germany, Ciba-Geigy in Switzerland, Plessey in the United Kingdom, Samsung in South Korea, and Asahi Glass in Japan.30 In developing and producing its new 777 commercial jet airliner, Boeing entered into coproduction arrangements with companies from six different countries, including Alenia of Italy (for the outboard wing flaps); Aerospace Technologies of Australia (for the rudder); Mitsubishi, Kawasaki, and Fuji of Japan (for the fuselage panels and doors, and the wing ribs); Korean Air (for the flap covers); Menasco Aerospace of Canada (for the landing gears); and General Electric of Britain (for the primary flight computers).31 One of the most complex sectors for these types of co-production/joint venture relationships is the automobile industry, where alliances among competing automobile manufacturers in different countries has deeply permeated the production of most vehicles. To take just two examples, General Motors owns 40 percent of Isuzu and 5 percent of Suzuki, and has joint ventures with Chrysler, Daewoo, and Toyota. The latter (Toyota) has an equity partnership with Daihatsu, and joint ventures with Chrysler and Volkswagen.32 Perhaps most
significant for long-term world order changes has been the surge in transnational joint ventures and strategic alliances in the global defence industry. As late as 1985 there were no transnational strategic alliances among major national defence firms; by 1993 there were sixteen. Similarly, from 1981 - 1985 there was only one transnational joint venture; from 1991 - 1993 there were sixteen.33 Bitzinger notes that these trends represent not just a quantitative shift, but also a qualitative one as the process of collaboration is "becoming increasingly less ad hoc and more formal, integrative, and permanent."34 Although hypermedia does not generate these complex transnational processes, which stem from multiple incentives in each case, it does complement and augment them enormously, offering firms a more hospitable communications environment in which to reap the benefits of "going global."

A second way in which hypermedia facilitates the transnationalization of production is by allowing more flexible production keyed to the vagaries of local consumer tastes. As hypermedia involves knowledge-intensive/software-based production lines, rapid shifts in production output or major changes in advertisement campaigns are made more feasible than with the traditional mode of labour-intensive, mass-produced finished goods. Bartlett and Ghoshal note that:

> recent developments in computer-aided design and manufacturing, robotics, and other advanced production techniques have made the concept of flexible manufacturing a reality. Companies that previously had to produce tens or hundreds of thousands of standardized products in a single plant to achieve minimum efficient scale now find they can distribute manufacturing among smaller national plants with little cost penalty. In this way they can respond to localized consumer preferences and national political constraints without compromising their economic efficiency.35

This particular capability contradicts the widespread belief that globalization of production
necessitates homogenization.\textsuperscript{36} To the contrary, in order to operate successfully, transnational corporations have to be willing to accommodate local conditions: a strategy captured by the former head of Sony Akio Morito's term "global localization," and a pervasive concept within the multinational business literature today.\textsuperscript{37} Ohmae notes how "Coca-Cola's success in Japan was due to the establishment of its route sales force, but also to its rapid introduction of products unique to Japan."\textsuperscript{38} Through computer-based, digital-designed and operated manufacturing and advertising systems, hypermedia permits the production of "niche" products that are tailored to suit local conditions. With computer-assisted consumer profiles and other market-surveillance mechanisms, firms can then maintain a constant watch over disparate localities around the globe, enabling diversified responses to local conditions, as well as rapid adjustments in advertising campaigns to influence parochial consumer tastes.\textsuperscript{39} Even McDonald's -- a symbol of capitalist homogenization if there ever was one -- regularly changes many of its product and advertising characteristics to match local consumer profiles. In Japan, for example, it changed the name of its mascot from Ronald McDonald to Donald McDonald and the pronunciation of its name to "Makudonaldo," both of which are easier to pronounce for Japanese speakers.\textsuperscript{40}

A third way in which hypermedia facilitates the transnationalization process is by enabling small, locally-based firms to reach a global audience. While globalization is generally associated with massive, multi-billion dollar transnational enterprises, hypermedia increasingly allows small firms with niche products to reach a global market, and thus compete with industry giants in select areas. The best example of this phenomenon is the rapid commercialization of the Internet, where individuals or small firms with low initial investment can market products to a
rapidly-increasing, global Internet audience through the mere posting of web-site advertisements.\textsuperscript{41} Everything from floral arrangements to pizzas to computer software to legal consultation is now marketed on the Internet. Initially, security concerns among credit card companies limited the scope of Internet commercialization. However, innovative credit solutions have been made to side-step these concerns ("Digicash" and "Cybercash are the two most prominent examples),\textsuperscript{42} while credit card companies have entered into research projects with computer security specialists to devise appropriate security-protection mechanisms that will protect on-line use of credit card numbers.\textsuperscript{43} What might be called (in an inversion of Morito's phrase) "local globalization" could not take place on such a large scale without the low-cost, planetary reach afforded by hypermedia to the average individual-producer. As the Internet continues its exponential growth around the world, and as more private companies flock to the "net," the connection between a considerable portion of the production, marketing, and sale of goods and services will become detached from "place," existing only in the non-territorial "space" of globally-linked computer networks.

The result of this functional convergence between hypermedia and the transnationalization of production is a much more complex and cross-cutting non-territorial organization of production. Not only are new corporate structures emerging that are less hierarchical, more "web-like," but firms all over the planet are now embedded in a global "networked" environment, composed of multiple, overlapping, and complex transnational production arrangements ranging from formal equity-sharing or co-production arrangements to informal alliances and joint ventures.\textsuperscript{44} Although it is certainly true that we are nowhere near a
completely "borderless" economy, and that there are few truly "placeless" corporations, the changes that have already occurred are significant and growing, suggesting important consequences for the architecture of political authority, as will be explained shortly.

A variety of factors indicate the extent of the changes that are occurring. For example, for advanced economies of the "triad" states -- the United States, Japan, and European Community members -- from a third to as much as one-half of the trade crossing their borders now consists of internal transfers within the same enterprise. It is estimated that 80-90 percent of all "transborder data flows" are generated by such intra-firm transactions. Another indication of the transnationalization of production is the rise in traded services -- a particularly difficult feature to gauge accurately, though one that by most accounts is assuming more importance, especially with the commercialization of Internet. As Ruggie has noted, it is not entirely clear what is meant by "trade in services": "In merchandise trade, factors of production stand still and goods move across borders; in traded services, typically the factors of production do the moving while the good (service) stands still: it is produced for the consumer on the spot." A conservative estimate places service exports at about $700 billion per year worldwide, constituting about 25 to 30 percent of world trade. Another indication is the growth in Foreign Direct Investment (FDI) -- a reasonably accurate data source, though one that unfortunately excludes most nonequity relationships and activities, the very ones that are now assuming such great importance. Worldwide outflows of FDI have increased nearly 29 percent a year on average since 1983, three times the growth rate of world exports. Moreover, trends indicate that the sources of FDI are diversifying geographically to include not
only the traditional post-industrialized countries, but also FDI from several of the newly industrializing countries. Within the post-industrialized countries themselves FDI has levelled considerably, with the U.S. ratio of outward/inward FDI moving from 11:1 in 1975 to 1:1 by the end of the 1980s.52

To be sure, the geographical distribution of these transnationalization processes are unevenly spread around the world.53 As some of the figures above suggest, the global pattern of FDI activity is strongly concentrated in the triad regions (and within those countries most of it is still concentrated in the United States and the United Kingdom), with the share going to the developing countries remaining low -- some 18 percent of the world total.54 And despite some exceptions where bargaining agreements feature high technology-transfers, the overwhelming majority of the FDI heading to the South is still predominantly tapping into the low-wage, low-skilled labour market.55 These geographical inequalities are both a reflection and a reinforcement of global power disparities between North and South. But power differentials notwithstanding, there is no region in the world today that is not in some way tied into the globalized economy. With respect to the dissolution of the modern world order paradigm, these North-South disparities are less significant than the complex diffusion of production across political borders. Before outlining exactly what these changes portend for world order transformation, the following section will examine similar distributional changes occurring in global financial markets.
b. The emergence of global finance

According to Stopford and Strange, the international financial structure is "the system by which in a market-based economy, credit is created, bought and sold and by which, therefore, the use of capital is determined."\(^5\)\(^6\) It is different from the international monetary structure -- which refers to the "system that governs exchange rate parities" -- although the two, of course, are related in important ways. As Stopford and Strange point out, the international financial structure has undergone dramatic changes in the last few decades, proceeding "away from nationally-centred credit systems toward a single system of integrated financial markets...[to] a global system, in which national markets, physically separate, function as if they were all in the same place."\(^5\)\(^7\) In other words, a primarily "state-based" system "with some transnational links" has evolved into a single global financial system -- a system that today exerts significant autonomous structural pressure on the macroeconomic behaviour of states.\(^5\)\(^8\) As will be shown below, although the emergence of global finance has had multiple causes and antecedents that predate the mode of communication, it has been social forces in favour of global finance working symbiotically with hypermedia that brought about such a fundamental change in the nature of international financial markets: pressures in the direction of financial globalization created a demand for, and spurred on new developments in, communications technologies, while the latter, in turn, fuelled the globalization processes of the former. Without hypermedia, the global financial structure could not exist on such a formidable scale as it does today. According to Hepworth, "At the heart of this market transformation are the new information and communications technologies, which have effectively removed the spatial and temporal
constraints on twenty-four-hour global securities trading and created pressures for 'deregulation' in all countries across the world.\textsuperscript{59}

As many theorists of international political economy have pointed out, the movement of money and finances across borders is not a new phenomenon, but has developed in conjunction with modern industrial capitalism.\textsuperscript{60} However, as with production, finance has been predominantly a \textit{national} affair under the modern world order paradigm, first with the development of networks of regional banks channelling local sources of capital into private industry, and later with their absorption into "national" markets, which were more spatially and organizationally centralized, but still territorially-discrete.\textsuperscript{61} When it occurred, the movement of money across borders was closely associated with the financing of international trade, and only in the latter stages was it also used to channel capital into overseas investment.\textsuperscript{62} For example, in the latter part of the 19th century, massive capital accumulation (mostly in Great Britain) resulted in relatively large overseas investments in railroads, port facilities and other infrastructural projects in the United States, Canada, and Australia.\textsuperscript{63} But these financial flows reduced significantly during and after World War I, and remained subsidiary to trade and government aid for some time thereafter. Right up until the 1950s and 1960s, "international finance served to lubricate trade flows and to finance the operations of transnational firms and governments in a relatively controlled system."\textsuperscript{64} The subsidiary role of finance to production throughout this period was a product of both technological constraints that limited the mobility of finance capital, as well as deliberate policy initiatives designed to keep finance the "servant" of production, as outlined, for example, by John Maynard Keynes at Bretton Woods.\textsuperscript{65}
Generalizing across all states prior to the 1970s, the international financial structure was characterized by "a series of national financial systems linked by a few operators buying and selling credit transnationally, across national frontiers, and across the exchanges (i.e. from one national currency to another) and by a few national asset markets (e.g. stock exchanges)..."66

The rise of a globally-integrated financial sector has had a multiplicity of mutually-interacting and reinforcing causes, making it futile to suggest any one "prime mover."67 Although hypermedia is considered by theorists, almost without exception, to be crucial to this process, it is virtually impossible to disentangle its impact from other factors.68 It may be useful for analytical purposes, then, to sketch briefly some of the non-technological factors that contributed to the globalization of finance, and then afterwards show the way hypermedia reinforced and augmented them.

One reason for the rise in the volume of international financial activity was the transnationalization of production outlined above. As mentioned earlier, the traditional role of international financial movements was to "grease" the wheels of international commerce; as trade increased over the 20th century, and as production diffused across national boundaries, cross-border financial activities rose in step. Transnational banks in particular became more widespread in the 1960s and 1970s to service the demands of multinational corporations. They offered a substantial transaction-cost advantage over nationally-based banks in the international wholesale market by being able to handle smoothly large transactions amongst banks, governments and large firms with cross-border operations.69
A second big impetus to the globalization of financial activities was financial innovations, especially the creation of the so-called "Eurodollar" market. The Eurodollar market originated in London, where the city's lax regulatory and high rate-of-return financial climate, coupled with its considerable stock of financial expertise and extensive network of banks and financial connections, began to draw investment away from the tight regulations and artificially low-interest rates of the United States. The growth in Eurodollars remained steady until the OPEC crisis of the early-1970s suddenly put billions of so-called "petrodollars" in the hands of oil-producing states, who then re-invested their money not in the United States, where regulatory interference was common and taxes were high, but in the Eurodollar market where they were "untaxed, anonymous, and profitable." The result was a sudden explosion in the volume of financial capital circulating around the globe -- "a gigantic pool of quasi-stateless mobile capital, not subject to political authority or accountability."

A third source of the globalization of finance was regulatory changes in the advanced economies, particularly the liberalization of domestic capital controls. The de-regulation and liberalization of financial markets can be traced back to the collapse of Bretton Woods in 1971, the closing of the "gold window," and the subsequent removal of controls over the flow of money across borders and a relaxation of interest-rate regulations. The change "redefined money," created "enormous arbitrage possibilities and set the stage for the invention of a myriad of new financial products." Perhaps more importantly, it began the decoupling process by which speculative capital was divorced from its traditional, subservient role as the "grease" of the "real" economy of trade and production. International finance suddenly had become, in
Strange's apt phrase, "casino capitalism." A reduction in regulations governing stockbroker commissions followed, and competition policies among banks and other financial institutions in turn led to more speculation and uncertainty. By the 1980s, under the direction of the Reagan/Thatcher neo-liberal movement, de-regulation swept through all sectors of the advanced economies, whipping into a frenzy the speculative flows of capital across borders.

None of these changes can be divorced from the development of hypermedia, which was both a product of, and reinforcement to, the non-technological factors outlined above. In fact, finance capital and communications technologies have had a mutually-reinforcing, symbiotic relationship dating back to the telegraph, with each move towards globalization, in turn, spurring on the development of more cost-effective, speedy communications, which in turn has led to more globalization. Daniels, for example, has identified a three-stage process whereby each new innovation in hypermedia was gradually incorporated into the routines of foreign exchange dealings, from the first large and expensive computers of the 1970s that handled back-office accounting procedures, to the on-line data services provided by organizations like Reuters and Telerate in the late 1970s, to the complex, digitally-integrated hypermedia systems of today. The result is that global financial services have developed the most advanced hypermedia networks in the world, and are today at the forefront of computing and telecommunications innovations -- a place traditionally occupied by military research and development. According to Harry Scarbrough:

Financial services is a highly information-intensive sector, and massive amounts are invested in the processing and manipulation of information. IT [information technology] investments in a major UK bank could easily exceed a billion pounds
over a five-year period. The sector also has greater experience of using computer
technology than any other industrial sector. Within every major financial services
firm, large IT divisions or departments have evolved to guide and control
technological development. 80

The symbiotic relationship between finance and hypermedia is not difficult to understand
when one considers the important relationship between, as the old adage goes, "time and
money." Consider that in the United States alone, on an average day, America's fourteen
thousand banks transfer about $2.1 trillion over their local data networks to settle account
balances. The cost for a bank of financing a deficit, even if it is only for overnight, translates
into strong incentives to develop networks that are efficient and quick. 81 One recent study
revealed that a major investment in hypermedia systems gave one major U.S. bank a ten-second
advantage over competitors -- a powerful advantage that meant gains on the order of billions of
dollars. 82 The ultimate goal, according to banking technology experts, is "just-in-time" cash,
or what has been called a "disappearing float" -- a real-time clearance of balances that would be
inconceivable without hypermedia. 83

The consequences of the "time is money" imperative for the financial sector has been an
explosion of hypermedia applications, as new innovations in information technology saturate the
industry -- each new product and service providing yet more information with more speed, and
more computing power than before, on a global scale. Stock exchanges now no longer require
a physical trading floor as electronically-linked exchanges operate globally in a 24-hour
marketplace. Examples are numerous and increasing, and include such systems as: the Stock
Exchange Automated Quotation (SEAQ) of London; the U.S.-based NASDAQ network; the
electronic trading system Globex, developed jointly by Reuters and the Chicago Mercantile Exchange; the Computer Assisted Trading System (Cats) centred in Toronto, and many more. These larger systems are now joined by smaller, "private" trading "clubs," like Instinet, Posit, or Was, each of which allow trading to take place remotely from PCs or terminals located anywhere in the world at anytime. Complex artificial-intelligence software systems are then developed by securities firms to handle vast, complex stock portfolios that react instantaneously to slight shifts in the market. On-line services, such as Reuters, Telerate, and Quotron in the United States, and Extel and Datastream in Europe, plus smaller, hand-held devices like Quotreks, compete with each other and with global television networks, like CNN or Asian Business news, to provide the most up-to-date information on international trading activities.

Financial institutions now invest heavily in transnational communications infrastructural projects to help facilitate global trading activity as a whole. Hepworth, for example, has documented how leading financial institutions, like Nomura Securities of Japan or Prudential-Bache Securities of the United States, are the driving force behind major telecommunications developments around the world, such as teleports and fibre-optic installations. Leased lines or specialized electronic transfer services, like the Society of Worldwide Interbank Financial Telecommunications (or SWIFT), then provide the ever-intensifying, real-time links among these institutions.

Like the tightening of a knot, each advanced application of hypermedia in the financial sector furthers and deepens the global integration of capital markets in a planetary web of complex speculative financial flows. In ways that are similar to the overlapping layers of transnational production, the players in the "casino capitalism" market represent a complex
montage of both massive global enterprises and small entrepreneurs with a planetary reach afforded by hypermedia. The "big" players -- financial institutions like Citicorp, Chase Manhattan, Merrill Lynch, Salomon Brothers, Barclays, National Westminster, Warburg, and Nomura -- have offices around the world and dominate trading: typically, the top twenty institutions in a market account for between 40 and 60 percent of worldwide transactions. Because of the way hypermedia links the globe into a twenty-four hour market, companies like Salomon Brothers Inc, which can trade up to $2 trillion U.S. in stocks, bonds and commodities in a single year, are "always open, everywhere." As Daniels notes, "Telecommunications permits a London-based Eurobond dealer who starts work at 6:00 am to catch the end of trading on the Tokyo exchange, to trade all day in London and to catch four to five hours on the New York exchange, depending on when he decides to work." Stocks, bonds, and other instruments of debt are continuously traded (see Figure 3), bounding from exchange to exchange in response to slight shifts in the market -- often without human intervention as computer programs handle portfolios for traders. In the words of Thrift and Leyshon, "we might conceive of the international financial system as an electronically networked, constantly circulating, nomadic 'state', operating 24 hours a day around the world."

The entire volume of capital speeding through hypermedia currents is thus truly staggering, and at times seems almost incomprehensibly large compared to more readily identifiable figures. Kurtzman offers the following startling comparison:

*Every day, through the "lobe" in the neural network that is New York, more than $1.9 trillion electronically changes hands at nearly the speed of light. These dollars -- and the cares, hopes, and fears they represent -- appear as momentary*
flashes on a screen....Every three days a sum of money passes through the fibre-optic network underneath the pitted streets of New York equal to the total output for one year of all of America's companies and all of its workforce. And every two weeks the annual product of the world passes through the network of New York -- trillions and trillions of ones and zeros representing all the toil, sweat, and guile from all of humanity's good-faith efforts and all of its terrible follies.94

CS First Boston, a leading global bond trader based in New York, trades more money each year than the entire GNP of the United States.95 To give some indication of the way in which "casino capital" has been de-coupled from the so-called "real" economy (which historically it has been assumed to follow), international trade now amounts to about $2 trillion per year. Today foreign exchange transactions alone -- carried out over computers linked in near-real time -- amount to about $1 trillion per day.96 As will be shown below, these volumes assume a special significance when they are considered in relation to state autonomy over macroeconomic policies.

In response to this massive, global 24-hour marketplace, new spaces and flows are arising, and centres and "hubs" have emerged, that may provide a glimpse of the evolving architecture of the postmodern world order. Large cities, such as New York, London, Tokyo, Singapore, and Hong Kong, are assuming more of an importance as "command centres" in the global "finanscape" -- what an Economist survey referred to as "Capitals of capital."97 According to Thrift and Leyshon, these "ordering centres" arise because "the interdependent connectedness of disembedded electronic networks promotes dependence on just a few places like London, New York and Tokyo where representations can be mutually constructed, negotiated, accepted and acted upon."98 They act not so much as national cities as they do world cites --
interfacial nodes in the global hypermedia environment.

Also assuming more importance are the many "offshore" micro-states that "have been transformed by exploiting niches in the circuits of fictitious capital."99 The term "offshore" is especially significant: in Ruggie's words, it signifies the way in which emerging financial practices strain our current stock of concepts and ideas, "as though they existed in some ethereal space waiting to be reconceived by an economic equivalent of relativity theory."100 Likewise, Roberts notes that "these offshore financial centres are sites that dramatically evince the contrary and complex melding of offshore and onshore, of national and international, and of local and global."101 For example, because of its strategic time-zone location and lax regulations, the tiny Cayman Islands "houses" 546 banks from all around the world, of which only 69 maintain any kind of physical presence.102 The quintessential "offshore" market is the Eurodollar or Eurocurrency market, the history of which was outlined earlier. Martin calls the Eurocurrency market "stateless" money.103 The prefix "Euro," as Roberts points out, is a misleading vestige of an earlier time; today, the Eurocurrency market involves a dynamic new geography of flows "stretching from Panama to Switzerland and on to Singapore and beyond."104 Confusing matters even more is that regulations designed to offer more competitive financial environments have created extra-territorial "offshore" markets onshore, within state boundaries, such as those that exist in New York, California, and Japan.105 Developments such as these, where a "space of flows" seems to dominate and transcend a "space of places" in Castell's terms, strain our traditional ways-of-seeing the world that were constructed and re-affirmed under the modern world order paradigm.106 They signal not only an "unbundling" of our practices, but of our
conceptual baggage as well.\textsuperscript{107}

\textit{State autonomy in a global economy}

The distributional changes to global production and finance outlined above impact on the modern world order in a number of fundamental ways. The first, alluded to above, is that by creating a much more complex, overlapping, and globally-integrated system of production and finance, these changes present fundamental challenges to long-standing presuppositions about the nature and character of modern economic organization. Taken-for-granted practices, such as a "national" economic system, or a "national industry," or "international" trade, are thrown into doubt as production disaggregates and diffuses across territorial boundaries. It is important to remember that the distributional changes to production outlined earlier represent not just a quantitative increase in the volume of cross-border transactions, but a qualitative, fundamental change in the nature of production itself, one that cannot easily be reversed given the density and scope of transnational links within and among firms. As these arrangements permeate more and more aspects of economic activity in all sectors, it makes it increasingly difficult for any one state to define, in Robert Reich's words, "who is 'US'?"\textsuperscript{108} Similarly, preconceptions about the "domestic" and the "international," about "inside" and "outside," are strained by the constant flows of capital through cyberspatial currents, by the creation of "offshore" markets, and by the emergence of an electronically-linked, 24 hour global trading system. What once seemed the "natural" order of politico-economic organization into discrete territorial bundles has given way to a much more fluid and complex global economic system.\textsuperscript{109}
On a more concrete level, as a number of theorists have shown, the globalization of production and finance has undermined the effective power of state regulatory systems within individual geographical-political jurisdictions. These theorists have observed how the sheer volume of capital mobility creates a "structural" pressure that systematically circumscribes the macroeconomic policy options available to states -- a power large enough to warrant, according to Webb, its inclusion as a "third-image" attribute of the international structure. Two consequences are noteworthy. First, a new form of state has emerged -- variously called the "transmission belt" state or the "competition" state -- which increasingly defines itself and its interests according to the pressures and values of global capitalism. Governments at all levels -- provincial, state, and regional -- now engage in competitive de-regulatory and re-regulatory "locational tournaments" designed to attract global investment. Although individual state policies differ to some extent, governments around the world increasingly have moulded their policies according to the interests of global market forces. And each de-regulatory wave only drives the process further, augmenting transborder capital mobility and creating demands for yet more accommodating policies.

The second consequence has been the creation and emergence of multiple and overlapping layers of authority designed to respond to and govern globalizing economic forces. Most all states now find themselves enmeshed in an ever-widening network of informal and formal international institutions, regimes, organizations, and regional trading blocs that have arisen in reaction to the transnationalization of production and finance as outlined above. Examples of these layers of global "governance" are numerous, ranging from more informal bodies,
like the Trilateral Commission or the "G-7" economic summits, to more formal bodies, such as the recently created World Trading Organization, to regional bodies and agreements, such as the European Commission, the North American Free Trade Agreement, or the Asia-Pacific Economic Council, to more specialized, functional bodies, such as the World Bank, the International Monetary Fund, or the Bank for International Settlements. While it is true that states voluntarily entered into and created such agreements, these webs of global governance establish institutional precedents and routines that cannot easily be reversed.

II. Transnational social movements in the hypermedia environment

The second area where distributional changes are occurring that are serving to "unbundle" the modern world order paradigm is the rise of transnational social movements with multiple, overlapping, and often competing interests. These new movements represent the emergence of what Lipschutz has called a "global civil society": that is, transnationally organized political networks and interest groups largely autonomous from any one state's control. In ways that are similar to the transnationalization of production and finance outlined above, the rise of a global civil society presents fundamental challenges to the modern world order paradigm by diffusing a dense network of social and interest group activities across territorial-political boundaries. Although hypermedia did not generate these new social movements, it does create a communications environment in which such activities flourish dramatically. As computer networks have grown, transnational social movements have exploded, forming complex non-territorial based links that defy the organization of political authority in the modern world order.
To some extent, there have always been social movements throughout modernity whose interests transcend political boundaries. A good example, outlined by Nadelmann, is the 19th century anti-slavery campaign initiated by the British and Foreign Anti-Slavery Society.\textsuperscript{122} Founded in 1839, the Society lobbied to abolish slavery around the world, calling international conventions and mass meetings and circulating petitions and propaganda to elites in foreign countries. It prompted the creation of similarly dedicated movements in France, the United States, Brazil and elsewhere, and helped build a global prohibition regime against the slave trade.\textsuperscript{123} Religious organizations -- like the Quakers, or in more recent decades, Christian and Islamic fundamentalists -- also typically have framed their movements' aspirations and interests in universalist terms, beyond the boundaries of modern sovereign states. However, both the constraints of the existing communications environment, coupled with an overriding belief in the legitimacy of sovereign non-intervention, limited the scope of such transnational social movements to a few exceptional cases.\textsuperscript{124}

The growth in density of transnational social forces occurred during the 20th century, arising mostly out of the industrialized Western states where a "pluralization" space was opened up by the expansion of an educated middle-class motivated by broad liberal-democratic principles of human rights and social activism, and strategically-placed to fill a vacuum left by the "crisis" and retreat of the national-welfare state.\textsuperscript{125} These movements continued to grow such that by the 1980s they were becoming a common feature of the world political landscape (though one that was generally overlooked by traditional International Relations theorists). For example, human rights non-governmental organizations (NGOs) alone increased from 38 in 1950, to 72
in 1960, to 103 in 1970, to 138 in 1980, to 275 by 1990. The Union of International Associations now recognizes some 14,500 international NGOs. Their visibility in a wide variety of international fora and conventions, and their growing influence on both international and domestic policy, make them hard to ignore. As an illustration of the growing importance of some of these groups, NGOs provided $8.3 billion in aid to developing countries in 1992 -- 13 percent of development assistance worldwide.

The movements that together comprise this emerging global civil society are not homogenous in their orientation or organization, but rather consist of a multiplicity of "heteronomous" networks of political associations. The causes around which these movements are formed are equally varied. Examples are numerous and include groups in issue-areas such as the environment (e.g. Greenpeace or Earth First!), human rights (e.g. Amnesty International), indigenous peoples' networks, gay and lesbian movements, and women's rights associations. As Spiro notes, "Environmentalists, human rights advocates, women, children, animal rights advocates, consumers, the disabled, gays, and indigenous peoples have all gone international." The majority of these transnational social movements do not operate through the traditional lobbying procedures and political channels of participation as defined by state structures. Most of them cannot be characterized as political parties campaigning for government office. Indeed, their very importance as a challenge to the modern world order paradigm lies in their willingness to side-step traditional political structures and sovereign boundaries "to address international problems, and to reflect a global sensitivity. They are "decentred, local actors, that cross the reified boundaries of space as though they were not
there, seeking to organize activities, and educate and motivate populations directly.

The rise in the visibility and density of these transnational social movements cannot be divorced from the communications technologies which have empowered them. As Spiro notes, "this explosion in nongovernmental activity reflects the dramatically heightened permeability of national borders and improvements in communications that have allowed territorially dispersed individuals to develop common agendas and objectives at the international level." Although telephones and faxes have long been staples for international coordination, it has been computer networks -- and in particular the Internet -- which have vastly transformed the scope and potential of these transnational movements. In fact, transnational environmental groups were among the first to realize the potential of the early computer networks as facilitators of their organization. EcoNet, for example, was formed in 1982 -- long before the popularity of Internet -- and now spans over 70 countries. Rittner describes the types of activities that take place over EcoNet:

*Hundreds of environmentally concerned organizations and individuals use EcoNet in a variety of ways. EcoNet members arrange local, regional, national, and international conferences. Environmental groups regularly post alerts requesting letter-writing campaigns and information. Environmental organizations post electronic newsletters for downloading or reading online. Other organizations download posted articles for their own newsletters. Grant information is available online, and you can read press and news releases. An online version of the National Wildlife Federation’s Conservation Directory lists virtually every environmental organization in North America. Frequent news contributors include the Sierra Club, Friends of the Earth, the Centre for Conservation Biology at Stanford, the International Union for the Conservation of Nature and Greenpeace.*

Today, EcoNet is only one part of a vast web of networks operating through the Internet
and linked together under the broad umbrella called the Association for Progressive Communications (APC). The APC is a non-profit consortium of 16 international member networks serving approximately 25,000 individuals and NGOs in 94 countries. According to Sallin, it is "the most extensive global computer networking system dedicated to social and environmental issues." The member networks comprising the APC include Alternex (Brazil); GreenNet (England); Nicaro (Nicaragua); NordNet (Sweden); Pegasus (Australia); Web (Canada); Comlink (Germany); Glasnet (Russia); Equanex (Ecuador); Chasque (Uruguay); SangoNet (South Africa); Wamani (Argentina); GLUK (Ukraine); Histria (Slovenia); and LaNeta (Mexico). One of the larger members of the APC network is the U.S.-based Institute for Global Communications (IGC), which itself is an umbrella organization encompassing a wide variety of social and environmental movements, sub-divided into four main specialty networks: EcoNet, PeaceNet, ConflictNet, and LaborNet. Together, these linked networks share enormous data-bases containing everything from government department phone numbers and addresses to scientific studies to calendars of events to various government regulations and accords, all hyper-linked and searchable by keyword. Over 80 "alternative" news and information services are available through the APC, including the Third World InterPress Service, the UN information service, and Greenpeace News. Members engage in electronic conferences, communicate directly through electronic mail, and distribute information, including urgent human rights or environmental violations. Almost every environmental, human rights, or issue-oriented NGO is now either affiliated with, or can be accessed through, the APC network.
Of course, not included in the formal APC network are the many informal transnational social movements linked through Internet bulletin boards, newsgroups and mailing lists. For example, Asian democracy activists (and any other potential interested party, for that matter) exchange information through computer mailing lists such as BurmaNet (strider@igc.apc.org); China News Digest (cnf-info@cnnd.org); Vietnam (viet-net-info@media.mit.edu); or Indonesia-L (apakabar@clark.net). Separate USENET newsgroups typically centred on human rights issues can be found in such areas as soc.culture.burma, soc.culture.saudi-arabia, or soc.culture.china. Countless other "private" exchanges take place through regular electronic mail, and in similar discussion groups on private computer networks like Compuserve, Prodigy, and America On-Line.

Although computer networks form the vital backbone of transnational social movement communications, their day-to-day activities are complemented by other components of hypermedia as well. For example, Greenpeace (which has over 40 offices in 30 countries) has its own satellite communications link, called "Greenlink" that connects its ships and offices.\textsuperscript{142} According to one senior official, "Greenlink" is indispensable: "Without it, we could not possibly coordinate the actions we do."\textsuperscript{143} Desktop publishing capabilities provides these movements with more effective (and affective) means of distributing pamphlets and newsletters on a grassroots level. In this way, local nodes in global movements can tailor their strategies and messages to match local conditions. Some elements of global civil society rely on the properties of particular components of hypermedia more than others. Consider the use of fax machines and hand-held video cameras by dissident groups to publicize their activities abroad.
While the most-often cited example is the Tiananmen Square massacre in Beijing, where radical students were able to reach a global audience through fax machines, these technologies have long been staples in the "Urgent Action" strategies of human rights organizations, like Amnesty International, which rely on speedy transmissions to publicize human rights violations to various national and regional centres.  

Of course, not all of these transnational social forces are working with the same goals in mind, and not all can be said to be working to the betterment of the human condition: such technologies have also facilitated the rise of transborder criminal activities, including pornographic distribution systems, terrorist activities, and the money-laundering schemes of organized crime. One of the more effective transnational social movements in exploiting hypermedia has been the neo-Nazi movement, which has gained a considerable following among younger generations in the United States, Canada, and Europe through the use of computer networks, faxes, video cassettes and other electronic forms of communication. The recent Oklahoma bombing focused media attention on the use of computer networks by transnational terrorist organizations and militia movements. The commander of the Michigan Militia, Norman Olson, called the Internet "absolutely vital" to his cause. In a search that lasted less than five minutes, I was able to acquire from a web-site in Geneva, Switzerland a detailed "Terrorist Handbook" (the table of contents of which are reproduced in Appendix B) that provides information on the ingredients for and assembling of explosive devices. At the same site, I was also able to acquire a large, detailed document detailing how to go about making an atomic bomb, should I ever wish to do so.
Less important (for the purposes of this study) than the values of these social movements, however, is the extent to which their interests are defined and their actions organized largely without respect to sovereign-territorial boundaries. As Thiele comments, "transnational social movements scramble the distinction between national and international politics that grounds the Westphalian system." By moving around and through political boundaries to influence populations, they not only undermine the connection between sovereignty and a territorially-defined populace over which the sovereign authority has ultimate jurisdiction, but they also challenge the idea central to the modern world order paradigm that the international states system is the legitimate arena where politics across borders takes place. This is especially the case with respect to those movements that lobby to enforce the global institutionalization of norms and principles relating to universal human rights -- a direct challenge to sovereignty. As Sikkink argues, "human rights policies and practices are contributing to a gradual, significant, and probably irreversible transformation of sovereignty in the modern world" -- a shift that "cannot be explained without taking into account the role of transnational nonstate actors." The monopoly claims of territorial states over legitimate authority, in other words, are increasingly challenged by global civil society networks that buttress their actions on wider, universalist aspirations. Whether motivated by these more humane values or not, however, the sheer density and complexity of contemporary transnational social movements, operating within the "global non-territorial region" of computer networks, presents a fundamental challenge to the modern world order paradigm.
III. The nature of security in the hypermedia environment

The remainder of this chapter examines the nature of security arrangements in the new communications environment. It is important to be clear about the level of analysis at which this examination is directed. Among International Relations theorists, "security" issues are traditionally discussed and examined in an "international" context. Theories of international security generally assume a basic structure -- they take for granted the division of political authority into sovereign states, and they theorize about the security relations among those states. From this perspective, the nature of individual domestic security arrangements is an unproblematic "given" that can be assumed away for the purposes of theorizing. However, when structural changes are occurring in the very architecture of world order, a deeper, more fundamental level of analysis is required -- one that problematizes what is normally taken for granted.

Consequently, my focus in this section is on the relative "fitness" of alternative "domestic" security arrangements in the new communications environment. For heuristic purposes, I will compare two "ideal-type" security arrangements, each of which may be treated as alternative "species" in a changing environment, and each of which represent two fundamentally antithetical modes of organizing security and politics in the world today. Borrowing from Daniel Deudney, I call these two "ideal-type" security arrangements, real-states and negarchies respectively. The former -- real-states -- are characterized by a number of interrelated features, including: a monopoly of violence and coercive capabilities and its
concentration in the hands of a distinct organization; a hierarchical form of political organization, in which authority flows downward from a single centre and information is tightly controlled and regulated; and a policy orientation towards economic, political, and cultural closure from the outside world -- an orientation that arises from the value accorded to self-sufficiency and autonomy. Negarchies, on the other hand, are those security arrangements "in which devices such as balance, separation and mixture serve to limit, check and constrain power, particularly violent and concentrated power." Their central ordering principle is "the rule of the negative," in which authority is dispersed and de-centralized among multiple power centres, and the free flow of information is encouraged. Their policy orientation is towards economic, political, and cultural openness and integration with the outside world.

Of course, actual domestic security arrangements vary in terms of the extent to which they approximate these images or ideal-types. Among existing or recent domestic security arrangements, the states of the former communist bloc and Islamic authoritarian regimes most approximate the real-state. Present-day liberal democracies, on the other hand, most approximate negarchical security arrangements. Of these two ideal-types, real-states are clearly most consistent with the modern world order paradigm. Indeed, to the extent real-states are "favoured" in the emerging hypermedia environment (an argument that carries considerable weight with some, as will be shown below), then many of the observations raised earlier in this chapter about fundamental transformation become problematic. Negarchies, on the other hand, while technically not inconsistent with modern world order, would be more amenable to fundamental transformation given their openness to and accommodation of transnational forces,
integration, and multiple layers of authority. The question to be explored in the remainder of this chapter, then, is the following: Between these two types of security arrangements, which will likely be favoured in the hypermedia environment? To answer this question, I explore a number of security-related dimensions of the hypermedia environment each of which I contend has a functional bias towards negarchies and away from real-states.

**Hypermedia and the real-state: an electronic Panopticon?**

Upon first consideration, it may seem that the properties of hypermedia functionally complement real-states, enabling 1984-like "Big Brother" surveillance by centralized authorities of subject populations. Indeed, among a number of theorists studying electronic surveillance, the arguments raised in support of such a thesis appear to be quite strong. One of the most common forms that this argument takes is in the image of the electronic Panopticon -- originally an 18th century architectural plan for a prison devised by Jeremy Bentham, and later employed by Michel Foucault as a general theory of modern surveillance. At the heart of the Panopticon was a system of surveillance whereby through a carefully contrived system of lighting, prisoners would be unable to discern when they were being watched, and control was thus maintained by the constant sense that prisoners were being monitored by unseen eyes.

Foucault argued that this model of surveillance was not just confined to prisons, but had deep metaphysical roots in modern societies as a whole. Though Foucault himself never raised the issue of an electronic Panopticon, many Foucauldian-inspired theorists have attempted to do so, extending the idea of a Panopticon to contemporary state surveillance. The image that is put
forth is of a cyberspatial, Weberian "iron cage" in which hypermedia-empowered state bureaucracies penetrate into the most private corners of citizen life.

The evidence gathered in support of these arguments is considerable, detailing the way in which the manipulation of information through computer data-bases and the use of electronic monitoring devices facilitate greater state control in such areas as policing, internal revenue, and other far-reaching facets of bureaucratic administration. For example, Gary Marx has analyzed the way American undercover police surveillance has been boosted by hypermedia technologies to such an extent that the United States is approaching a "maximum security society." Similar observations are made by Stanley Cohen with respect to electronic tagging devices that monitor "freed" criminal offenders. Going further, Diana Gordon argues that state computer data-bases and computer matching techniques have become so sophisticated and penetrating that not only are criminals more easily tracked, but "we are all enclosed in an electronic Panopticon." Indeed, the extent to which cross-matching and exchange of personal data has become much easier for government bureaucracies of all sorts in the hypermedia environment is hard to deny, as David Flaherty, Oscar Gandy, and others attest. Perhaps the clearest illustration is the Financial Crimes Enforcement Network (FinCEN) of the United States, used primarily to track money laundering activities. FinCEN monitors large financial transactions, and through powerful artificial intelligence computer programs, compares such transactions with government, private, and foreign computer data-bases, and then with "profiles" of typical financial criminal activities. Through this process, results are obtained that "flag" certain transactions as potentially criminal. Similar systems have been set up in other
countries, who now share data with each other and with Interpol. While there can be little doubt that hypermedia enhances bureaucratic surveillance along the lines outlined above, do such trends favour the real-state? Do they signal the rise of an electronic Big Brother?

As a number of critics have pointed out, the most serious flaw in these analyses is that they tend to put forth a distorted, one-sided image of contemporary surveillance that ignores other countervailing pressures and trends that suggest real-states are actually disadvantaged in the hypermedia environment. As Lyon aptly put it, "surveillance theory is dominated by models and metaphors deriving from the modern era" and "Cartesian obsessions with 'gaze'." All forms of surveillance are collapsed into a single privileged centre. The "state" becomes the equivalent of the guard in the panoptic tower, which according to Foucault, has the power of "permanent, exhaustive, omnipresent surveillance, capable of making all visible, as long as it could itself remain invisible." While from one perspective this does indeed appear to be the case insofar as government departments have been able to exploit hypermedia technologies to improve forms of bureaucratic surveillance, from other perspectives it appears to be merely a mis-applied metaphor.

First, while governments are able to track and monitor individuals with greater ease in the hypermedia environment, they are less able to control the flow of information, or at least prevent individuals from having access to certain types of information. As Neuman explains, "The special character of the new media is that they can as easily be extended horizontally (among individuals and groups) as vertically (in the more traditional connection between the
centralized authorities and the mass populace). The new technologies of hypermedia communications are smaller, more mobile, more amorphous, and thus less easy to track and contain. Consider mobile personal digital assistants -- small pocket-sized devices which now allow wireless two-way communication of digital information through credit-card sized modems. As these devices are linked into LEO satellites, such as those of the planned Iridium system, it will be nearly impossible for authorities to prevent communications from going in and out of their country. Perhaps the best example is portable satellite dishes -- now as small as 18 inches in diameter -- that provide links to satellite broadcasts for even the remotest of regions. Even though Iran has banned satellite dishes (which sell in the black market for as little as $400) an estimated 200,000 homes still receive television programs by satellite. In Colombia, when the government ordered its 300,000 dish owners to register, only 100 complied. In China, even though private ownership of satellite dishes was banned in 1990, it was reported in early 1994 that about 11 million households owned dishes, with around 30 million people being able to receive Rupert Murdoch's Star TV either through direct satellite reception or by cable relay. Elsewhere in Asia, where states have long maintained strict government controls over national broadcasting and in some cases, like Singapore and Malaysia, have banned satellite dishes altogether, many are now realizing the futility of their policies and reversing course. As Lee and Wang point out, the loss of advertising revenues and audiences from state-run television to illicit satellite broadcasts has forced regulatory changes to allow more competition in Malaysia, Taiwan, Thailand and South Korea. In India, the state-run Doordashan channel took similar measures, offering five new channels to independent producers after facing competition from Star TV.
These control problems are only further exacerbated by changes in the economic sphere as outlined earlier in the chapter. As structural pressures are put on real-states to conform to liberal economic policies and allow the penetration of foreign investment from transnational corporations, it becomes increasingly difficult for these states to keep a "firewall" between information intended purely for economic reasons and other broader forms of social and political communication. This is especially the case as more transnational commerce takes place over the seamless webs of computer networks. Digital information is moved through these networks by a system called "packet-switching," which breaks transmissions down into a series of units and sends them along independent channels to the transmission destination.\textsuperscript{175} Even if a state chose to monitor such transmissions it would be an incredibly costly and difficult task, especially as encryption technologies and re-mailing systems allow virtual anonymity and security of communications.\textsuperscript{176} Real-states that hope to attract foreign investment must grapple with the risks of providing a globally-networked communications environment on the one hand, while sifting out any politically sensitive information on the other. While such a strategy can be maintained in the short run, both the technological constraints and economic costs of doing so are high. These contradictory forces are likely to be most pronounced in the coming decades in those states, like Singapore, where liberalizing measures have been made in the economic sphere, and where a sophisticated information technology environment has been promoted by the state to attract investment (the "intelligent island"), while centralized control over information is vigorously maintained.\textsuperscript{177}

Many are now interpreting the disintegration of the Soviet Union and other former
communist states in this light.\textsuperscript{178} In other words, attempts to break up the economic command system and modernize inevitably led to a loss of centralized control over other forms of communication. The turning point came during the August 1991 coup attempt, when central authorities found they could no longer contain the spread of information both within and beyond their borders. Shane comments that by the time of the coup, "Fax machines and photocopiers, video recorders and personal computers outside the government were no longer exotica but a sprawling, living nervous system that linked the Russian political opposition, the republican independence movement, and the burgeoning private sector."\textsuperscript{179} Messages from Boris Yeltsin and others circulated through Compuserve, the "GlasNet" system, and through discussion groups on the Internet.\textsuperscript{180} Soviet reporters filed their stories over local-lines to a cultural institute in Estonia which had a computer link with PeaceNet in Sweden, that then forwarded the messages to six other computer networks around the world.\textsuperscript{181} Within the Soviet Union, airwaves were saturated with opposition viewpoints, and thousands of Muscovites were able to receive CNN television images intended for the microwave relay that served the Kremlin, the Foreign Ministry, and some hotels. When Yeltsin climbed on the tank to defy the coup, "His image went to thousands of Muscovites via CNN, his words to more thousands via photocopied leaflets and the White House radio station, prompting thousands more to join the protest."\textsuperscript{182}

A second reason to be wary of the "panoptic" metaphor is that in focusing only on the enhanced surveillance capacity of the state, it overlooks the way in which transparency in general has been raised in the hypermedia environment to such an extent that states themselves are caught in a surveillance web. In other words, rather than a single "gaze," hypermedia has dispersed and
decentralized the centres of surveillance to a much wider domain. Evidence of this dispersal can be found in the many forms of private surveillance emerging, ranging all the way from large-scale, commercial data-gathering enterprises, to security cameras in local shops, malls and banks, to tiny hand-held video cameras. The latter are selling at a rate of 2.5 million per year in what has been referred to as the "democratization of surveillance." The Rodney King beating of March 1991 illustrated the potential power of these private camcorders as they filter into the hands of many more people. The beating was inadvertently captured by George Halliday's SONY minicam. Halliday sent his tape to a local television station, that then forwarded the tape to CNN. Within a day, the tape had been broadcast to a global audience. So prevalent are these mini-sites of surveillance, that news organizations now actually encourage, and sometimes rely on "amateur videos" to capture news items.

This dispersal of centres of surveillance has meant that there are many more "eyes" watching multiple, intersecting sites -- many of which converge on states themselves. Today, governments and politicians find themselves under an intense scrutiny by an ever-expanding "pool of watchers" both "internal" and "external" to the state itself. Not only do these include the proliferating global news organizations, like CNN or the BBC, but also local television stations, investigative journalists, and talk television and radio shows, all of which are growing exponentially with the increase in distributional systems. Adding to these dispersed centres of surveillance are the burgeoning transnational social movements described earlier in this chapter, many of which now operate and thrive in the non-territorial regions of computer networks. In Spiro's words, these non-governmental organizations monitor "compliance as a sort of new world
police force."\textsuperscript{186} Alarm bells rung by watchdog groups, like Amnesty International, now spread rapidly through hypermedia currents, putting into global focus state behaviour that deviates from widely-accepted norms. Additionally, the two-way, interactive nature of hypermedia has increased the potential not only for direct citizen feedback and participation in political processes, but also for the monitoring of government actions through data-bases and computer network discussion groups. One glance at some of the USENET groups indicates a wide variety of unmediated discussions on such topics as alt.politics.clinton, talk.politics.medicine, soc.rights.human, or alt.politics.datahighway.\textsuperscript{187} The combined effect of all of these dispersed centres of surveillance, as one \textit{Economist} survey put it, is that instead of "Big Brother watching you," "Big Brother is you, watching."\textsuperscript{188}

\textit{The emergence of planetary surveillance}

One component of this dispersed surveillance web that is likely to have a significant influence on the nature of macro-security in the postmodern world order is the rise of planetary surveillance from space. The first space-based reconnaissance systems were an outgrowth of U.S. and Soviet military research and development in the 1950s.\textsuperscript{189} Although reconnaissance has always been an important ingredient of military operations, it was not until after World War II, with developments in optics, electronics, and ballistic missile technology, that serious consideration could be given to the idea of a space-based reconnaissance platform. By 1960, both the United States and the Soviet Union had operational satellite reconnaissance systems taking photographs of military installations on the earth below. The development fundamentally
altered the scope of geopolitical strategy: the entire planet itself had now become the focus of constant superpower military surveillance.¹⁹⁰

The systems were highly-guarded secrets -- among the most sensitive of all military operations. Beginning in the 1970s, however, other non-military organizations began to emerge that also shared an interest in planetary surveillance. Environmental and commercial satellite reconnaissance systems -- such as the American LANDSAT and the French SPOT systems -- were launched to provide data for environment researchers, urban planners, and other commercial interests. However, as long as the Cold War persisted, political barriers stood in the way of the dissemination of sophisticated technologies, and as a consequence the use of these systems remained limited.¹⁹¹ For many years while most of the world’s familiarity with satellite reconnaissance was confined to the meteorological images displayed on nightly weather forecasts, the superpowers maintained a monopoly on a vastly superior technology.

Once the Cold War effectively ended, however, these political barriers dissolved. Satellite reconnaissance systems began to proliferate beyond the U.S./Soviet monopoly. Some of this proliferation has been in the form of national and regional military developments, such as the Western European Union’s Helios satellite, the Indian IRS-series, or the Israeli Offeq-series of satellites.¹⁹² Other systems have proliferated as a result of a relaxation of superpower secrecy policies. Private companies in the United States, for example, have entered into agreements with the United Arab Emirates, Spain, and South Korea for the development of high-resolution reconnaissance satellites.¹⁹³ Also significant has been the sharing of data by the
United States and Russia with multilateral arms control organizations. Specifically, highly-
sophisticated U.S. imagery has been used by the International Atomic Energy Agency in its
inspections and surveillance of Iraq and North Korea, while both U-2 aerial and satellite
reconnaissance imagery were used during the United Nations Security Council Observer Mission
in Iraq.\textsuperscript{194} Proposals to more formally integrate satellite reconnaissance systems into the
operations of multilateral arms control operations have been made in recent years.\textsuperscript{195} Even
more significant has been the commercialization of U.S. and Russian imagery. Today, anyone
with $3000 can purchase high-resolution Russian imagery of virtually any spot on the planet.\textsuperscript{196}
Figure 4 is a reproduction of a 1.5 metre resolution satellite image of the Capitol Building in
Washington D.C., purchased from a Russian trading representative based in the United States.
Citing the Russian competition, the Lockheed Corporation lobbied successfully to undo U.S
government restrictions, and it has now entered into a joint venture with Australia to create a
Commercial Remote Sensing System that will also market 1 metre imagery of any point on the
earth.\textsuperscript{197}

Perhaps the most important long-term trend, however, is the growth of environmentally-
dedicated satellite reconnaissance systems.\textsuperscript{198} Although there are a variety of national programs
(e.g., the Canadian SPAR-satellite, the European ERS-1, and the Japanese JERS-1), the most
significant are the multinational programs currently in development which entail large-scale,
globally-organized earth-observation activities. By far the most ambitious of these is the planned
Earth Observing System (EOS) -- a multi-year $8 billion NASA-directed initiative to study the
earth's biosphere.\textsuperscript{199} EOS will entail two orbiting space platforms plus a series of LEO
satellites that will continually monitor the entire surface of the planet in a variety of spectral modes. The imagery and data produced by the EOS, and other similar systems, will be distributed widely to researchers and organizations around the world. What makes these systems so significant is that they likely will remain permanent features of global environmental governance well into the future. As one environmental researcher put it, "electronic and optical technologies of every kind will underpin what will ultimately be a vast orbiting and terrestrial infrastructure for monitoring and modelling the global climate and environment."200

While each of these systems may be oriented to specific missions, their most important long-term effect may lie in their unintended contribution to world order transformation. Today, the entire planet is under constant surveillance from a wide variety of national, regional, and multilateral organizations. Widely dispersed military, environmental, and commercial satellites now wrap the earth in a continuously orbiting web. Under this increasingly transparent environment, few large-scale activities will escape the notice of others around the world. The preconditions for surprise that in the past often led to security-dilemma situations are thus drastically reduced.201 Moreover, existing real-states are placed in spotlight from which they cannot hide, as evidenced by the present surveillance grid imposed on Iraq and North Korea. Such an environment clearly favours those security arrangements, like negarchies, that are open to the outside world while disadvantaging those, like real-states, that are premised on closure. While satellite reconnaissance systems may have originally been deployed by national military organizations, in the long run they may have the unanticipated effect of displacing the focus of security from a national to a planetary level. In conjunction with the other properties of the
hypermedia environment described earlier in this section, planetary surveillance will place considerable technological and political constraints on the viability of real-states.

Conclusion

In this chapter, I examined some of the more important distributional changes that are occurring as a result of the emerging hypermedia environment. Of these changes, clearly the most significant relate to the considerable amount of social, political, and economic activity that is increasingly de-coupling from sovereign-territorial spaces. These changes are, in turn, impacting on the architecture of political authority at a world-level in a variety of ways. First, they challenge long-standing preconceptions about the nature of economic, social and political organization that undergirded the modern world order paradigm. As many of these activities now take place through the non-territorial regions of computer networks, they undermine taken-for-granted preconceptions about the "natural" order of political authority -- the subordination of economics to politics, the principle of sovereign non-intervention, and the spatial boundedness of communities. In many respects, a "space of flows" is coming to dominate and transcend a "space of places" as the defining characteristic of postmodern world order. A second discernable transformation is the emergence of multiple and overlapping layers of political authority. This is evidenced by both the ever-increasing webs of global governance in the economic sphere, as well as the rise of a global civil society composed of heteronomous networks of transnational social movements. These new layers of political authority establish institutional precedents both "above" and "below" states that cannot easily be reversed.
Amidst these wider changes, the purpose and forms of states themselves are being transformed. Although it would be conceptually-misguided to portray these transformations as the "withering away" of the state (a topic I will discuss at some length in the concluding chapter), the state, as Spiro aptly put it, is "not what it used to be." Perhaps the best way to characterize this transformation is that states are evolving from "container" to "transmission-belt" organizations designed to facilitate flows of information and capital, transnational social movements, and multiple and overlapping layers of authority. While there is enough cultural and historical diversity among states to ensure a variety of separate trajectories within this process, nearly all states have taken similar liberalizing measures in response primarily to the structural pressures of global market forces. These economic pressures are, in turn, complemented by changes in the security sphere, as the general increase in transparency and a dispersal of the centres of surveillance creates a communications environment in which real-states are significantly disadvantaged while negarchies flourish. The space-based component of this surveillance web not only disadvantages real-states, but it appears to be re-focusing security concerns from an inter-national to an intra-planetary context, as multiple centres now engage in a constant monitoring of the earth and its inhabitants. While these distributional changes are restructuring the architecture of political authority, it will be the changes to social epistemology explored in the next chapter that will provide the crucial "metaphysical" underpinnings for an emerging postmodern world order.
Notes

1. See Ruggie, "Territoriality"; and Elkins, Beyond Sovereignty.


3. Waltz, Theory of International Politics.


5. Part of this is related to the "nature" of capital throughout the modern world order period, which has primarily been fixed and/or concentrated within specific geographic regions making it more "captive" to state regulations and taxes. See chapter 2, "From Captive Capital to Quicksilver Capital," in Richard B. McKenzie and Dwight R. Lee, Quicksilver Capital: How the Rapid Movement of Wealth Has Changed the World, (New York: The Free Press, 1991), pp. 17-34.


8. For a comprehensive, historical overview of these long-term processes, see Zacher, "The Decaying Pillars of the Westphalian Temple."


19. Hepworth, *Geography of the Information Economy*, p. 94; See also, Peter Dicken, *Global Shift: The internationalization of economic activity*, 2nd ed., (New York: Paul Chapman, 1992), Figure 7.1 for a breakdown of the "production chain."


22. For an excellent, comprehensive overview, see James and Weidenbaum, *When Businesses Cross International Borders*.


cases, the reorganization of the production process involves the exchange of a vast array of information with respect to design, product and process innovations, competitor strategies, component supplier competencies, and consumer profiles. This may be supported by communications services ranging from the simple voice telephone to the high-speed exchange of computer integrated manufacturing design concepts."


30. Ibid.

31. Ibid., p. 77.

32. Ibid., p. 85.


34. Ibid., p. 188; See also Molina, The Social Basis of the Microelectronics Revolution, pp. 107-132.


38. See Ohmae, Borderless World, p. 9.


44. The most exhaustive survey is found in James and Weidenbaum, *When Businesses Cross International Borders*.

45. For criticism along these lines, see Paul Hirst and Grahame Thompson, "The problem of 'globalization': international economic relations, national economic management, and the formation of trading blocs," *Economy and Society*, (Vol. 21, No. 4, November 1992).


50. This is a point Dicken makes in "The Roepke Lecture," p. 109.


55. See Barnet and Cavanaugh, "Creating a level playing field."


68. Bryant writes that "The technological nonpolicy factors were so powerful, I believe, that they would have caused a progressive internationalization of financial activity even without changes in government separation fences and the inducement of differing regulatory, tax, and supervisory systems. But I also conjecture that government-policy changes were important enough to have promoted a significant integration of national financial systems even if there had been no shrinkage in the economic distances between resevoirs due to nonpolicy innovations such as the fall in relative costs of the international communication of information." R. Bryant, *International Financial Integration*, (Washington, DC: The Brookings Institution, 1987), p. 69. Bryant is also cited in Andrews, "Capital Mobility and State Autonomy," pp. 198-199.


75. Ibid.

76. Strange, Casino Capitalism.

77. For a useful, short summary, see Strange, "From Bretton Woods to the Casino Economy," pp. 58-59.


81. See Kurtzman, The Death of Money, pp. 170-171; Personal interview, Herbert I. Phillipps, Vice-President, Strategic Solutions, Royal Bank of Canada.

82. As cited in O'Brien, Global Financial Integration, p. 9.


84. Hepworth, Geography of the Information Economy, pp. 171-172; On Globex, see "The screen is the future, master," The Economist (October 24, 1992), pp. 85-86; See also, Hepworth, "Information Technology and the global restructuring of capital markets," pp. 138-
139; On "private" trading "clubs" and other electronic stock markets, see Kurtzman, _The Death of Money_, pp. 36-37.


87. Every year for more than a decade the three hundred or so major firms of Wall Street have invested between them about $3.4 billion U.S. in hypermedia -- a figure that typically accounts for about 20% of their total outlays. See Kurtzman, _The Death of Money_, p. 26.


89. For an overview of SWIFT, see Langdale, "Electronic Funds Transfers."


92. Daniels, "Internationalization," p. 163.


94. Kurtzman, _The Death of Money_, p. 17.

95. _Ibid._, p. 77.


106. Castells, *The Informational City*.


109. Three outstanding discussions of the way new practices present anomalies to the modern world order paradigm are Elkins, *Beyond Sovereignty*; Ruggie, "Territoriality"; and Walker, *Inside/Outside*.


114. "Locational Tournaments" is a term I borrow from Lynn K. Mytelka's talk at the Information Technologies and International Relations symposium, Canadian Department of Foreign Affairs and International Trade, January 13, 1995.


118. For an overview of "global governance" as used here, see James N. Rosenau, "Governance, Order, and Change in World Politics," in Rosenau and Czempiel, (eds.), Governance without Government, pp. 1-29.


123. Ibid.

124. On the principle of sovereign non-intervention, see Jackson, Quasi-states.

125. An excellent historical overview is provided by Lipschutz, "Reconstructing World Politics," pp. 400-414.


129. The term "heteronomous" is taken from Lipschutz, which, as he says, "implies that these networks are differentiated from each other in terms of specialisations: there is not a single network, but many, each fulfilling a different function." Lipschutz, "Reconstructing World Politics," p. 391.


132. Ibid., p. 280.


134. Although Lipschutz is correct in pointing out that information technologies did not "cause" or generate these movements, in going out of his way to point this out he grossly underestimates the extent to which hypermedia is deeply bound up with the rise of global civil society, as any brief glance at the Internet alone will reveal. See Lipschutz, "Reconstructing World Politics," pp. 411-412.


139. For a detailed overview of each of these member networks, see Ibid.

140. The IGC can be reached via the Internet at http://www.igc.apc.org.


143. As cited in Stanbury and Vertinsky, "Assessing the Impact of New Information Technologies," p. 34; See also Paul Wapner, "Politics beyond the State: Environmental Activism and World Civic Politics," World Politics 47 (No. 3, April 1995), pp. 311-340 for a good overview of the way the hypermedia environment facilitates the interests of transnational environmental movements.


148. This point is made by Lipschutz in "Reconstructing World Politics," p. 392.


152. I deliberately set-off the word "domestic" in quotation marks to underscore the extent to which the term may be somewhat anachronistic given that it presupposes a basic division between "domestic" and "international" that is essential to the modern world order paradigm -- the very
paradigm that I am problematizing. However, as will be shown below, one of the very reasons for the "fitness" of the security arrangement I propose is precisely its accommodative capacity to global forces and multiple layers of political authority.

153. See Deudney, *Pax Atomica*; and Deudney, "Binding Powers, Bound States." Real-state is pronounced *re-ahl*.


157. See Foucault, *Discipline and Punish*.


159. The following section draws on Lyon's informative overview, in "An Electronic Panopticon?" pp. 661-662.


164. For a detailed over of FinCEN, see Steven A. Bercu, "Toward Universal Surveillance in an Information Economy: Can We Handle Treasury's New Police Technology?" *Jurimetrics Journal*, 34 (Summer 1994), pp. 383-449.


176. See Peter H. Lewis, "Computer Jokes and Threats Ignite Debate on Anonymity," *New York Times*, (December 31, 1994). Computer systems known as "anonymous" remailers receive messages from around the world, strip them of their identity, and then send them off to their destination. They are an estimated 20 to 25 publicly accessible anonymous remailers around the world. As Lewis notes, "The ability to send anonymous and untraceable messages can also shield political and religious dissidents, whistle-blowers and human rights advocates from possible reprisals."

177. Subscribers to Teleview, Singapore's computer network, must agree not to use it "for sending to any person, any message which is offensive on moral, religious, communal or political grounds." "Feeling for the Future," p. 16; Victor Keegan notes the following with respect to Singapore: "One irony is that the information revolution that Singapore is pioneering may become the Trojan Horse that upsets the political and cultural repression of the regime. How can a society that still bans satellite dishes and many foreign journals continue to do so when the global information highway will give its citizens instantaneous access to multimedia newspapers all over the world, not to speak of pornography?" Victor Keegan, "Who's in Charge Here," *The Guardian*, (December 12, 1994).


181. White, "The World is Wired."

182. Shane, *Dismantling Utopia*, p. 266.


185. CNN has set up a hot line to solicit amateur videos, paying $150, a mug and t-shirt for each spot. See *Ibid.*, p. 71. While watching the news coverage of a man firing bullets into the White House earlier this year, I noticed that three separate amateur videos captured the melee.


191. I discuss the interplay between environmental and military satellite reconnaissance systems in "Out of Focus: U.S. Military Satellites and Environmental Rescue," in Deudney and Matthew, (eds.) *Contested Grounds*.


Chapter Seven: Hypermedia and the Modern to Postmodern World Order Transformation: Changes to Social Epistemology

Introduction

In this chapter, I turn to an examination of the changes to social epistemology that are likely to occur as a result of the change in the mode of communication to hypermedia. Social epistemology refers to the web-of-beliefs into which a people are acculturated, and through which they perceive the world around them. It encompasses an interwoven set of symbolic forms, cognitive biases and social constructs that provide the general metaphysical presuppositions and boundaries that frame thinking and practice for a people in time. It is important to reiterate that according to the theoretical perspective advanced here, changes in the mode of communication do not generate new symbolic forms, social constructs, or cognitive biases de novo, but rather that elements of social epistemology already latent in society will tend to flourish or wither as a result of a functional complementarity between those elements and the new media environment. Also important to reiterate is that this "functional complementarity" is really the product of a chance "fitness" between social epistemology and a communications environment. It does not mean that each individual person will suddenly shift social epistemological perspectives or abandon long-held philosophical preconceptions as a result of their exposure to a new technology of communication; rather, it means that in a particular communications environment a particular social epistemology will have a better chance of finding a "niche" and thus surviving and flourishing. The process is thus largely inter-generational, rather than intra-psychic.
As a consequence, we should expect elements of social epistemology that may have been once marginalized to resonate strongly in the future as a result of this chance fitness -- even those that by current standards may seem distasteful, faddish, or downright heretical. In step with this expectation, then, in this chapter I will develop the argument that the symbolic forms, cognitive biases and social constructs loosely associated with the current of thought known as "postmodernism" will flourish in the new communications environment as a result of a "fitness" between this environment and postmodern social epistemology. In doing so, I realize that I am treading on controversial grounds, for few labels can invoke such polarities of feelings as those that arise from the rather vague appellation "postmodernism." It is important, then, that at the outset of the argument I make clear that I will not be addressing the relative merits of postmodern epistemologies over other competing "modern" epistemologies, nor for the most part will I be engaging in a substantive dissection of the many, often competing theorists that may or may not fall under the umbrella label "postmodern." I am not arguing for or against postmodernist epistemologies. I am merely analyzing postmodern social epistemology as a current of thought -- a "species" of social epistemology -- latent in society, and asking whether or not the emerging communications environment has a functional bias in favour of the central characteristics of this current of thought qua species -- a process that is largely the product of a chance.

It should be pointed out that I am not the first to attempt to link the rise of postmodernist thought to broader sociological/material factors. Both David Harvey and Frederic Jameson, for example, see the postmodern movement as a product of a change in the mode of production, or
as Jameson calls it, "the cultural logic of late capitalism."¹ Nor am I even the first to draw attention to its connection to communications technologies. For example, Kenneth Gergen offers a rather strong, technological determinist argument quite at odds with this study linking postmodernism unavoidably to new communications technologies.² And some postmodernists, like Baudrillard and Lyotard for example, see a close affinity between changing communications technologies and broader social and cultural transformations.³ Where this analysis differs, however, is that it does not attempt to reduce the entire movement to a single overarching variable -- to the mode of production, in Harvey and Jameson's case, or even to the mode of communication, in Gergen's. Contrary to these analyses, it affirms that the rise of postmodern social epistemology reflects a multiplicity of causes. The argument to be made here is rather that postmodern social epistemology will flourish to the extent that it is complemented by the new mode of communication -- that it will find a more receptive audience among those acculturated into the hypermedia environment.

The ultimate purpose of this examination, of course, is to fathom the emerging social epistemology as it relates to world order transformation. Following the analytical division set out in chapter four, I will assess the relative "fitness" of postmodern social epistemology in the hypermedia environment along three dimensions, each of which has an important bearing on the architecture of world order: individual identities; spatial biases; and imagined communities. It is anticipated that through this examination a more comprehensive "blueprint" can be discerned of the emerging architecture of postmodern world order that complements the distributional changes outlined in the previous chapter. I will outline how I see this "blueprint" taking shape
in the conclusion to this chapter, and will return to it in the final, concluding chapter of the study.

*The rise of postmodernist thought*

Anyone even remotely acquainted with the broad social movement known as "postmodernism" will be aware of the extent to which it defies easy definition. Well-known are the many disputes about the exact nature of the difference between the "modern" and the "postmodern," between "postmodernism" and "post-structuralism," and between both of these and other subsidiary variants, like "deconstruction" or "genealogy." What does seem reasonably clear, however, is that Western societies have been undergoing a broad cultural transformation for the last 20 to 30 years, through which many long-held, fundamental philosophical assumptions have come under attack. Like many others, I feel the label "postmodern" best captures this societal transformation, and that it does indeed highlight a discernable current of thought latent in contemporary (mostly Western) societies. As my purposes are rather broad a great deal of the nuance within this current of thought is sacrificed. However, I am interested only in the broad symbolic forms, social constructs, and cognitive biases that define postmodern social epistemology as a species of thought or *mentality*, and not in the intricacies that divides it internally.

The historical and sociological roots of postmodernism (or as Huyssen aptly put it, "the pre-history of the post-modern") reflects a multiplicity of factors reaching back into the late 19th
Although space precludes a detailed history of the movement, its intellectual development can be seen along a series of touchstones reaching back to the nihilism of Nietzsche and the historicism of Hegel, to anti-modernist tracts of the early 20th century, especially those of Heidegger and the existentialists, and the structural linguistics of Saussure. An early resemblance can also be found in early 20th century modernist art and Dadaist poetry. But it was not until the 1960s that a strong disillusionment with modernity as a whole, and a sense of youth rebellion and frustration as evidenced by campus riots in Paris, Mexico City, San Francisco and elsewhere, that a self-conscious social movement really began to cohere under the broad label "postmodernism." The intellectual "leaders" of the movement since that time have been a group of notorious French theorists, including Derrida, Foucault, Lyotard, and Baudrillard. However, the ideas of these theorists reach well beyond the borders of France, and in North America particularly, the movement has spawned a large academic following.

As Hassen has suggested, the core traits of this mentalité are probably best approached as a series of nuances, or oppositions, that distinguish it from modernist style, and which re-occur or resonate similarly in different cultural spheres. In philosophy and the social sciences, for example, it is characterized by a scepticism of metaphysical foundations, or "master narratives," of the search for Absolute Truth, of linear, rational progress, and of universals of any kind. In its stead, it embraces disjuncture and discontinuity, fragmentation, indeterminacy, and at times an unabashed relativism that often reveals itself as a concern for "the other." In linguistics, it is characterized by a "crisis of representation" and a belief in the "indeterminacy" of the sign. In architecture, it reveals itself as a reaction against the
functionalist modernism of Mies van der Rohe and Le Corbusier, and a promotion of ornamentation with a montage of historical and cultural forms.\textsuperscript{13} In art it is characterized similarly by a pastiche or collage of different styles that often gives the appearance of depthlessness.\textsuperscript{14} Much more will be said about these nuances when I turn to the formal examination below. For now it is enough to note that what has been loosely referred to as "postmodernism" does indeed represent a coherent cultural movement centred in Western societies. For heuristic purposes, then, it can be treated as a viable "species" of thought latent in society. The following section undertakes a more focused analysis of the relative "fitness" of this species in the hypermedia environment.

\textit{a. Individual identities}

At the heart of postmodern social epistemology is a forceful reaction against modernist views of the "self" and individual subjectivity -- the very same attributes that had their origins in transformations described earlier in chapter four. Modern conceptions of individual identity against which postmodernists react have been anchored on a stable self, unchanging in basic identity, a fixed centre possessing certain universal attributes that all members of the human species share. This modern sense of the autonomous individual is perhaps best reflected in Descartes' "cogito" or Kant's mental categories of understanding.\textsuperscript{15} Postmodernists reject this view of individual identity, offering in its place a notion of a "de-centred" self -- an historically constituted identity that is continuously being reconstructed.\textsuperscript{16} The postmodern self is an assemblage of its environment, \textit{a multiple self} that changes in response to different social
situations. One consequence of this view of the self, according to postmodernists, is that the autonomous individual can no longer provide the philosophical or practical foundations from which to design or achieve human freedom, as Marxists and liberals would have it.\textsuperscript{17} As Jameson puts it, for postmodernists "the alienation of the subject is displaced by the fragmentation of the subject."\textsuperscript{18} Likewise, Hall comments on how the postmodern self "is experienced as more fragmented and incomplete, composed of multiple 'selves' or identities in relation to the different social worlds we inhabit, something with a history, 'produced,' in process."\textsuperscript{19}

For example, Richard Rorty claims that individual selves are "random assemblages of contingent and idiosyncratic needs" that are "centreless."\textsuperscript{20} A self is then nothing more than "a network of beliefs, desires, and emotions with nothing behind it -- no substrate behind the attributes."\textsuperscript{21} Similarly, for Lyotard each of us lives at the "intersection" of many heterogenous language games and into which the "social subject itself seems to dissolve."\textsuperscript{22} Going further, he writes that "no self is an island; each exists in a fabric of relations that is now more complex and mobile than ever before."\textsuperscript{23} For postmodernists, the sovereign rational subject gives way to a belief in "the role of the preconceptual and nonconceptual in the conceptual, the presence of the irrational -- the economy of desire, the will to power --- at the very core of the rational."\textsuperscript{24} What remains is a "subject who is multi-dimensional and without centre or hierarchical integration."\textsuperscript{25} In short, the postmodern sense of individual identity is characterized by a historically-contingent, multiple or "decentred" self.
There are a number of ways in which the hypermedia environment complements the postmodern view of the self in ways that suggest it might resonate strongly as that environment deepens and expands. First, notions of "authorship" and the "sovereign voice" are becoming problematic in the digital universe of hypermedia. This is evidenced, for example, by the way in which copyright and intellectual property rights are currently under threat, and are seen by many as being untenable within the new communications environment. According to communications lawyer Anne W. Branscomb:

*The ease with which electronic impulses can be manipulated, modified and erased is hostile to a deliberate legal system that arose in an era of tangible things and relies on documentary evidence to validate transactions, incriminate miscreants and affirm contractual relations. What have been traditionally known as letters, journals, photographs, conversations, videotapes, audiotapes and books merge into a single stream of undifferentiated electronic impulses.*

Within the hypermedia environment, digitization and networked computing provide users with the ability to extract bits of data in different forms and from disparate sources, and then paste them together into an assembled whole. As a consequence, principles of compensation and royalty are being undermined, especially within a distributed network of multiple participants where it is "more complicated to determine who is entitled to claim recompense for value added." Notions of intellectual property rights that underpinned authorship since the advent of printing in Europe are thus rapidly dissolving as hypermedia disrupts traditional legal presuppositions and boundaries. Under most existing copyright legislation around the world only original expression is copyrighted and not facts or ideas. With hypermedia, "Computers can scan pages of data, and, presumably, as long as they do not copy the exact organization or presentation or the software programs used to sort the information, they may not be infringing
the copyright of the 'compilation,' the legal hook on which data bases now hang their protective hats." 29 One practical expression of this "authorless" environment is the prevalence of "samples" in popular music, whereby riffs or lines of standard jazz or rock songs are digitally pasted together to provide a recognizable background -- a practice that has itself generated considerable legal controversy. 30 The same holds true for computer-based scanning of images and photographs in computer art, animation, or documentaries. 31 John Perry Barlow's comments provide an interesting glimpse of the way hypermedia is contributing to the dissolution of authorship in this respect:

all the goods of the Information Age -- all of the expressions once contained in books or films strips or newsletters -- will exist either as pure thought or something very much like thought: voltage conditions darting around the Net at the speed of light, in conditions that one might behold in effect, as glowing pixels or transmitted sounds, but never touch or claim to "own" in the old sense of the word. 32

A further illustration of the way hypermedia dissolves long-held legal preconceptions of individual autonomy is its challenge to traditional distinctions between the "public" and the "private" spheres. In chapter four, I provided a description of the way the practice of reading in a print culture contributed to notions of privacy exclusive to modernity through the mass reproduction of smaller, portable books. Today, theorists ranging across disciplines have commented on how the private sphere is being invaded in the transparent hypermedia environment. 33 Although illustrations range from the popularity of more personally-invasive "trash" talk television shows to the widespread prevalence of surveillance cameras, perhaps the clearest example of the privacy invasion is the collection of data on consumers through credit card and other electronic transactions. Commercial data-gathering firms, like Equifax Marketing
Decision Systems, use the collected data to create a computerized market profile that is purchased by corporations who then "target" individuals with specific advertising.\textsuperscript{34} Equifax provides computer-generated demographic maps that sort individuals "as members of segments defined in terms of price sensitivity, coupon use, brand loyalty, television use, and other characteristics of interest to consumer product marketers."\textsuperscript{35} Although concerns have been made by some theorists that this form of information surveillance is leading to a new Panopticon,\textsuperscript{36} the surveillance that is occurring is more dispersed and de-centred as personal information is collected and shared by a wide variety of firms to be purchased and accessed by virtually anyone else. For the purposes of this analysis, what is most interesting is the way this transparent environment opens up and disperses personal information along de-centred computer networks, much the same as postmodernists conceive of the self as a networked assemblage without a fixed centre. Where do we locate the human self, asks Mark Poster, when fragments of personal data are constantly circulating within computer systems, beyond our control or awareness?\textsuperscript{37} Along with other elements of the transparent hypermedia environment, the circulation of personal information through computer networks dissolves traditional distinctions between the "private" and the "public" spheres. It was with this dissolution in mind that Baudrillard commented on how the "most intimate operation of your life becomes the potential grazing ground of the media..."\textsuperscript{38}

Another way in which hypermedia may complement postmodern notions of individual identity can be found in the practices of those participating in computer networks. Identities on the "net" -- such as age, gender, and occupation -- are malleable because of the concealment that
computer networks afford the user. According to Rheingold, the population of online gender switchers numbers in the hundreds of thousands.\textsuperscript{39} These "identity deceptions" have often been the source of hostilities once the identities of those IRL (in-real life) are unmasked.\textsuperscript{40} But the practice persists, no doubt as a result of a more experimental attitude towards individual identity that is encouraged by the Internet. A good example is the many MUDs (Multi-User Dimensions) that populate the Internet which allow real-time communications among multiple users in an illusionary "virtual world." To join, MUD participants take on a constructed identity and navigate their way through the imaginary geographies of the MUD environment, all the while interacting with other MUD identities.\textsuperscript{41} By encouraging participants to take on constructed characters in different virtual environments, hypermedia complements the idea of a multiple self, one that varies with its social relationships, and is bounded only by the imagination of the individual in different settings.

There are other ways in which the postmodern self may resonate in the hypermedia environment. Kenneth Gergen, for example, suggests that exposure of the average individual to the technologies of social saturation of hypermedia "are central to the contemporary erasure of the individual self."\textsuperscript{42} According to Gergen, hypermedia immerses the individual in a dense network of constantly shifting relationships that leads to a populating of the self, or what he calls a condition of "multiphrenia." In Gergen's words:

\textit{Yet we are now bombarded with ever-increasing intensity by the images and actions of others; our range of social participation is expanding exponentially. As we absorb the views, values, and visions of others, and live out the multiple plots in which we are enmeshed, we enter a postmodern consciousness. It is a world in which we no longer experience a secure sense of self, and in which doubt}
is increasingly placed on the very assumption of a bounded identity with palpable attributes. As the quote above suggests, however, Gergen's analysis is tarnished ultimately by a crude technological determinism. Being immersed in hypermedia does not by necessity induce a sudden individual gestalt-shift to a "postmodern consciousness," as the many participants in ultra-conservative, religious right, neo-Nazi, or Islamic discussion groups on the Internet might attest. What might be said, however, is that the intensifying bombardment of images, alternative identities, and cultures unleashed by hypermedia opens up a critical space, or at least creates a conducive environment, in which the idea of a postmodern "multiphrenic" self might seem more plausible and thus find a more receptive audience among an increasingly large segment of those acculturated into its environment. When this facet of the hypermedia environment is combined with the dissolution of authorship and copyright, and the breakdown of the private/public distinction, the functional bias of hypermedia towards postmodern notions of fragmented identities, and away from modern conceptions of the autonomous sovereign individual, appears even more strong.

b. Spatial biases

In chapter four I outlined how the visual uniformity, mass reproducibility and standardization of printing all helped to foster a rigid, linear demarcation of political space that complemented the spatial bias of early modern Europe. In this section I explore the way in which some of the characteristics of the hypermedia environment may complement the spatial bias of postmodern social epistemology. As many observers have commented, the postmodern
mentalite is comprised of a novel approach to space that sets it off rather markedly from modernist style. Two elements in particular stand out: The first, which is perhaps most apparent in postmodern art and architecture, is the use of pastiche and collage, both of which lend themselves to a non-linear and overlapping spatial orientation featuring discontinuity and depthlessness. With pastiche, according to Bauman, postmodern art "has transformed history and ethnography of art into a pool of extemporal and exterritorial, permanently usable resources, which can be picked at will and at random." Collage, on the other hand, "denies the traditional principle of stylistic (and often compositional) unity, and practices instead the equivalence and non-contriety of artistic genres, styles, and techniques."44

Contributing to this spatial bias of postmodern social epistemology is its outright rejection of realism and representationalism characteristic of modern philosophies of science and art -- the idea of the subject standing over and apart from an independent world of objects that it can more or less accurately represent. Based on anti-representationalist premises, postmodern social epistemology argues for the plurality of "worlds" and multiple "realities," each of which is contingent on social constructions, or "language-games" that constitute and orient the field of experience.45 What might be called the "world creationism" of postmodern social epistemology flows out of its dissolution of the theory/fact binary opposition; for postmodernists, no sense can be made of a linguistically naked "given" from which to assess alternative vocabularies. Theory -- taken in its broadest sense -- constitutes facts and not the other way around. From this theory-laden view of human existence, postmodern social epistemology derives the notion of intertextuality -- that is, that there can be no reference outside of theory or the "text" apart from
other theories and texts.\textsuperscript{46} Hence, external reference can only be a matter of intertextuality.

The combined effect of these two traits is a spatial bias that is less exacting and rigid, and more fluid, by-passing the idea of a firm reality that is fixed and immutable and open to a single accurate representation. Instead, the spatial bias of postmodern epistemology embraces discontinuity and juxtaposition, with mutable boundaries superimposed upon one another. This spatial bias is reflected in Foucault's suggestion that we "develop action, thought, and desires by proliferation, juxtaposition, and disjuncture," and "to prefer what is positive and multiple, difference over uniformity, flows over unities, mobile arrangements over systems."\textsuperscript{47} Foucault refers to this mind-set as "heterotopia," by which he means the coexistence in "an impossible space" of a "large number of fragmentary possible worlds."\textsuperscript{48} Using a quote from Wittgenstein, Lyotard offers perhaps the most compelling picture of postmodern spatial bias: "Our language can be seen as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from different periods; and this surrounded by a multitude of new boroughs with straight regular streets and uniform houses."\textsuperscript{49}

The starting point for understanding the relative "fitness" of the postmodern spatial bias in the hypermedia environment is the multimedia convergence facilitated by digital technologies. On a technical level, the hypermedia environment was spawned largely as a result of digitization: the ability to translate all information -- video, audio, graphics, and text -- into a series of 1s and 0s.\textsuperscript{50} As Saxby points out, "digitisation brings with it an entirely new environment....All media become immediately translatable into one another, capable of instant recall and transmission to
any point within the network."51 As hypermedia melds graphics, text, and audio in the same mode, communications becomes increasingly "mosaic" or pastiche-like -- a characteristic most apparent in the surface appearance of a typical multi-media windows program, where on the screen at any one time might appear in separate windows a renaissance painting, a television feed from CNN, a text on which the author is currently engaged in composition, and a still image of an F-18 fighter plane. The surface similarity between hypermedia and a typical postmodern work of art is striking in this respect, as depicted in Figures 5 and 6.

An even more compelling case for the functional bias of hypermedia towards postmodern spatial biases can be found in the dominant mode of navigation in hypermedia: hypertext. As Heim points out, the word "hypertext" refers to an additional or unnoticed dimension.52 In computer navigation, hypertext is the ability to navigate through data-bases on a myriad of links between documents that provide that "additional or unnoticed dimension." The most common example of hypertext navigation is the keyword search, which allows users to connect disparate documents on the basis of a single word or phrase that ties them together. In words that resound with nuances of postmodern social epistemology, Heim notes how the hypertextual link "indicates the implicit presence of other texts and the ability to reach them instantly....all texts are virtually co-resident."53 This ability to find "traces" of documents in widely-disparate areas complements both the postmodern notion of "intertextuality" as well as a non-linear cognitive orientation favouring jumps in intuition over the step-by-step logical chain -- a cognitive trait that mirrors the pastiche and juxtaposition of the postmodern mentalite.
Hypertext is not only the dominant mode of navigating through computer searches, it is the **paradigm** of hypermedia participation as a whole. It is found, for example, in cd-rom based multi-media programs, in so-called "personalized newspapers," and interactive television, where users click a mouse on a menu of options to enter into layers of audio, text, and video that supplement with more detail or provide tangential routes for various topics within the realm of the program. It is found in the practices of routine television viewing, where audiences -- presented with an ever-increasing diversity of channels -- engage in "channel surfing" rather than linear, sequential viewing of programs from beginning to end. The same phenomenon is evident in the form of television productions themselves, which increasingly appear as disconnected, non-linear, pastiche-like montages -- a trait most apparent in the music videos on Music Television, or MTV. Gergen describes how "few of the videos offer a linear narrative; most will jolt the viewer with a rapid succession of images -- often less than two seconds long -- that have little obvious relation to each other." The pastiche-like orientation is not just confined to the radical edge of television either. In television news, discontinuity is produced by hypermedia as "all the divergent spaces of the world are assembled nightly as a collage of images upon the television screen." According to Taylor, television is "the first cultural medium in the whole of history to present the artistic achievements of the past as a stitched-together collage of equi-important and simultaneously existing phenomena, largely divorced from geography and material history and transported to the living rooms and studios of the West in a more or less uninterrupted flow." As distributional systems expand to include competition between cable and telephone delivery, and as communications channels proliferate and diversify, the surface depthlessness and pastiche-like characteristics of hypermedia participation will only
intensify.

Other facets of the postmodern spatial bias are complemented by the hypermedia environment -- particularly, the blurring of reality and irreality and the embrace of plural "worlds," or what I earlier referred to as "world creationism." One essential characteristic of the hypermedia environment is the way image-based, digital technologies allow the manipulation and creation of so-called "virtual" or "simulated" alternative worlds. Of course, the archetypal example in this respect is the over-hyped "virtual reality" systems, in which the user dons a mask and gloves to enter into computer-generated virtual worlds. These systems attempt to convince participants that they are in another "world" by substituting normal sensory input (i.e. sight, touch, and sound) with information produced by a computer. Although such systems have been subject to much hyperbole, and although they are technically limited by their inability to mimic sensory stimulation completely, they are, in fact, only one minor element of the way "world creationism" pervades all aspects of the hypermedia environment.

Consider, for example, the way "world creationism" manifests itself in the escapist alternative and imagined worlds of consumer culture, including movies, videos, television, advertisements, and video games. The latter alone is especially instructive: a MIT Media Lab study reports that over 70% of American homes with children between eight and twelve years of age own a video game system called Nintendo, in which children interact with highly-involving, simulated worlds with ever-increasingly sophisticated graphics and audio. Nintendo's main competitor, the Sega Corporation, generated sales in excess of US$3.6 billion
What is perhaps most significant is that the video games explicitly cultivate the idea of plural "worlds" and the blurring of reality and irreality as part of their escapist attraction. Take, for example, the following liner-quote on an advertisement for a popular cd rom video game called "Commanche CD":

*The rotor blades are turning. The fuselage dips. Your chopper is reflected in the river beneath you. Watch out! It's real! Or is it? With Voxel Space from NovaLogic your sense of reality is given the ultimate challenge. With twelve detailed terrains, from arid desert gorges, to lush mountain valleys to frozen wastelands and wide river basins, Commanche is the promise of 3-D simulation action come to life. With Commanche CD you'll take on 100 complete missions. And when the Pentagon calls you, they'll never know you were trained on a personal computer.*

Of course, video games like the Commanche CD are only one small element of a communications environment that is deeply saturated by simulations and digital alternative worlds. At a more practical level, advanced computer graphics and architectural software "allow designers and clients to 'walk' through buildings and redesign them long before construction." Neuroscientists and meteorologists regularly employ sophisticated computer simulations to study 3-D images of the brain or complex weather patterns. Television commercials and advertisements are perhaps the most immediate and, at times, sophisticated employers of created worlds that blur the distinction between reality and irreality as commodities take on a wide range of "free-floating" cultural associations and illusions through the spectacular use of computer graphics. Another example is the computer-generated "special effects" that drive the escapist worlds of movies -- now a billion-dollar worldwide industry through first-run theatres and the secondary home-video market. Giant "wrap-around" screens, like those of the IMAX theatres, attract their viewers by offering yet more fantastic simulations, like floating in space above "the
Blue Planet," or fighting the "Fires of Kuwait" -- as if you were really there. And, of course, we should not forget the way in which world creationism is now deeply implicated in political campaigns and public-image making -- a use of image-based artifice that to many signal the deterioration of public discourse, especially in the United States.67

Given all of this continual bombardment of signs, simulations, images, and "virtual realities" it is easy to see why some, like Baudrillard for example, have concluded that the idea of a "reality" beyond the images -- a signifier beyond the sign -- is irretrievably lost in the swirling maelstrom of the hypermedia environment. For Baudrillard, communications technologies have thrust us onto a stage where there is nothing but simulations. Society itself is fashioned into a mirrored, self-reflexive spectacle. In this environment, "false consciousness" or "distortions of reality" or "ideological fetters" no longer make sense, for there is nothing left against which to measure the accuracy of the simulation: "reality" itself is pure simulacra. Following Baudrillard, Vatimmo notes that:

If we, in late modernity, have an idea of reality, it cannot be understood as the objective given lying beneath, or beyond, the images we receive of it from the media. How and where could we arrive at such a reality 'in itself'? For us, reality is rather the result of the intersection...of a multiplicity of images, interpretations and reconstructions circulated by the media in competition with one another and without any 'central' coordination.68

Ultimately, however, these analyses go too far in the direction of technological determinism. As I noted earlier with respect to Gergen, the mere exposure to hypermedia does not by necessity force a sudden ontological shift upon those immersed in its environment. No doubt there are many computer scientists personally involved in the design of such sophisticated
computer graphics who, if pressed, would hold firm to a realist epistemology. What might be said, however, is that hypermedia creates a conducive communications environment where such a spatial bias might find a more receptive audience. It is likely, in other words, that the spatial proclivities of postmodern social epistemology will seem more attractive, more "natural," to the current generation of children acculturated into the irrealism and world creationism of such escapist fare as video games, movies, and advertisements, where the distinction between the "real" and the "virtual" has not only been blurred, it is promoted as a new and interesting weltanschauung. Hypermedia does not generate postmodern spatial biases, but it does certainly complement and encourage them such that over time, through an inter-generational "selection" process, its blurring of reality and embrace of plural "worlds" might seem as taken-for-granted as does the idea of a single fixed reality today.

c. Imagined communities

The postmodern sense of imagined communities echoes many of the same themes and constructs that were raised with respect to individual identities and spatial biases. As Bauman notes: "Postmodernity is marked by a view of the human world as irreducably and irrevocably pluralistic, split into a multitude of sovereign units and sites of authority, with no horizontal or vertical order, either in actuality or in potency." Driving this fragmentation and pluralization is a relativistic philosophical position on Truth. According to postmodern epistemologies, no sense can be made of Truth as correspondence to a theory- or language- independent reality because there is no "skyhook" out of our current vocabularies which will afford us, in Rorty's
words, "a God's-eye standpoint -- one which has somehow broken out of our language and our beliefs and tested them against something known without their aid" -- a feat we can no more accomplish than "step outside of our skins." Flowing from this relativistic position, then, is a "multiperspectival" view of the world "composed of an indefinite number of meaning-generating agencies, all relatively self-sustained and autonomous, all subject to their own respective logics and armed with their own facilities of truth validation."

The postmodern imagined community is thus hyper-pluralistic and fragmented -- the very antithesis of the modern mass community. As shown in chapter five, the modern imagined community was premised on the fusion of a single "national" identity and sovereign political authority. This singular identity, reinforced in the modern age by printed vernaculars and national mass television and radio, provided a sense of imagined community that corresponded to the division of political authority into territorially-distinct, mutually-exclusive sovereign states. Although people certainly belonged to many different overlapping communities, there was a pervasive sense that these identities were, or at least should, be ordered hierarchically, beginning most importantly with the nation. The postmodern sense of imagined community dispersions this hierarchy to a multiplicity of overlapping "interpretive communities," and to local identities -- a process captured by Lyotard's notion of the "'atomization' of the social into flexible networks of language games." For Lyotard, and for postmodernists in general, the modern mass audience gives way to a postmodern "diversity of discursive species."

Perhaps no better illustration of the functional bias of the hypermedia environment
towards postmodern social epistemology can be found than its promotion of multiple and overlapping, transnational "niche" communities. Prior to hypermedia, systems of government-regulated national broadcasting provided the basis to set national agendas and ground public debates within territorially-defined political spaces. According to some theorists, they even provided a tool by which central authorities could manufacture consent among the populace and thus shape and constrain the contours of public ideology in the interests of the state. Hypermedia increasingly dissolves these shared "public" or "national" information experiences characteristic of the "mass" media age, and replaces them with a bombardment of transnational, de-centred, personalized "narrowcasting" and two-way communications in the form of computer networks, video-on-demand, direct satellite broadcasting, and the so-called "500" channel cable systems.

In the hypermedia environment, individuals have an ever-widening choice among multiple and specialized programs provided by a growing list of private, competing distributional systems that were previously bound within separate regulatory jurisdictions. The recently unleashed competition between telephone and cable is a prime example in this respect. More importantly, perhaps, is the extent to which these competing distributional systems are increasingly transnational as states de-regulate and allow an inter-penetration of broadcasting systems, from global news organizations, to direct broadcasting satellites, to joint-sharing agreements among "national" broadcasting systems. As this inter-penetration process is closely bound up with global market forces in favour of the "free flow" of information, even those states and regions that were once adamant about maintaining broadcasting monopolies have reversed their course.
In Asia, for example, satellite owners now have a choice of over 40 channels of satellite television, including Star TV, HBO, CNN, ESPN, the Hong Kong-based TVBS, plus a variety of other programmes transmitted through domestic satellites from Japan, Russia, Thailand, Australia, and China.\textsuperscript{79} Even more satellite systems to service the region are planned for launch in the next several years.\textsuperscript{80} In 1980, there was a total of 40 television channels in all of what is now the European Union. By 1994, there were 150, with over a third delivered by satellite.\textsuperscript{81} With the emergence of the hypermedia environment, the single-point/mass-national broadcasting paradigm has given way to multi-perspectival/transnational "narrowcasting."

Not only does hypermedia further "de-massification" through an increased diversity of choice among channels, it atomizes it altogether by the increasing "interactivity" of the communication process itself. Perhaps the best example is on-line "personalized" newspapers, which allow users to access side-bar stories or tangentially-related news-items and video clips at their own discretion. The result is a completely different news experience for each individual user.\textsuperscript{82} The same phenomenon is mirrored in multi-media music cd's currently available on the market that allow listeners to alter the composition to suit their mood -- to make it possible, as one composer put it, "for you and me to have two different viewpoints on the same piece of music."\textsuperscript{83} Similarly, interactive television systems developed in specific test-market regions of North America allow viewers to select camera angles and choose replays while watching sporting events.\textsuperscript{84} This personalized interactivity is taken yet a step further by studies currently being undertaken at the MIT Media Lab with financial support by industry-giants like Knight-Ridder, Gannett, Hearst and Times-Mirror. Here personalized software "agents" are being developed
that will electronically scan global networked data-bases each morning to provide individuals with their own exclusive news package tailored to fit their own unique interests. Although these studies are still in their embryonic stage of development, they provide further evidence of the "de-massifying" direction in which hypermedia is headed.

The second way in which hypermedia challenges the national mass-broadcasting paradigm and encourages the rise of multiple and overlapping "niche" communities is by allowing two-way, unmediated, transnational communications among groups of individuals linked through computer networks. On the Internet, and on the many private computer networks, millions of people around the world now participate in these "virtual communities." At last count, there are over 10,000 specialized USENET newsgroups on the Internet each of which involves largely unmediated communications among people from around the planet on such specialized topics as alt.politics.greens; alt.politics.libertarian; alt.politics.radical-left; alt.fan.dan.quayle; alt.sex.bondage; or alt.tv.simpsons. The prefix "alt" in the various newsgroups listed above refers to "alternative" -- a category that permits anyone to start a newsgroup on any topic whatsoever. Here, "publication" is open to anyone merely by the posting of a message on a bulletin board or newsgroup. Users can also open up individual "web-sites" which contain any selected pieces of information -- audio, video, or text -- linked or edited together in any way, open to everyone else on the Internet. This democratization of publication represents a radical inversion of the national mass-broadcasting paradigm.

There can be little doubt that the properties of hypermedia outlined above are contributing
to the rise of multiple and overlapping transnational "niche" communities observed by commentators across the theoretical spectrum -- what Howard Rheingold has aptly described as an "ecosystem of subcultures." The values and goals of these movements are multiple and contradictory and reflect widely varying aspirations, from religious fundamentalist groups, to ethnic diasporas, to functionally-defined interest groups, to terrorist organizations, to neo-Nazi movements. What is perhaps the most significant aspect of these communities, however, is the extent to which they are not bound by traditional notions of "territory" or "place" as prerequisites for membership. Geographical propinquity becomes less important as a basis for group identity as communities coalesce around shared interests in the "virtual" space of computer networks. As Appadurai explains, "sentiments whose greatest force is in their ability to ignite intimacy into a political sentiment and turn locality into a staging ground for identity, have become spread over vast and irregular spaces, as groups move, yet stay linked to one another through sophisticated media capabilities." The result is a much more de-centred, multiperspectival universe of imagined communities -- a "multi-centric" system, in Rosenau's words, comprised of "diverse subnational and supranational sovereignty-free actors." Nationalism, the visceral underpinning of modern world order, has been overcome by nichelism, a polytheistic universe of multiple and overlapping fragmented communities above and below the sovereign nation-state.

It should be readily apparent how nichelism complements the fragmented, pluralistic view of imagined communities found in postmodern social epistemology. But what of the notion of a global identity so often identified with the planetary reach of hypermedia? What of McLuhan's
"global village"? As a variety of observers have pointed out, superimposed upon all of these fragmented niche communities can be discerned an emerging "global" imagined community. Its identifying features are perhaps more ephemeral, evidenced not so much by a single cause as by a series of symbolic forms and discursive representations. Although human history is replete with ideas concerning the nature and spiritual significance of the world in the cosmos, it is only in the 20th century that the idea of a single global society has been realistically broached, and the problem of its political and cultural organization examined. To be sure, this intensification of global consciousness is a product of a variety of concerns, foremost among them the recognition of environmental degradation and the spread of global consumer culture. However, there can be little doubt that the development of hypermedia has been one of the primary contributors to this embryonic sense of global identity, if even in a perceived negative way. In other words, reflections on the sheer scope of hypermedia have contributed to a sense of global interconnectedness, beginning somewhat ironically with McLuhan's own aphorism: "the global village." Indeed, the perception of a tightly bound planetary community is hard to deny in a world that is constantly bombarded with images and reminders of the global reach of hypermedia. In this respect, hypermedia reinforces both "the compression of the world and the intensification of consciousness of the world as a whole."  

One immediate and widespread example is the proliferation of images of the earth. Today, it is hard to escape the "blue earth" image, whether it is in the form of a floating logo that signals the onset of CNN's Headline News, as a pamphlet header for an environmental awareness organization, or as a cover-image for an International Relations theory textbook.
Without a doubt, it is by far the most saturated corporate logo in the history of commercial advertisement -- one that only seems to become yet more popular as hypermedia deepens and expands. Its ubiquity alone is bound to have an impact on peoples' consciousness, as it already has to a considerable extent. As Cosgrove explains, images of the earth, like the Apollo photographs for example, "have been enormously significant...in altering the shape of the contemporary geographical imagination."96

Does this global imagined community contradict the rise of postmodern "niche" communities? As many critical observers have pointed out, although the spread of global discourse and imagery signifies a sense of imagined community, it is a contested vision, one that is appropriated in different ways by different groups.97 For example, the one-world image features prominently as a symbol for transnational corporations and high-technology industries for whom it signifies "secular mastery of the world through secular control."98 For environmental movements, however, the same image represents "a quasi-spiritual interconnectedness and the vulnerability of terrestrial life."99 Indeed, the very paradoxical way in which the global image is appropriated by different communities reinforces the postmodern sense of heterotopia, or the coexistence of a large number of fragmentary worlds in an "impossible space." In other words, the global image itself embodies the very fragmentary and juxtapositional sense of pluralistic imagined communities that marks the postmodern sensibility. Despite the contested nature of the global image, however, the sense of boundedness and integration of the earth will likely prove significant in the long-term primarily as a challenge to modern claims of sovereign jurisdiction, but perhaps also as an imagined basis for an emerging
planetary politics.

Conclusion

In this chapter, I have argued that the social constructs, cognitive biases and symbolic forms of postmodern social epistemology will likely resonate in the future to a considerable extent more than they have to date as a result of a "fitness" between this social epistemology and the emerging hypermedia environment. While it is certainly true that the ideas outlined above originated in the "West" and have been to date largely a "Western" phenomenon, we should not preclude out of hand the possibility of their spreading beyond their place of origin merely because they are "Western" ideas -- after all, the idea of sovereignty also originated in the "West." Moreover, the fact that the "West" also happens generally to correspond to the richest and most powerful segment of elites in the world today should not be taken too lightly. If I am correct in suggesting that postmodern social epistemology will not be merely a "fad," but will only deepen and expand over time among those acculturated into the hypermedia environment, then it is likely that this social epistemology will have significant consequences for the evolving architecture of world order.

What might these consequences be? Because changes in social epistemology are, by definition, an inter-generational process, any interpretation of their impact on world order transformation is bound to be speculative and ephemeral given the time-frame involved. However, what is most interesting is the way many of the core features of postmodern social
epistemology tend to complement and reinforce changes described in the previous chapter. For example, certainly the postmodern de-centred self with multiple identities resonates with the demassification of imagined communities and the enmeshment of sovereign states in multiple layers of authority. And the latter seems especially to "fit" the postmodern sense of juxtaposition and superimposition, and non-linear, pastiche-like orderings of space, as characterized by Foucault's notion of "heterotopia." The postmodern view of imagined or created worlds is also apropos in a world in which communities increasingly interact in the non-territorial spaces of computer networks. And the recognition of "difference" and hyper-plurality tends to complement a tightly-bounded planet in which once disparate cultures are thrust into close contact. From the perspective of social epistemology, these observations suggest that the emerging architecture of world order is moving away from territorially-distinct, mutually-exclusive, linear orderings of space towards non-linear, multiperspectival, overlapping layers of political authority. Likewise, modern mass identities centred on the "nation" are being dispersed into multiple, non-territorial "niche" communities and fragmented identities. The next, concluding chapter will attempt to sketch out some of the implications of this transformation.
Notes


3. Jean Baudrillard, The Ecstasy of Communication, [Translated by Bernard & Caroline Schutze], (New York: Semiotext(e), 1987); Baudrillard, Simulations; and Lyotard, The Postmodern Condition.


5. As Smart put it, "...there appears to be a shared sense that significant cultural transformations have been taking place in Western societies during the period since the end of the second world war and further that the term 'postmodernism' may be appropriate, for the time being at least, to describe some of the implied shifts in 'sensibility, practices and discourse formations.'" Smart, Postmodernity, p. 16. At the end of the sentence Smart quotes A. Huyssens, "Mapping the Postmodern," New German Critique, (Vol. 33, 1984), p. 8.


11. Without a doubt, the most readable presentation is found in Richard Rorty's various works. Apart from others cited in this study, see especially *Contingency, irony, and solidarity*.


15. See Gellner, *Reason and Culture* for an overview of Cartesian and Kantian views on individual autonomy and selfhood.


17. This is a point made by Harvey with regard to the postmodernist view of Marxism in *The Condition of Postmodernity*, pp. 53-54.


28. Ibid.

29. Ibid., p. 156.


34. Equifax has 15,000 employees in 1,100 locations in the United States, Canada, and Europe. See Anne Wells Branscomb, Who Owns Information? From Privacy to Public Access, (New York: Basic Books, 1994), p. 189, fn. 33. On page 19, Branscomb provides a good overview of the way debit card transactions in grocery stores are used to generate data on consumers.


36. See especially, Ibid.


42. Gergen, The Saturated Self, p. 49.

43. Ibid., pp. 15-16.


45. Once again, the most coherent overview of this position is provided by Richard Rorty in, among other works cited throughout this study, Contingency, Irony, and Solidarity; See also Ian Hacking, Representing and Intervening: Introductory Topics in the Natural Sciences, (Cambridge: Cambridge University Press, 1983); and Nelson Goodman, Ways of Worldmaking, (Indianapolis: Hackett, 1978).


47. As cited in Harvey, The Condition of Postmodernity, p. 44.


53. Ibid., p. 35.

54. For description, see Philip Elmer-Dewit, "Take a Trip into the Future on the Electronic Superhighway," Time, (April 12, 1993), p. 50; Nicholas P. Negroponte, "Products and Services for Computer Networks," Scientific American, (September 1991) also provides a good overview of this "paradigm" of navigation.

55. See Elkins, Beyond Sovereignty, p. 54.


60. See especially, Featherstone, *Consumer Culture and Postmodernism*; and Ewen, *All Consuming Images*.


63. The advertisement appears on page 69 of *Wired*, (March 1994).


72. See Elkins, *Beyond Sovereignty*, especially chapter six on "A Community of Communities."


78. A good discussion of these arrangements in a North American context can be found in Steven Globerman and Aidan Vining, "Trade, Investment and the Culture Industries: Bilateral Issues in the Post-NAFTA Era," (Unpublished draft, 1995).

79. Lee and Wang, "Satellite TV in Asia," p. 135. As Lee and Wang note on page 142, "The debate on banning or restricting the reception of satellite television is clearly alive in nations which have tried to bar its entry into their territory, and the pressure to "liberalize" satellite television is showing no signs of lessening."


81. "Feeling for the Future," p. 12. As the article goes on to explain, "The explosion of choice has blown gaping holes in Europe's public broadcasters. Italy's RAI, Spain's RTVE and Germany's ARD and ZDF are all facing financial ruin."


84. See Elmer-Dewit, "Take a Trip into the Future," p. 50.


86. In Japanese, these "virtual communities" are called "tokumeisei no komyuniti" or communities of anonymity. See Kumiko Aoki, "Virtual Communities in Japan: Their Cultures and Infrastructures," *Asia-Pacific Exchange (Electronic) Journal*, (Vol. 2, No. 1, March 1995).


89. Rheingold, *The Virtual Community*, p. 3.


95. Consider just the one following anecdotal illustration: in the 1977 third edition of K.J. Holsti's *International Politics* (New Jersey: Prentice Hall, 1977) textbook, there is no index entry for the word "global"; in the 1988 5th edition, however, not only is there an entry for "Global system, contemporary" but there are also 10 separate sub-headings, including "rules of," "structure of" and "ideological issues in". Moreover, the 5th edition features a colour image of the earth suspended in space.


Conclusion

Understanding the larger implications of "epochal" changes as they unfold is a notoriously difficult exercise. When bedrock assumptions and the institutions that have reinforced and sustained them melt into a maelstrom of change, the very search for a framework or foundation from which to assess such changes becomes inherently problematic. Indeed, if there is one overarching meta-perspective that has informed this analysis it is a view of history as essentially contingent and open-ended, one in which chance rules and unintended consequences loom large. While law-like generalizations that operate beyond the ebb and flow of history run contrary to such a perspective, analytical and theoretical lenses can, and indeed must be constructed through which interpretations of current trends can be made. The purpose of this study has been to provide one such analytical and theoretical lens by which to assess the relationship between changes in modes of communication and world order transformation. My intention in doing so was not to establish that communications technologies are the prime movers of human history - - that all other aspects of human existence can be reduced to the unfolding "logic" of successive modes of communication. Rather it has been to fill a remarkable gap in International Relations scholarship at a time when dramatic, global changes in communications technologies are occurring, and the only available analyses are the science fiction-like extrapolations of popular information utopias and dystopias.

Ironically, it was the theory associated with one of the most widely-quoted writers of the "information age" literature -- Marshall McLuhan -- that provided the material to construct that analytical lens. While both McLuhan and Innis before him may have been somewhat ambiguous
in terms of the weight they attributed to modes of communication in human history, I have attempted in this study to articulate an open-ended, non-reductionist medium theory approach, embedding it in a much wider evolutionary perspective on human existence that I refer to as "ecological holism." Apart from explicitly shedding whatever technological determinist accoutrements may be associated with medium theory, the most significant modification is the elaboration of the two conceptually-distinct effects that are related to changes in modes of communication: distributional changes and changes to social epistemology. This elaboration allowed me to delineate more clearly the types of effects that arise in conjunction with large-scale changes in modes of communication.

In part one of this study, I examined the relationship between the emergence of printing and the medieval to modern transformation of world order in Europe. Distributional changes associated with printing worked in two directions: undercutting the medieval world order while contributing to the constitution of the modern. With respect to the former, the properties of printing functionally complemented the strategic interests of the Protestant Reformation and scientific humanism to the detriment of the papal-monastic network. Both of these particular distributional changes were vital in helping to dissolve the cosmological ties that linked Europe into a single Christian Commonwealth. A third distributional change that was facilitated by printing -- the rise of the urban bourgeois and contractarian socio-economic relations -- was "transitional" insofar as it had a levelling effect on the personalistic ties of feudal social relations and opened up the possibility of common rule from a single centre. Finally, the distributional properties of printing functionally complemented the strategic interests of centralizing state
monarchs who, in alliance with the urban bourgeoisie, set about creating standardized rational policies, and impersonal bureaucracies to administer them over a clearly defined territorial space.

But distributional changes provide an incomplete picture of world order transformation, focusing only on the relative power of social forces. The emergence of the printing environment also had important consequences for the social epistemology of the time. Printing provided a communications environment in which modern notions of individual subjectivity and autonomy, and a cognitive bias towards visual, linear, and uniform representations of space could thrive. Moreover, the standardization of printing provided the means by which both directly and indirectly an imagined community based on shared "national" vernacular languages could take root, forming the embryonic shell of the modern ideology of nationalism. Taken together, these changes in social epistemology formed the "metaphysical underpinnings" for the architecture of modern world order, and thus contributed to the characteristic differentiation of political authority into territorially-distinct, sovereign nation-states.

Using the same analytical lens as in part one, I first turned my attention in part two to the distributional changes associated with the emerging hypermedia environment. There I argued that hypermedia is facilitating both the complex diffusion of production across territorial/political boundaries and the integration of financial markets into a globally-networked, 24-hour instantaneous web. I then examined the way hypermedia complements the diffusion of transnational social movements around the globe leading to what has been referred to as a "global
civil society." Finally, I argued that the distributional properties of the hypermedia environment -- in particular the high level of transparency -- favour negarchical security arrangements while disadvantaging real-states. Turning to social epistemology, I argued that the social constructs, symbolic forms and cognitive biases loosely orbiting around the current of thought known as "postmodernism" will likely resonate today and in the future as a result of a "fitness" or match between this social epistemology and the hypermedia environment. Postmodern notions of "de-centred" selves, pastiche-like, intertextual spatial biases, and fragmented imagined communities "fit" the hypermedia environment where personal information is dispersed along computer networks and privacy is rapidly dissolving, where disparate media meld together into a digital, intertextual whole, and where narrowcasting and two-way communications are undermining mass, "national" audiences and encouraging non-territorial "niche" communities.

What do these changes portend for the character of an emerging postmodern world order? While it is too early to tell with certainty the exact details of a postmodern world order, some general contours and patterns can be identified that might point the way. Probably the most apparent characteristic suggested by the trends outlined above is the emergence of multiple and overlapping layers of authority and the diffusion of political, social, and economic processes beyond territorial/political boundaries. In response to changes in both production and finance, for example, states have entered into a complex web of institutional arrangements and regimes at both a regional and a global level. At the same time, the structural power of capital has increased pressures on central state authorities for the devolution of many decision-making powers to the local level. The combined effect of these two processes is a much more complex
web of governance structures both "above" and "below" the sovereign state. Adding strength to these trends is the density and complexity of transnational social movements, many of whom now operate primarily through the non-territorial spaces of computer networks, like the Internet. These social movements add yet more webs of governance into the multiple and overlapping layers of authority and further undermine the organization and differentiation of modern political rule into territorially-distinct units.

What makes these trends even more compelling is the way they are complemented by some of the core elements of postmodern social epistemology, in particular the embrace of heterogeneity and pastiche-like, intertextual spaces. It is worth recalling at this point a Wittgenstein remark cited earlier in chapter eight that while used by Lyotard as an illustration of postmodern spatial biases seems especially apropos as a description of postmodern world order: "Our language can be seen as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from various periods; and this surrounded by a multitude of new boroughs with straight regular streets and uniform houses." At a time when "it is becoming increasingly difficult," according to Spiro, "to use the use the world 'we' in the context of international affairs," what could be more "fitting" than the postmodern sense of multiple identities, de-centred selves and fragmented imagined communities? If I am correct in arguing that postmodern social epistemology will only deepen and expand in the hypermedia environment, then we should expect the trend away from rigid, linear spatial boundaries, and towards multiple and overlapping forms of political authority to continue.
Another important feature of postmodern world order that is suggested by the trends outlined above is the spread of capitalist-consumer values on a global scale. If there is one clear "winner" in the hypermedia environment, it is the collective interests of transnational capital. The modern subordination of economics to politics has been dramatically reversed by this change such that the core values of most all states are now defined in terms of the interests of capital. As Ohmae put it most starkly, "economic activity is what defines the landscape on which all other institutions, including political institutions, must operate."\(^3\) While it would be wrong (and conceptually misguided, as I will explain shortly) to describe these changes in terms of the "withering away" of the state, they certainly signal an important change in the values which now animate most states. In a virtual stampede, states around the world have engaged in progressive liberalization measures to meet the disciplinary interests of transnational capital. This "hollowing out" of the state, and the shifting orientation of states' core values away from self-sufficiency, autonomy, and survival to the accommodation of liberal-capitalist interests, signals yet a further dismantling of the architecture of modern world order. As constructivists have recently pointed out, while recurrent inter-state warfare is not a necessary function of anarchical organizations after all, the idea itself actually sustained and reinforced the war-function of the state, and thus the subordination of all other social activities to that perceived imperative. Now that this idea has been displaced, however, we should expect the constructed imperative to disappear, allowing the dispersal of economic and social activities that were once contained within sovereign-territorial spaces. In this respect, the shift in states' values towards liberal capitalism complements the trend towards multiple and overlapping layers of political authority.
Finally, in the much longer term one significant trend suggested by these changes is the way the entire planet itself has become a focus of constant surveillance from space. While the participants in the planetary surveillance process range from national and regional military organizations with more narrowly defined security interests, to commercial organizations that sell high-resolution images to anyone on the earth, to environmental organizations monitoring the earth's biosphere, the collective effect of all of these groups taken together is that there are now literally thousands of "eyes" watching all parts of the planet simultaneously. Of these various "eyes," probably the most significant are the multinational environmental satellite surveillance systems. These long-term cooperative efforts to monitor and model the earth's biosphere will likely remain permanent features of the human-technological interface for the foreseeable future. Although they are designed to address the many interrelated facets of ecological management, their most important effect may lie in the unanticipated consequences of their continuous watch over the planet. With the emergence of hypermedia, whatever dynamics of world order unfold they will do so under the total gaze of constantly orbiting surveillance cameras. When coupled with the prevalence of "earth images" and "global symbolism" outlined in chapter seven, these changes suggest the distant possibility of a global imagined community. However, the heterogenous nature of postmodern social epistemology, and the overlapping layers of political authority, would act as strong constraints against the emergence of a single mass identity. More likely would be that this sense of a global imagined community would coexist in a complex montage of overlapping and fluid multiple identities. For the foreseeable future, pastiche-like "niche" communities will likely dominate the postmodern landscape.
Of course one important caveat is that the transformations described above are all seen from the perspective of changing communications technologies. Throughout this study I have gone to great lengths to argue against mono-causal reductionism, and while communications technologies are important insofar as they are implicated in most all spheres of life, they should not be seen as "master variables." In step with this caveat, then, it is instructive to consider briefly some observations made by theorists working in other areas that reinforce the claims made above. For example, in Beyond Sovereignty David Elkins has described the "unbundling" of modern territorial politics -- a process in which a wide variety of forces are helping to decouple many of the functions and instruments of governance from their territorial roots. Likewise, Philip Cerny has described an emerging "plurilateral" world order, characterized by "cross-cutting ties" and "overlapping memberships" -- a system that is neither hierarchic nor anarchic, but "polyarchical." Ken Booth has argued that "Identity patterns are becoming more complex," and "The traditional distinction between 'foreign' and 'domestic' policy is less tenable than ever." Also significant are Ronnie Lipschutz's observations on the "fading away" of anarchy, its replacement by a "global capitalist consumer culture," and the rise of a non-territorially-based "global civil society." Similarly, James Rosenau has written of an emerging "multi-centric world" in which states exist alongside a variety of "sovereignty-free actors" shaping the contours of world politics. Perhaps most compelling of all, however, are John Ruggie's many observations of contemporary world order transformation. In ways similar to this study, Ruggie has commented on the emergence of "multiperspectival institutional forms" and "non-territorial regions" driven by changes in production, finances, ecology, and security. What is most significant, however, is the way in which Ruggie points to a connection between
these "multiperspectival" forms and broader changes in mentalities collectives. For Ruggie, there is more than a passing coincidence between postmodern social epistemology and new forms of political authority. Given the affinity between this study and Ruggie's, it is worth quoting him at some length:

*What is intriguing about this debate are some of the terms used to convey the essential features of postmodernity: detotalized, decentered, and fragmented discourses and practices; multiple and field-dependent referents in place of single-point fixed referents; flow-defined spaces and the simultaneity of temporal experiences as opposed to placed-defined spaces and sequential temporal experiences; the erosion of sovereign or macro powers over society coupled with the diffusion of disciplinary or micro powers within society.*...To the student of international political economy these terms sound a great deal like descriptions of certain recently emerged global systems of economic transaction: the global markets in currencies, for example, or in credit and even equities; to a somewhat lesser but still considerable extent global production; and in several of the institutional arrangements that have emerged in the global commons...¹⁰

These converging observations made by theorists working along different lines reinforce the conclusions made in this study from the perspective of changing communications technologies.

As might be expected, however, there is not universal consensus on the question of world order transformation. Some remain sceptical that fundamental change short of a single world government could ever occur once a given ordering principle (anarchy) is in place.¹¹ As Ruggie has pointed out, the orthodox expression to these developments is typically an expression of *deja vu* -- high levels of interdependence have occurred before, and besides, the state has not disappeared or withered away.¹² But one gets the sense from these reservations that something is wrong with the way the very problem itself is being addressed -- that, in Ruggie's words again, an "extraordinarily impoverished mind-set" is at work. Waiting for the state to
"disappear" before entertaining the possibility of fundamental transformation is analogous to an observer in the 17th century pointing to the town cathedral and waiting for it to disappear before accepting the demise of the medieval world order. Under those conditions, we would still be living in the Middle Ages!

Part of the problem may not be empirical at all, but conceptual. In other words, the real stumbling block may lie with the discipline's predominant "way-of-seeing" the world. A number of theorists are beginning to recognize the deep pervasiveness of a "state-centric" lens -- a kind of ontological blinder that colours our preconceptions about the world around us. Consider in this respect Ruggie's admonition that the two dominant "schools" in the field, realism and liberalism, offer pictures that seem "equally misplaced" -- that most theorists "lack even an adequate vocabulary; and what we cannot describe, we cannot explain." Ruggie's critique is mirrored to some extent by Robert Walker's, who believes that our attempts at understanding or questioning transformation "remain caught within the discursive horizons that express the spatiotemporal configurations of another era." Interestingly, this was a point made much earlier by Edward Morse, who argued that "the whole terminology of international affairs is still permeated by past ideas and especially by the political and legal concepts of the Westphalia system." In yet more stark terms, Rosenau has described these ontological blinders as "conceptual jails."

But if the answer is not more empirical detail, how do we go about making, in Rosenau's words, a conceptual "jailbreak"? While there are probably many different answers to this
question, recent developments in the philosophy and history of science associated with figures such as Thomas Kuhn, Quentin Skinner, Mary Hesse, and Richard Rorty suggest that conceptual revolutions in the sciences are more appropriately described as "metaphoric redescriptions" of nature rather than more accurate representations of nature itself. In other words, revolutionary achievements and paradigmatic revolutions occur when the old, familiar vocabulary becomes stale, rigid and dogmatic and is replaced by new metaphors and new ways of looking at the world that dispense with the old vocabulary. The important point is that the creation of a new vocabulary or paradigm cannot be reached by following a set of a priori axioms formulated in the old vocabulary, nor can it be seen as finally hitting upon the one correct representation of "reality." Rather it occurs in a much less "rational," more poetic way, through the creative use of metaphors and analogies that help us see the world around us in a new and interesting light. This pre-analytic exercise is what Rorty refers to as "therapeutic redescription" - that is, the use of novel metaphors to redescribe the present in order to shake us free of our current conceptual blinders that are holding us captive and getting in the way.

How might Rorty's "therapeutic redescription" be applied to International Relations theory? While virtually any theme could suffice, one that seems to be gaining momentum in the field is "neo-medievalism." Probably the first to articulate this analogy was Hedley Bull, who considered the possibility that the demise of the Westphalian states system could evolve into something resembling in form the architecture of medieval western Europe:

All authority in mediaeval Christendom was thought to derive ultimately from God and the political system was basically theocratic. It might therefore seem fanciful to imagine that there might develop a modern and secular counterpart of it that
Embodies its central characteristic: a system of overlapping authority and multiple loyalty.18

Following Bull's lead, others have latched on to the analogy, typically focusing on the surface similarity between the two eras in terms of cross-cutting and overlapping layers of authority. Others have used the analogy to highlight different surface similarities. For example, Ronnie Lipschutz believes that today's liberal-capitalist order "has come to fill a role similar to the systems of rules and rule promulgated by the Church prior to Westphalia."19 To date, however, most of these analogies have remained parenthetical and tentative. A neo-medieval therapeutic redescription, on the other hand, would in effect "run" with these analogies not because there is some fundamental essence, nature, or dynamic underlying the medieval and the postmodern periods that somehow unites them. Rather, it would be purely for strategic reasons: that is, to redescibe the present in novel terms in order to shake us free of our current conceptual blinders that are holding us captive and getting in the way, as clearly appears to be the case with the "state-centric" paradigm.

For example, considerable mileage might be gained out of Lipschutz's brief analogy between the global-liberal capitalist paradigm and the transnational authority of the Roman Catholic Church -- what Lipschutz refers to as "operating systems." For most people, consumer culture and the liberal-capitalist paradigm are the height of secularity. A redescription of such a system using religious metaphors might help "de-naturalize" this paradigm by revealing it as more of a human artifice, one that in its structuring of basic cosmological principles of "natural" behaviour -- that satisfaction of material well-being through the consumption of goods and

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services -- has significant religious connotations. Such a therapeutic redescription -- in drawing attention to the way in which global-liberal capitalism resembles the transnational authority of the medieval Church -- might also help invert the taken-for-granted binary opposition between the so-called "high" politics of military-security affairs and the "low" politics of economics. It might help relieve the problem to which Ruggie refers -- the mind-set that sees challenges to the system of states only in terms of entities that are institutionally substitutable for the state -- by referring to them as the postmodern equivalents of medieval Kings: powerful, yes, but subordinate within the imperatives of the Great Chain of Being. This might help us conceptualize fundamental transformation not in terms of the disappearance of the state and its replacement by a world state or no-state, but in terms of the significance and purposes of states today -- the way states are increasingly animated by the need to accommodate global market forces rather than to balance the military power of other states, in the same way that medieval Kings and princes might have been ultimately animated less with material well-being than with their own salvation.

Examples of this type of therapeutic redescription do exist, but not surprisingly they are found outside of the International Relations field. One illustration is an article written by the editor of Harper's magazine, Lewis Lapham, who saw in neo-medievalism "a way to think about...phenomena as distant from one another as MTV, the Uruguay round of the General Agreement on Tariffs and Trade, the transport of nuclear weapons by oxcart through the Caucasus Mountains, the apparition of H. Ross Perot, and the sales receipts of Women Who Run with the Wolves." In a novel redescription, Lapham notes how the "consanguine hierarchies...
of international capitalism imitate the old feudal arrangements under which an Italian noble might swear fealty to a German prince or a Norman duke declare himself the subject of an English king." Lapham describes how today's "lords and barons of the smaller fiefs" owe their allegiance not to the United States or Britain, but to "Citibank or Bettelsmann or Matsushita."

In extending the metaphor of global consumer culture as the New Church, Lapham describes how:

\[
\text{The hegemony of wealth assumes the ecumenical place once occupied by the medieval church, and within this favoured estate everybody observes the same rituals and pays homage to the same princes. The yachts moored off Cannes or the Costa Brava sail under the flags of the same admiralty that posts squadrons off Miami and Newport Beach, and the American plutocrat travelling between the Ritz Hotel in Paris and Claridge's Hotel in London crosses not into another country but into another province of what has become the latter-day Christendom.}^{21}
\]

To reiterate, Lapham's therapeutic redescription is not an attempt to uncover a common, fundamental essence of the medieval and the postmodern periods -- to get at the "reality" underneath the layers of "false consciousness." It is rather an attempt to "de-naturalize" the present, free us of our conceptual blinders by offering a new and interesting "way to think about" the world around us. If such a redescription has its intended effect, if it helps orient us to the world in a different way, then it will have achieved its purpose.

Of course the need for therapeutic redescription is a problem internal to the workings of the discipline, and is only a method to help theorists see the changing world around them in a more productive light. If the conclusions reached in this study are correct, then that world is indeed changing in dramatic and fundamental ways. Whether these changes should be
applauded, lamented, or encouraged in certain directions over others are questions that wait another study. Certainly we would expect that not all of the changes will be uniformly "good." The fluidity and increasing porousness of borders will likely bring new forms of instability and tension, while the instantaneous transmission of televised images around the planet will no doubt encourage more acts of random terror. The relativist inclinations of postmodern social epistemology have already fed a rampant hyper-localism coupled with a frightening politicization of universities. And the utter banality of the O.J. Simpson spectacle and others like it reveals the depths to which a commercially-driven media and a consumer-culture ethos can sink. But not all of the changes will be uniformly "bad" either. With means of two-way communications and the breakdown of mass broadcasting, new forms of democratic participation and acts of creativity become feasible. A growing global civil society concerned with issues of ecology and human rights may eventually meliorate the worst excesses of the global market system. And the postmodern recognition of "difference," coupled with the move away from Cartesian universalism and totalizing meta-narratives, may be just the type of weltanschauung necessary for the cultural montage of an emerging planetary polity.
Notes


7. Lipschutz, "Reconstructing World Politics."


9. See Ruggie, "Territoriality."


3-53; and Mary Hesse, *Revolutions and Reconstructions in the Philosophy of Science*, (Sussex: The Harvester Press, 1980).


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APPENDIX A

Figures
Superstructure

ideas, conceptual frameworks, social forces, institutions, etc

Base

technology, mode of communication, mode of production

Figure 1: The technological determinist/mono-causal reductionist model of change