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BOOKISH VERSUS ELECTRONIC TEXT: IVAN ILLICH AND MICHAEL HEIM

BY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "Bookish versus Electronic Text: Ivan Illich and Michael Heim" submitted by Leona Flim in partial fulfillment of the requirements for the degree of Master of Arts.

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ABSTRACT

This thesis compares and contrasts the work of Ivan Illich and Michael Heim, both of whom argue for a profound technology-related shift in late 20th-century human experience. Illich, a historian, explores this shift against the backdrop of what he calls the "scribal revolution" of 12th-century Europe. Heim, a philosopher, explores the same topic more directly by reflecting on the phenomenology of word processing. Despite mention of both bookish and electronic texts in the title, the former is discussed mainly as a means of shedding light on the latter.

The context for this discussion is the field of discourse known as "transformation theory." This body of theory -- associated most notably with the work of Walter Ong -- belongs to the subdiscipline of communications history, which in turn contributes to the larger and older enterprise of the philosophy of technology. The content and limitations of transformation theory are summarized with a view to noticing how both Illich and Heim contribute, or fail to contribute, to this literature.

More specifically, analysis of Illich and Heim in terms of similarities, differences, weaknesses and strengths allows some provisional observations as to how the topic of a 20th-century psychocultural shift might best be addressed in future work. The main similarity of conclusion is that both Illich and Heim give paramount importance to the realm of the senses.

The main difference of conclusion is that Illich discusses the cybernetic mind in terms of perceptual set, while Heim discusses the psychic framework of word processing in terms of patterns of conception. Briefly stated, Illich finds a cybernetic mind organized around the perceptual metaphor of the computer; while Heim finds thinking as mediated by word processing to be fragmented, managerial, and algorithmic. Heim also argues that bookish privacy is threatened by the prospect of total electronic linkage.

The credibility of both Illich and Heim is undermined, however, by a shared failure to provide adequate ethnographic evidence. Examples of relevant ethnographic study are brought into play in relation to both, as a means of demonstrating how their lacks might conceivably be offset. The ideally complementary role of communications history and ethnography for future research is emphasized. Also emphasized -- this time by way of tribute to Illich and Heim -- is the need for more communications historical inquiry that gives due attention to the sensory realm of the human body.

Sources for this thesis include both published and unpublished work by Illich, as well as published work by Heim. Additional insights concerning Illich were gained through a visit with him at Penn State University during October, 1990.

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Most of all, I thank my great Creator-God who recklessly entrusts Himself to human language, and because of whom both wonder and worship are possible. To Him be the glory.

DEDICATION

The heavens declare the glory of God;
the skies proclaim the work of His hands.
Day after day they pour forth speech;
night after night they display knowledge.
There is no speech or language
where their voice is not heard.
Their voice goes out into all the earth,
their words to the end of the world.
Psalm 19:1-4a

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The Christian dispensation is closely tied to the evolution of the material world, and to its very materiality.
-- Ong (1967), p. xi.

To begin to understand the gorgeous fever that is consciousness, we must try to understand the senses -- how they evolved, how they can be extended, what their limits are, to which ones we have attached taboos, and what they can teach us about the ravishing world we are privileged to inhabit.
-- Ackerman (1990), p. xix.

Any intimations of authentic deprival are precious, because they are the ways through which intimations of good, unthinkable in public terms, may yet appear to us.
-- Grant (1969), p. 141.

This is not the thesis I intended to write. I intended to write a thesis on a topic which passionately concerns me: i.e., the interplay between technology and what is often, perhaps erroneously, called, "the life of the spirit." More specifically, I intended to explore my hunch that dominant technologies help to shape the cultural experience, or non-experience, of God.

Because I am a Christian, I wanted to know how living in an electronic culture makes me come to the Biblical drama differently than if I were living in a previous epoch. I wanted to know what would have happened if Jesus Christ had come today, into the world of word processing, rather than into a world poised exactly in transition between orality and literacy. I wanted to know if communications history gives new

meaning to the phrase, "the fullness of time;" and just as much, I wanted to know why it seems so difficult for many today to believe that the God-Man came, went, and remains alive. If the Bible had been written in WordPerfect, would they then be able to experience, able to believe? Or would the Bible then have emerged a completely different "book"?

These questions cut to the very quick of late 20th-century, Western human experience: to the gripping, pre-reflective sense-life of the human body. Not everyone shares my convictions about the meaning of history; but few can afford to deny that things have changed -- and we too, right down to our very predispositions of thinking and perception. These human changes -- radical, breathtaking, invisible -- will continue to fascinate me long after this particular exercise is complete.

All this is meant to say that I have decided to focus, for the moment, on questions relating to human experience in general, apart from the implications of same for the life of faith. This is partly because I am not studying at a Christian institution; I am in a setting where toleration of everything and commitment to nothing often seem indistinguishable. But my decision in favor of generality is also because my subject matter has proven to be much more elusive than expected. Even now, I have not done justice to any of the issues here addressed. At best, I have asked a few questions and explored ways of groping at some answers.

Throughout, I have focused resolutely on the realm of the senses because I believe with Ackerman that this is where the "gorgeous fever that is consciousness" can best be traced.

Specifically in relation to word processing, I am among those who long resisted use of this technology. Not for me, the electronic keys in favor of the tactile and portable (not to mention, inexpensive) pen. Today, however -- thanks to a job that required it -- writing on computer is second nature to me. Now I swim in language: it has melted into liquid along with the misgivings that once seemed solid and sturdy as furniture. And yet...is there something being lost? Am I still sensitive enough to feel the "intimations of deprival" that may indeed be our only hope of escape from the technocratic web?

A final note in relation to writing style: I intended to write this thesis in first person, in defiance of those deadly and pretentious conventions that demand use of the third-person "objective" voice. Once again, however, I have to admit choosing discretion over impulse. As a friend of a friend has said: "Sometimes you have to do things right before you can do things wrong." I only hope that I will still have the necessary spark to do things wrong once I have become skilled at doing them as they are supposed to be done!

CHAPTER 1: INTRODUCTION

Currently in the communications literature the topic of the so-called electronic explosion has compelled a virtual monopoly on scholarly attention. Many scholars are dealing with this subject exclusively, and many others are being forced to acknowledge it in the context of other discussion. None would dare ignore its critical relevance both to the realities of today and the possibilities of tomorrow.

However, it is becoming clear that contemporary electronic culture cannot be adequately understood without a deep understanding of what has come before. This recognition brings renewed attention to communications history, a subdiscipline promising to provide important keys to the riddle of what late 20th-century Western culture is all about. With the renewed attention to communications history, questions of historical approach also take on new intensity. How exactly can the past, in all its exquisite intangibility, be credibly recovered? What should be included in explication of the past and what should be omitted? Can we even presume to reconstruct the past as it was, apart from the certainties of the present?

As a means of beginning to explore such questions, this work critically examines the respective intellectual projects of two scholars who provide historically-informed, phenomenologically-oriented reflection on contemporary Western

culture: Ivan Illich and Michael Heim. Examination of the similarities and differences between Illich and Heim -- as well as of their respective strengths and weaknesses -- will yield rich insights for communications history in general. These insights, both methodological and substantive in nature, should help to light the way for communications historians in the future -- particularly for those who want to avoid the irony of oblivion to the history of their own subdiscipline.

It will be observed that both Illich and Heim make important contributions to communications history. However, both Illich and Heim also tend to indulge in sweeping generalizations unsupported by adequate evidence. This shared flaw draws attention to the ideal of communications history and ethnography working in partnership: the former to provide perspective over time, and the latter to ground theory in actual cultural and subcultural practice.

As the literature review in Chapter 2 will indicate, the work of both Illich and Heim can be located within the two intellectual traditions of the philosophy of technology and communications history, the latter including a counter-stream known as "transformation theory." This fledgling counter-stream has been the locus for communications-oriented discourse on human experience as affected by the emergence of new technologies for symbolic -- or more accurately, alphabetic -- expression. Transformation theory's main intellectual figure to date has been communications historian

Walter Ong. The Ongian project will be summarized with a view to placing the contributions Illich and Heim within this context.

In deliberate -- if imperfect -- suspension of their own sensory/perceptual/conceptual biases, transformation theorists in general attempt to recover the distinctive psychic characteristics of particular cultures. Typically, distinction is made between cultures of orality, literacy and telecommunality,[1] the latter more commonly known as electronic.[2] Illich and Heim make these same distinctions and share this same theoretic framework. More specifically, Illich argues for the pivotal importance of a 12th-century "scribal revolution" which he says ushered Western culture into the age of the bookishness. Heim, meanwhile, contrasts the book-based, classical model of mind with the psychic framework of word processing.

Unfortunately, the recent communications-related work of Illich remains largely unknown to scholars of communication, partly because much of it remains unpublished. This thesis will draw attention to some of Illich's important contributions, including those offered in two unpublished manuscripts: In the Vineyard of the Text: A Commentary to Hugh's Didascalicon (1990); and Celebration of Awareness, Volume II (1990). While the latter is a collection of essays on a rather diverse array of topics (communications among them), the former is a cohesive work which builds on ABC: The

Alphabetization of the Popular Mind (1988), a book Illich co-authored with Barry Sanders. Perspective on this material was gained during a trip to visit Illich at Penn State University during October, 1990. Sources in relation to Heim, meanwhile, include Electric Language: A Philosophical Study of Word Processing (1987); and "The Dark Side of Infomania," an article published in Electric Word: The Magazine of Word-Based Computing (1990).

As the title indicates, the bulk of this thesis consists of comparison and contrast of Illich and Heim. The main conclusion will be that the contributions of Illich and Heim are remarkably interlocking: Illich, the subject of Chapter 3, enters body history at the site of 12th-century monastic reading; and Heim, the subject of Chapter 4, at the site of 20th-century electronic writing. Each examines a specific dimension of the lived experience of textuality, in the context of a specific moment of transition in the history of alphabetic expression. While Illich does not select word processing as his primary topic of study, this does not prevent him from reflecting, with Heim, on the nature of human experience during the age of the fluorescent screen. In different ways and from different directions, both Illich and Heim link the emergence of computer-based text processing with a subtle but strikingly profound shift in the 20th-century cultural psyche.

It is important to emphasize that Illich and Heim do not

set out to accomplish identical purposes. Thus, the intent of this work is not to rank them against each other in terms of scholarly success; but rather to examine their related projects for specific sites of complementarity, difference, weakness and strength. This is precisely the focus of Chapter 5, which is followed by Chapter 6 offering conclusions. Chapter 6 brings the argument full circle by grappling with the over-arching question of how the central phenomenon of interest here -- what Heim calls "the riddle of the shift in our symbolic life"[3] -- should best be approached.

In summary, the specific questions to be addressed in this thesis are as follows:

1) As contributors to the Ongian discourse on "transformation theory," what do Illich and Heim say about the psychic characteristics of the electronic age, in the context of what they say about previous epochs in communications history?

2) In relation to communications history in general, what aspects of similarity, difference, weakness, and strength can be noted in their respective works? and finally;

3) What can be learned from this comparison about how communications history should proceed in future?

Reflection on these questions will suggest that both Illich and Heim draw attention to the primary importance of the human <u>senses</u>, although Illich concentrates mainly on

issues of perception and Heim mainly on issues of conception. More specifically, Illich finds the cybernetic mind to be organized around the perceptual metaphor of the computer; while Heim finds thinking as mediated by word processing to be fragmented, managerial, and algorithmic. In relation to the senses per se, Illich reflects mainly on the bodily implications of the shift from oral to silent reading which accompanied the rise of the bookish text. Heim, meanwhile, reflects mainly on the bodily implications of the current shift from handwriting to writing on the electronic keyboard.

The shared failure of Illich and Heim to provide adequate ethnographic evidence does undermine the credibility of their conclusions. But it does not take away from the merit of their work as pioneering, timely, and thought-provoking. Intentionally or not, for example, both Illich and Heim point the way to some exciting but uncharted intellectual territory: the communications history of the senses. An illustrated appendix outlines, in an exploratory fashion, some of the issues subsequent scholarship may consider.

CHAPTER 2: LITERATURE REVIEW

A. Introduction

To date it appears that the respective projects of Ivan Illich and Michael Heim have not been analyzed together. Similarly, it appears that Illich and Heim have not themselves been in contact in relation to their work. Still, their projects do not exist in isolation from one another. Rather, they are situated within the context of the philosophy of technology, which in turn provides context for the subdiscipline of communications history.

Within communications history, there is a polarity to be found between the counter-scholars, who diligently pursue questions of experience; and others who undermine the importance of such questions simply by giving "systemic" issues almost exclusive priority. It will be assumed here that questions of human experience -- which some scholars might describe in terms of the "lifeworld" -- are just as important as the socio-political and techno-economic issues which often eclipse them.

As Jurgen Habermas (1989) suggests, the fundamental question for social theory

> ...is how to connect in a satisfactory way the two conceptual strategies indicated by the notions of "system" and "lifeworld."[1]

Unfortunately, it is not within the scope of this thesis to attempt such connection. However, attempt is made to counter-

balance the tendency among many social scientists to present society only after the model of the self-regulating system. The problem with such systemic preoccupation, says Habermas, is that it

> ...ties social-scientific analysis to the external perspective of an observer and poses the problem of interpreting the concept of a system in such a way that it can be applied to interconnections of action.[2]

The alternative approach, which is admittedly subject to problems of its own,[3]

> ...ties social-scientific analysis to the internal perspective of members of social groups and commits the investigator to hermeneutically connect up his own understanding with that of the participants. The reproduction of society then appears to be the maintenance of the symbolic structures of the lifeworld (emphasis added).[4]

For the purpose of this work, it will be argued that a counter-balancing of this approach with the previous will at least prove helpful as a starting point. Even if individual communications historians have not been especially successful in encompassing both experiential and systemic concerns, at least the subdiscipline at large may benefit from exploration of the neglected pole.

Such exploration -- of symbolically-structured human experience -- is characteristic of both Illich and Heim, though neither would describe his work as "social-scientific analysis" per se. Such exploration is also characteristic of counter-scholars of communications history in general, who are described here as proponents of "transformation theory." Heim coins this term to describe the field of inquiry which has

been represented most notably to date by the orality/literacy scholarship of Walter Ong. Scholars with affinity to transformation theory are also to be found within the philosophy of technology.

This chapter will discuss, in turn, the two main fields of: the philosophy of technology, and communications history. Transformation theory will be dealt with in the context of the latter. In addition, observations will be made as to some of the limitations of transformation theory in its Ongian form. The work of Illich, and to a lesser extent, Heim, will be shown to offset at least one of these limitations.

B. The Philosophy of Technology

The philosophy of technology can be seen as emerging with Plato forward into

> ...the medieval criticisms of technology, [the] radical rejection of this tradition by the Renaissance and Enlightenment, and the subsequent Romantic critique of modern science and industrialization.[5]

But it only became a recognized academic discipline in the late 1800s with publication of Ernst Kapp's Grundlinien einer Philosophie der Technik (first published in 1877). Thanks to Kapp, the philosophy of technology was attuned from the beginning to the interface between technology and the body. In fact, Kapp

> ...was one of the first to speak of the anthropological peculiarity of 'organ projection,' which he saw as the key to both the history and to the formation of self-consciousness, both individually and socially....[6]

Since Kapp, other philosophers have taken up the same theme so often assumed to have originated with McLuhan: the theme of tools as extensions of the human body, as exosomatic organs which mediate between the body and the rest of the world. Karl Marx, for example, also wrote in 1877 of technologies as "the productive organs of man" -- and thus as being of comparable importance to plants and animals, the productive organs of nature.[7] Influenced by Marx, Walter Benjamin's (1969) essay titled "The Work of Art in the Age of Mechanical Reproduction" carries a similar theme; i.e., that of human sense perception as both affected by technologies and extended through them. More recently, Arnold Gehlen (1980) has suggested that technological extensions of the body help to make up for "the radical instability of the human instinctual endowment."[8]

It is not necessary, of course, to buy into the concept of tools as bodily extensions per se in order to deal with the implications of technology for human experience. Many philosophers -- such as Franklin (1990), Glendinning (1990), Grant (1969), Leiss (1990), Menzies (1989), and Winner (1986), for example; and before them, the likes of such impressive figures as Martin Heidegger (1977) and Jacques Ellul (1964) -- have made convincing arguments concerning the potentially devastating existential implications of modern technologies. These arguments, with the exception of Heidegger's, tend to be oriented toward the <u>social</u> implications of technology rather

than the strictly experiential but they are of obvious relevance nonetheless. Meanwhile, other scholars -- e.g., Florman (1981), McCorduck (1985) and Papert (1980) -- have praised modern technology as both expressing and enhancing human creativity.

Philosophers have begun only recently to devote attention to issues relating to electronic technologies and the theories of information which make them possible. According to philosopher Carl Mitcham (1986):

> The expansion of computers over the last three decades beyond the confines of specialized scientific and military applications to general scientific and engineering work, telecommunications, government and commercial record keeping, white collar office management systems, blue collar production operations, games, personal computers, and dedicated microprocessors in everything from cars to kitchen appliances -- to the point where Time magazine in January, 1983, replaced the "man of the year" with the computer as "machine of the year" -- could not help but encourage the philosophical community to extend and develop its own initial ventures.[9]

Since 1983, philosophic attention to electronically-related questions has indeed increased. Of course, many have followed in the steps of post-industrial sociologist Daniel Bell (1976) to focus mainly on the socio-political implications of informatics. Others have chosen to focus on the similarly pragmatic issue of artificial intelligence: i.e., on the question of whether computers can think; and conversely, on the question of whether the human brain is a computer. Even among those who respond in the negative to these questions -- such as Bar-Hillel (1968), Dreyfus (1972),

Penrose (1989), Searle (1980) and Winograd (1986) -- there is still an overall orientation toward what people might be able to do with computers, as opposed to what computers may do to people.[10]

At the same time, a handful of others -- the counter-scholars, as it were -- have begun to deal with the existential implications of living in an electronic age. Although lacking the finely-tuned historical sensitivities of an Illich or an Ong, such scholars seem to align themselves with communications history and transformation theory in a more or less intuitive way. Of particular note here are Craig Brod, author of Techno-stress: The Human Cost of the Computer Revolution (1984); Sherry Turkle, author of The Second Self: Computers and the Human Spirit (1984); J. David Bolter, author of Turing's Man: Western Culture in the Computer Age (1984); William Barrett, author of Death of the Soul: From Descartes to the Computer (1986); Don Ihde, author of Technics and Praxis (1979); and Joseph Weizenbaum, author before its time of the classic Computer Power and Human Reason: From Judgement to Calculation (1976).

Not surprisingly, given the shared preoccupation with human experience, such works tend toward the psychological as much as, or perhaps more than, the strictly philosophical. Brod, for example, speaks of "the disease that results when the delicate balance between people and computers is violated;"[11] and Turkle of the computer as both a medium for

psychological growth and, in certain cases, "a place for 'getting stuck.'"[12] Heim, a philosopher of technology in his own right, displays this same psychological bent. What this amounts to is an understanding of the close link between technology and experience, but without the broader temporal focus of communications historians.

C. Communications History

1. The Subdiscipline as a Whole

The interpersonal process today known as "communication" has been of scholarly concern since at least the days of Plato. But the discipline of communications and the subdiscipline of communications history have come into their own only during this century. Thanks to the work of such scholars as David Crowley and Paul Heyer in Canada and James Carey in the U.S., credit for the founding of both is increasingly being given to Harold Innis, the Canadian author of The Bias of Communication (1951).[13]

Within communications history, it is possible to identify two distinct streams of inquiry:

1) the conventional, politically-oriented mainstream;

2) a smaller, phenomenologically-oriented countercurrent.

Conventional scholarship is characterized by concern with interests techno-economic, socio-political, and institutional. Here, there is a tendency to speak of organizations of power

and wealth that constitute the structure -- and by implication, the essence -- of societies. Meanwhile, counter scholars are interested in issues broadly described as phenomenological: i.e., as addressing "how, and in what ways, the subjective states of actors are created, maintained, or changed."[14] This counter-stream, in other words, is concerned with the intimate, usually taken-for-granted dimension of everyday life -- or as Shoshanna Zuboff (1988) puts it, with the "interior texture" rather than the "external form."[15]

Innis can be considered the Daniel Bell of communications history in that his interests, too, are primarily techno-economic, socio-political and institutional, rather than phenomenological. Thus, in discussing the beginning of writing on papyrus in ancient Egypt, Innis gives tantalizing mention to the phenomenon of thought gaining "lightness;" but his attention always seems to slip back into such pragmatic-instrumental topics as the shift from absolute monarchy to quasi-democracy; the emergence of new religions; the rise of an organized civil service.[16] These are undoubtedly important topics which do relate to human experience in their own way; but they are a far cry from the kinds of questions raised by McLuhan (1964) who is arguably the father of the phenomenological counter-stream in communications history. For McLuhan, as for Kapp and others before him, specific technologies extend the human senses in distinct ways, thus

rearranging the balance between the senses and radically transforming the sensory "texture" of experience.

Communications historians seem a little less likely than philosophers of technology to come out on either side of the value-laden fence. While McLuhan has been soundly mocked for being a naive futurist, and while Ong has been rather gently criticized for cultivating a latent eschatological optimism,[17] most communications historians seem to take a fairly dispassionate view as to whether the technologically-mediated realities of a particular age amount to good or ill.[18] Instead of centering around issues of value, discussion within communications history seems to center more clearly around specific technologies of communication, each grounded in (but not limited to) a specific historical moment of emergence.

Some scholars -- most notably McLuhan -- tend to be whirlwind travellers covering as much historical territory as possible. But others settle in for the duration and become known for the specific moment or technology they have adopted. As reviewed in Crowley and Heyer (1990), Alexander Marshack, Denise Schmandt-Besserat and Marcia and Robert Ascher have each set stake on various aspects of the forgotten long-ago before the alphabet.[19] Eric Havelock and Jack Goody are perhaps most well-known for their work on the emergence of the alphabet in classical Greece,[20] while Elizabeth Eisenstein has spent a decade in the sixteenth century studying the

implications of the printing press.[21] Ong has been able to pull much of this work together, and furthermore to expand on it with such insight and style that he is arguably one of the field's brightest intellectual lights.

Both Illich and Heim can be considered communications historians in that both deal with the historic implications of new technologies for human expression. However, neither Illich nor Heim uses this term by way of self-description. Illich in particular would balk at the label "communications historian," mainly because of the cybernetic connotations of the word "communications."

2. Transformation Theory and Walter Ong

Although it is often possible to identify both conventional and counter impulses in the work of a particular historian, there is usually a strong emphasis one way or the other. Of the historians mentioned, McLuhan stands out as the first counter-scholar to engage in full-blown defiance of conventional preoccupations and constraints. Ong and Havelock, meanwhile, emerge as the most rigorous phenomenologically-oriented scholars.[22] They are also the ones whom Heim highlights in his discussion of "transformation theory," which happens to coincide perfectly with the counter-tradition described here.

It should be noted in passing that Ong does not call himself a transformation theorist, but he does use the word

"transform" on occasion to describe the psychic effects of certain technologies on consciousness. For example:

> More than any other single invention, writing has transformed human consciousness.[23]

Or similarly:

> The electronic transformation of verbal expression has both deepened the commitment of the word to space...and has brought consciousness to a new age of secondary orality.[24]

Positioning himself as both critic and disciple, Heim capsulizes the central claim of transformation theory, at least its Ongian rendition, as follows:

> ...each historical shift in the symbolization of reality brings with it a restructuring of the psyche (emphasis added)....The entire human personality is configured anew with every shift in the dominant medium for preserving thought.[25]

These summaries do capture the essence of Ong's thought but they veil his tendency to emphasize the differences between oral, chirographic, and typographic cultures -- at the expense of reflection on electronic cultures. In Orality and Literacy: The Technologizing of the Word (1982), for example, Ong spends less than three pages on "electronics," and this only to conclude a chapter on the implications of print. Orality, meanwhile, warrants four chapters and writing, one.

In this and other sources, Ong does discuss the concept of "secondary orality," which he understands as a cultural state of mind made possible by such technologies as radio, television, and computers. These technologies, says Ong, wrest verbal expression from the printed page and return it

back into the existentially immediate situation, i.e., back into the world of sound. But Ong does not seem to distinguish between the presumably distinct effects of various electronic technologies. Nor does he describe the psychodynamics of secondary orality in the same detail that he describes, in Orality and Literacy, the psychodynamics of primary orality.

To gain perspective on transformation theory in general, it is helpful to take Ong's work as an exemplary case. In turn, it is helpful to notice that Ong builds on the work of certain scholars, and that this work seems to inspire and structure his main research interests. Most notably, perhaps, Ong builds on the work of the classical literary theorist Milman Parry (1971). Parry, who published mainly during the 1920s and '30s, is credited with being the first scholar to "discover" the concept of orality as radically different from literacy.

Until Parry's work on Homeric poetry, it was often assumed

> ...that the ancient Greeks and Romans, because of their highly civilized, efficient, and by then standards, technological societies, must have been highly literate. That the first "literature" of the Western world, the Homeric epics, was orally composed, or that the creators of the Parthenon were perhaps semi-literate, are views that have not always found favor among literate students of antiquity.[26]

On the Homeric Question specifically, (i.e., who was Homer, or was there a Homer?), conventional wisdom had been divided into two camps:

1) the Analysts, who claimed that the Iliad and the

Odyssey were "digests of shorter poems edited over time into their present wholes;" and

2) the Unitarians, who claimed that "there was indeed a master poet rather than many poets and poems...."[27]

Parry transcended this debate by arguing that the Illiad and the Odyssey were

> ...the work of a traditional poet, one whose diction was not his own creation but the product of generations of bards before him, a poet who did not search his mind for le mot juste but who inherited a ready-made phraseology suited to his metrical needs in composing hexameter verse.[28]

Briefly stated, Parry challenged literate complacencies by drawing attention to the wholly formulaic nature of the Homeric epics. He concluded that the formulaic idiom of ancient Greek poetry could only have developed in circumstances of oral performance.[29]

Ong's discussion of the psychodynamics of orality builds largely on the work of Parry, as well as on that of Albert Lord (1960), Parry's student. Similarly, Ong's discussion of the rise of literacy builds largely on the work of Havelock (1963, 1976, 1982). Havelock is known for his scholarship on the culture-wide transition from orality to chirographic literacy which occurred in ancient Greece from about 600 to 300 B.C. Says Ong:

> Havelock's Preface to Plato (1963) has extended Parry's and Lord's findings about orality in oral epic narrative out into the whole of ancient oral Greek culture and has shown convincingly how the beginnings of Greek philosophy were tied in with the restructuring of thought brought about by writing. Plato's exclusion of poets from his Republic was in fact Plato's rejection of

> the pristine, aggregative, paratactic, oral-style thinking perpetuated in Homer in favor of the keen analysis or dissection of the world and of thought itself made possible by the interiorization of the alphabet in the Greek psyche.[30]

In a later work, Origins of Western Literacy (1976), Havelock attributes the rise of Greek analytic thought to the introduction of vowels into the original Semitic alphabet, which had consisted only of consonants and some semi-vowels. The introduction of vowels, according to Ong's paraphrase of Havelock, allowed the Greeks to reach "a new level of abstract, analytic, visual coding of the elusive world of sound."[31]

If Ong's work on orality hinges mainly on Parry, and his work on chirographic literacy mainly on Havelock, Ong's work on typographic literacy hinges mainly on Eisenstein. In The Printing Press as an Agent of Change (1979), Eisenstein discusses

> ...how print made the Italian Renaissance a permanent European Renaissance, how it implemented the Protestant Reformation and reoriented Catholic religious practice, how it affected the development of modern capitalism, implemented western exploration of the globe, changed family life and politics, diffused knowledge as never before, made universal literacy a serious objective, made possible the rise of the modern sciences, and otherwise altered social and intellectual life.[32]

In line with Eisenstein, Ong acknowledges that the printing press had profound implications for 16th-century European culture. However, Ong diverges from Eisenstein to focus on the "subtler effects"[33] of print, such as the transformation of the word into commodity;[34] the locking of words into

position in visual space;[35] and the fostering of a sense of personal privacy.[36] The possibility of reflection on the subtle effects of print, rather than on the readily observable effects, came to Ong's attention largely through the work of McLuhan (1964) and George Steiner (1967).

3. Limitations of Transformation Theory

Transformation theory in its current state of development is hampered most obviously by:

1) a tendency or perceived tendency toward technological determinism;[37]

2) a lack of range beyond Western cultures; and

3) a failure to explore the lengthy intervals that lie between conventionally-accepted moments of transition.[38]

In relation to the first limitation, Ong, for one, does not hesitate to suggest that writing "restructures"[39] consciousness, and that writing has "shaped and powered"[40] the intellectual activity of modern man. As Allan Northcott (1991) has argued, it may be more accurate to say that writing only facilitates the further development of capacities which were clearly in existence previously. For example, says Northcott, there is evidence to suggest that the capacities for both abstraction and analysis pre-dated chirographic literacy,[41] even though Ong suggests that such capacities are distinctive of literacy.

In Ong's defense, it is possible to give him both "hard-

determinist" and "soft-determinist" readings. In other words, it is indeed possible to infer from his work that the alphabet was the single and necessary cause of the various cultural changes specified. But it is also possible to infer that the alphabet served as one catalyst for such changes, and thus that Ong is only remiss in failing to make this qualification sufficiently clear. Ong never denies, for example, that the capacities of abstraction[42] and analysis may have existed before literacy. He only suggests that they were not dominant tendencies, and Northcott's examples (of the fired clay tokens studied by Schmandt-Besserat and the quipu studied by Ascher and Ascher) do not necessarily contradict this.

As it happens, most communications historians aside from McLuhan are careful to avoid claims of strict causality. Thus, says Heim, transformation theory does not argue

> ...that printing by itself caused the ideal of objective knowledge in 17th-century science in some successive, linear sense of causality. A world where the printing press offered a channel for human energy was also the world that provided the necessary conditions for the discovery and cultivation of objectivity in cognition; among these necessary conditions was the printing press and the spread of print literacy (emphasis added).[43]

In reference to Ong specifically, Heim makes a similar argument:

> No simple historical causality is invoked since the transformation theory seeks not so much to be a scientific explanation of specific facts of history, such as the rise of objectivity or the increase of literacy, as to illuminate connections between a number of historical changes.[44]

Ong himself makes similar statements, although they are

often included in introductory sections where they tend to be forgotten. The same is true for Illich and Heim: both qualify their claims in introductory chapters, but then go on to speak as if writing technologies were the only independent variable to be considered. The reader is obligated to remind herself continually that specialization of topic does not necessarily lend itself to comprehensiveness of discussion. Simply put, the page may indeed be a powerful determinant of perception, but this does not mean that it is the only determinant. There are always factors beyond the page, and beyond writing, to be taken into account.[44] Some of these factors may tend to bring about particular effects, while others may tend to counter these effects.

The second limitation -- the failure to proceed beyond Western culture -- needs less discussion. Illich is probably representative of many scholars in this regard, when he admits that he emphasizes Western history simply because this is where he is most knowledgeable. As transformation theory matures, it may well attract scholars who specialize in cultural history beyond Western confines. Heim, who at least mentions some of the philosophical differences between Eastern and Western traditions, represents a small step in this direction.

The third limitation of transformation theory -- the rather exclusive focus on certain historical "watersheds" -- is also related to the relative youthfulness of the

enterprise. Discussion of the transitions from orality to chirographic literacy, and from chirographic to typographic literacy, have obviously laid important foundations for future work. However, these transitions are by no means the only moments worth studying. Illich and Heim are important in that both add significantly to the minimal scholarship within transformation theory on the cultural transition from literate to electronic. In addition, Illich is important in that he begins to "fill in" one of transformation theory's most blatant descriptive and interpretive gaps: the one stretching from the rise of literacy in ancient Greece to the rise of the printing press in 16th-century Europe. Illich agrees with Ong and Eisenstein that the invention of the printing press marked an important watershed. But he gives pivotal importance to the scribal revolution, a less-known watershed which he says occurred a full 300 years earlier.

If Illich and Heim add significantly to transformation theory's intellectual scope, they also provide it with further descriptive texture. Illich in particular extends many of Ong's observations concerning various aspects of the transition from orality to literacy. For example, Ong discusses the alphabetic index rather briefly in Orality and Literacy, in the context of discussion on the effects of print. Illich describes this device in more detail, but also with greater sensitivity to the roots of indexing in chirographic literacy.[45]

D. Summary

In summary, the philosophy of technology and communications history provide both Illich and Heim with a substantial intellectual heritage. This is not, of course, to exhaust the range of works that may have influenced them. But it does set the stage for this debate, which isolates in each scholar the elements of thought that relate specifically to questions of technology, culture, history, and experience.

To the extent that both Illich and Heim assume a close relationship between shifts in technologies for symbolic expression and profound shifts in human experience, they are both proponents of transformation theory. This theory -- represented most notably by Ong -- has its roots in communications history, which goes back through Innis and McLuhan to the orality studies of Parry, Parry, and Lord. An embryonic form of transformation theory is to be noted in the philosophy of technology, even going back to Kapp and that discipline's earliest moment.

Illich and Heim are subject to some of the same limitations which have beset transformation theory in general: a tendency or perceived tendency toward technological determinism, a rather exclusive emphasis on Western culture, and an inconsistency of descriptive texture across time. However, both Illich and Heim help to offset the latter flaw in that both set out to describe transition points that transformation theorists until now have tended to neglect.

CHAPTER 3: IVAN ILLICH

A. Introduction

Ivan Illich is not well-known to most communications historians. This is partly because he has not made any great efforts toward publicity. He does not write according to subject, for anthologies. Nor, as a rule, does he grant radio or television interviews. More importantly, Illich's latest communications-oriented work has yet to be published, and few people seem to have read his first venture into the field, ABC: The Alphabetization of the Popular Mind (co-authored with Barry Sanders in 1988). This thesis, then, attempts to alert scholars to Illich's work and to give him some of the attention he deserves. To place this work quickly in context, it is helpful to note that Illich follows in the steps of communications historian Walter Ong. Illich himself notes his indebtedness to Ong for leading the way in the treatment of the alphabet as a technology.[1]

Illich earned widespread attention during the 1960s and '70s for his controversial indictments of compulsory education and organized medicine. He published more than half a dozen books on these and other subjects during the '70s and '80s, including in 1982 a book which angered many feminists for its argument that men and women by nature possess distinctive tools, rhythms and speech forms. Since ABC, Illich has prepared at least two related book manuscripts: Celebration of

Awareness, Volume II (1990) and In the Vineyard of the Text: A Commentary to Hugh's Didascalicon (1990). Illich's H2O and the Waters of Forgetfulness (1985) -- an historical inquiry into the changing perception of urban space and the waters that cleanse it -- is not directly communications-related. Still, it is relevant to this discussion in that it shows Illich to be an historian with decided phenomenological inclinations -- even though he does not identify himself as a phenomenologist per se.

Illich grew up in various parts of Europe and, after pursuing studies in the natural sciences, obtained degrees in history, philosophy and theology. He has lived and worked in diverse settings: among them, New York City, where he was a much-loved parish priest during the 1950s; and, in the next decade, Cuernavaca, Mexico, where he ran an internationally-known language school and free university called the Centre for Intercultural Documentation (CIDOC). At the time of this writing, Illich had numerous scholarly projects underway and was dividing his time between Mexico, the United States and Germany.

This brief sketch serves to suggest that Illich comes to the subject of the electronic shift with a strong scholarly background, not to mention a rich and intriguing personal history. But more important, perhaps, is the fact that Illich takes a specifically communications-oriented approach to his interpretation of Western history. Even before ABC, one

reviewer summarizes Illich's argument as being that

> ...modern Western history is best interpreted as an attempt by powerful groups to control successive areas of common life by monopolizing everyday language. While most thinkers trace the character of modern life to the rise of capitalism or the development of bureaucracy or the introduction of powerful technologies, Illich wishes to show that each of these changes rests on a more fundamental historical transformation of forms of communication (emphasis added).[2]

In ABC and In the Vineyard, Illich's communications-oriented focus becomes even more clear. Now, he explicitly sets out to explore the history of Western culture as a sequence of several epochs characterized by distinguishable techniques of "reading," "writing" and "publishing." In other words, he looks at history in terms of changing social practices in relation to one of the most basic technologies of human expression, the alphabet. One of Illich's key concepts, the "text," emerges at this point as a means of tracing the distinctive experiences of reading, writing and publishing from epoch to epoch.

To understand Illich's treatment of the alphabet and alphabetization, it is important to recall Illich's approach to technology, or tools, in general. Arriving at his conclusions by way of liturgical studies, sociology, and social and religious anthropology (from previous work in ecclesiology and Roman Catholic theology), Illich uses the term "tools" broadly to apply to "any engineered means to an end."[3] But, he is not primarily interested in the instrumental effects of tools. Rather, he is interested in

what he calls their symbolic effects, or more colloquially, their "symbolic fallout."[4]

To elaborate, Illich sees three ways in which tools affect the human condition:

1) as techniques in the hands of engineers;

2) as influences on social relations (e.g., telephones make possible trust between people who do not face each other); and

3) as "powerful metaphors which affect the mind."[5]

It is this final sense in which Illich is most interested. Thus, when he links the rise of word processing with a profound cultural shift, he does not hinge such a shift on, say, the socio-economic implications of computers for the workplace. Rather, he discerns "behind" word processing the metaphor of cybernetics, which, he is alarmed to notice, has become increasingly pervasive in the 20th-century cultural mind.

This chapter will discuss, in turn, the bookish mind which Illich says was born about 800 years ago; and the cybernetic mind, which Illich says is being born now. The birth of the former is traced to a "scribal revolution" involving specific technical innovations relating to use of the alphabet, and related changes in social practice. Illich's emphasis on the experience of reading is stressed. The birth of the cybernetic mind is traced to the emergence of a cybernetically-inspired concept of the text. Also discussed

are Illich's reflections on the "mathematization" of everyday experience, including the experience of reading during the cybernetic age.

B. Historical Focus: The Scribal Revolution

Illich contrasts the cybernetic metaphor with the bookish metaphor, the metaphor of literacy which prevailed for about 800 years until the early part of this century. To provide analytic distance from the cybernetic world, Illich goes back in time to the moment immediately before the bookish metaphor began to gain ascendency. This moment, which he calls the "scribal revolution" of 12th-century Europe, involved an oft-forgotten array of technical innovations relating to the alphabet. These innovations made possible a humble but important set of changes in social practice, which in turn helped give rise to a new state of cultural mind.

1. Technical Innovations

Relying heavily on M.T. Clanchy (1979), Illich describes the scribal revolution as

> ...a technical breakthrough which took place around 1150, 300 years before moveable type came into use. This breakthrough consisted of more than a dozen technical inventions and arrangements through which the page was transformed from score to text. Not printing, as it is frequently assumed, but this bundle of innovations, 12 generations earlier, is the necessary foundation for all the stages through which bookish culture has gone since then.[6]

Certain technical elements of writing used during this period

were carried over from the past, among them the legacy of "20-odd Roman letters" whose basic sequence

> ...went back via the Etruscans and 7th-century Greeks to the Phoenicians and from there to some north Semitic tribes in Palestine.[7]

There were also the legacies of a set of tools (wax tablets, parchment, stylus, reed, pen and brush); and of the book itself (with its implicit techniques of cutting, stitching and binding).[8]

These elements were "substantially left unchanged" during the 12th century, says Illich. But somewhere in mid-century they were integrated into "a set of new techniques, conventions and materials."[9] There are at least three categories into which these innovations may be classified:

1) Rediscovery of skills known in antiquity: e.g., cursive handwriting[10];

2) Importing of new techniques: e.g., the technique of paper fabrication from China;[11] and

3) Outright inventions: e.g., the technique of ordering words according to the alphabetic sequence of t h e i r first letters; and page layout suited to silent scanning rather than reading aloud.[12]

Of these categories, Illich devotes most attention to the third. In particular, he discusses how alphabetization techniques made possible the unprecedented development of indices, library inventories, dictionaries, and concordances. Within books, consistently numbered chapter divisions became

standard features, along with such devices as tables of contents, chapter summaries referring to sub-titles, and chapter introductions outlining the flow of argument.[13] Although Illich is more apt to mention the discontinuities than the continuities between previous epochs and our own, one gets the sense that such innovations may well have been the first precursors of 20th-century data banks and computer files.[14]

In relation to the new page layout, Illich notes in particular the technique of standardization of breaks between words. This innovation helped to make it possible for copyists to copy by sight, rather than by dictating to themselves the sounds they were writing.[15] More to the point, silent reading became the norm. Or, as Illich points out in a present-tense immersion in the world of his favorite 12th-century priest, Hugh of St. Victor:

> Reading becomes an activity where the letters through my eyes speak to my mind, rather than the letters through my eye activate the mouth, which makes me hear what I see.[16]

Other techniques were also of crucial importance in bringing about the rise of the newly "scrutable"[17] text. For example, interlinear glossing became less frequent. In addition, writers began to subordinate the gloss to the main text by writing the former in smaller letters. Says Illich:

> The way in which the unequal partners are wedded betrays careful planning. The author himself becomes aware that the layout is part of a visual whole which helps to determine the understanding of the reader.[18]

At the same time, "the intrinsic coherence of the line and its illumination" began to dissolve:[19]

> As the line is made into a building element of paragraphs, the miniature turns into a circus of phantasy creatures, often a jungle which threatens to invade and to overpower the alphabetic component of the page. By the 13th century, the picture no longer addresses the onlooker by speaking to him about the littera that he is being read. It is now conceived of a parallel kind of narration, a literature in its own right for the illiterate.[20]

In summary, "a new kind of order" began to appear on the manuscript page during the first quarter of the 12th century.[21] The manuscript page was "...no longer a record of speech but the visual representation of a thought-through argument (emphasis added)."[22]

2. Changes in Social Practice

With the rise of the new writing conventions, says Illich, the alphabet became the basis for "a set of unprecedented personal and social patterns of behavior."[23] These include transactions resulting in such documents as written oaths, bills of sale, charters, royal mandates and wills -- all now committed to writing and "officialized" by such conventions as the date, the signature, the seal and the copy.[24]

To take only one example, the commitment of oaths to writing involved a "shift in trust from the validly given word to a document exerting legal force."[25] Before the 12th century, there were specific conventions in effect to provide

the oath with validity. For example, while swearing to fulfill his oath, the swearer might raise his sword or three fingers and lay them against his beard or testicles.[26] Women had their own gestures for swearing, such as laying a hand on their breasts or braids or belly.[27] The making of an oath involved pronouncement of a conditional curse upon oneself: the person swearing would ask to be maimed or withered or blinded if he/she ever broke the conditions of the oath.[28] As Illich notes,

> ...the unity of word and gesture has something of the effect of a sacrament. The swearing of an oath makes the word visible -- not on paper, but in the living body of the person concerned.[29]

A new relationship between the oath and writing began when the "splendidly bound Book of the Gospels" replaced the oath-taker's beard or breasts in solemnifying the oath.[30] The convention of the oath-taker laying a hand on the Bible was a curious turn of events in light of the prohibition against oaths in Matthew 5:33-36, especially since the Church eventually assumed the task of punishing the breaking of the oath.[31] The use of the book in oath-taking soon led to the committing of the words used in the ceremony to writing.[32]

The oath is only one example of many aspects of everyday life that were previously governed by oral usage, but during the scribal revolution became subject to a "new formal and legal kind of literacy...."[33] Illich explores such shifts in some detail, but his larger purpose is to link the 12th-century changes as a whole with a phenomenon he calls "lay

literacy." The change of mind represented by "lay literacy" is what Illich alludes to in his subtitle referring to "the alphabetization of the popular mind."

3. A Change of Mind

According to Illich, the scribal revolution made possible the "object" of the text, as well as the birth of the concept of the self. In his words:

> The idea of a self that continues to glimmer in thought or memory, occasionally retrieved and examined in the light of day, cannot exist without the text. Where there is no alphabet, there can neither be a memory conceived as a storehouse nor the "I" as its appointed watchman. With the alphabet both text and self became possible, but only slowly, and they became the social construct on which we found all our perceptions as literate people.[34]

At first glance, Illich's implicit suggestion here -- that text is absent in oral cultures -- is troublesome. More specifically, it goes contrary to evidence that art, gesture and even spoken discourse are each "textual" in their own right. That is, they each conform to the original etymological sense of "text" as "something whose value lies in being woven together by way of a complex texture of cross-references and systematic consistency."[35] However, Illich's argument begins to make sense when it is noted "text" is used here in an idiosyncratic way. More specifically, Illich is referring to bookish text, which emerges when text becomes

> ...something distinct from the book. It is an object that can be visualized even with closed eyes. And it is the pen in the hand of the scribe rather than the font moved by the printer which creates this new entity. A

> set of two dozen new graphic conventions uses the old set of two dozen letters as building blocks for an unprecedented construct. The application of these 12th-century scribal rules means that strings of letters -- words or lines -- will henceforth generate an abstract architectural phantom on the emptiness represented by the page.[36]

After the scribal revolution, says Illich, the page no longer resembled soil in which words are rooted. Instead, the text became

> ...a figment on the face of the page that lifts off into autonomous existence. This new bookish text does have material existence, but it is not the existence of ordinary things: it is literally neither here nor there.[37]

In other words, only with the technical and social changes of the scribal revolution did it become possible for the idea of the bookish text to catch the popular imagination -- or more accurately, to begin shaping popular perception. Only with the scribal revolution did it become possible to imagine the "text" of a book existing apart from the original: in a copy, or in the mind.

Indeed, says Illich, the book became a pointer to mind and ended its function as a pointer to nature:

> ...the book is no longer the window onto nature or God; it is no longer the transparent optical device through which the reader gains access to creatures. Insofar as it remains an optical instrument the book has turned around by 180 degrees, as if a convex lens had been replaced by a concave one. Out of the symbol for cosmic reality has arisen a symbol for thought.[38]

Illich does not seem to lament this change, probably because he still sees the bookish text as essentially meaningful. In fact, he describes the bookish text as "a kind of vessel that

ferries meaningful signs through the space separating the copy from the original....[39] Thus, in spite of the disassociation of the text from the page,

> ...the (bookish) text maintains its port in the book. The book, in turn, metaphorically stands as a harbour for the text where it unloads its sense and reveals its treasures.[40]

It is in describing the implications of the bookish text for perception that Illich comes up with the term "lay literacy." This term -- which is essentially synonymous for the term "bookish mind"[41] -- does not refer to the ability of a certain percentage of the population to read and write. Rather, it refers to

> ...a distinct mode of perception in which the book becomes the decisive metaphor through which we conceive of the Self and its place. I use the term 'lay literacy' to speak of a mind-frame which is defined by a set of certainties which spread within the realm of the alphabet since late medieval times. The lay-literate is certain that speech can be frozen, that memories can be stored and retrieved, that secrets can be engraved in conscience and therefore examined, that experience can be described. By lay literacy I mean therefore a weaving together of categories that -- since the 12th century -- has shaped the mental space of the illiterate laity just as much as that of the literate clergy. It constitutes a new type of space, inside which social reality is reconstructed: a new kind of network of fundamental assumptions about all that can be seen or known.[42]

This passage is worth quoting at length because it describes some of the main certainties of the bookish mind; i.e., the tacit assumptions concerning the possibilities of

1) "freezing" speech;[43]

2) storing and retrieving memories;

3) examining secrets engraved on the conscience; and

4) describing human experience.

The passage is also worth quoting because it allows Illich to plead his own case on the controversial claim that individual human experience may be shaped by technologies even without direct contact. The claim is controversial, of course, because it counters the usual assumption that there must be some direct, physical mediation between the individual and a technology for that individual to be affected by it. Thus, scholars might try to identify the cultural institutions and/or subcultural practices that involve people in specific patterns of technological engagement.

Illich is not denying the role of such institutions or practices. Nor is he suggesting that a 12th-century peasant might wake up one morning with a suddenly "literate" mind. Rather, he is observing that over time, the very idea of reading and writing books -- the simple possibility of such activity -- began to figure prominently in perception, i.e., the construction of mental models with which to understand the world.[43] Illich seems to be arguing, in other words, that tools may be culturally contagious because they are evocative[44] as well as physical objects. In a word, they are metaphors: mental pictures which in some cases take on a culturally prevalent, or defining[45], role.

By way of example, Illich notes that even illiterate peasants during the 12th century came to assume that the world is owned by description.

> Formerly, you solemnly walked with the buyer around the property that you wanted to sell; now you learned to point at it with your finger, and had the notary describe it. Even the illiterate acquired the certainty that the world is owned by description: "thirty steps from the rock shaped like a dog, and then to the brook in a straight line...." Everyone now tended to become a "dictator," even though scribes remained few. Surprisingly, even serfs carried seals, to put beneath their "dictation."[46]

Another example is to be found in the representation of the Final Judgment -- with an angel holding the Book of Life -- in the tympanum above the main entrance of the parish church. Now "even the rudest peasant and humblest charwoman"[47] are confronted by the reminder of that divine account book every time they go to church, says Illich. In 1215, the Fourth Lateran Council made auricular confession obligatory for all Christians. Illich argues that confession facilitated the interiorization of the bookish text even further by fostering the senses of both "memory" and "conscience."

> When the penitent went to confession, he had to prove to the priest that he knew his prayers by heart, that he had acquired the kind of memory on which words could be engraved. Only after this memory test could he proceed to the examination of another spot of his heart, henceforth called his conscience, in which the account of his evil deeds, words and thoughts had been kept. Even the illiterate "I" that speaks in confession now perceives through new, literate eyes its own "Self" in the image of a text.[48]

4. Emphasis on Reading

To conclude this section on 12th-century Europe, it should be noted that Illich's main topic of interest seems to be the dimension of textual reception, or reading. Illich

does discuss textual production (i.e., writing) and textual transmission (i.e., copying); but these with more attention to technical detail than to experiential texture. Illich's treatment of 12th-century reading, in contrast, is much more reflective and lingering. In the Vineyard, in fact, provides commentary on a pedagogically-oriented book by Hugh of St. Victor specifically on the art of reading. Illich doesn't merely set out to explore what Hugh said about reading, but rather to recover what the experience of reading was actually like for him.

When Hugh reads, says Illich, he

> ...advances physically from page to page. The ornaments that line the rows of letters place the words into the landscapethrough which this journey leads. On no two lines does the reader meet up with the same view.... The foliage and grotesques in combination with the lines reinforce the power of remembrance; they support the reader's recall of the 'voces paginarum' in analogy to the scenery of the road that brings back the conversation that took place on the stroll.[49]

Elsewhere, Illich describes this experience as follows:

> When I read Hugh, I am still in the old world. When Hugh speaks about the page, he still remembers that 'pagina' means a vineyard, or more precisely the espalier in a vineyard which he walks along. He still picks and tastes words, like berries. He still 'sucks' words from the page. It's an oral activity, literally with the mouth, with the lips.[50]

This latter quote draws attention to the important point that reading before the 12th century was a multi-sensuous activity involving especially the ear and mouth. It was only after the scribal revolution -- i.e., after a switch from "monastic" to "scholastic" reading, to use Illich's terms --

that reading became an activity which primarily engaged the eye.

> The book is now arbitrarily accessible; the reader can enter at will, wherever the index refers him. He seeks what is written, and the illustration assists him in this task of visualization. The pupils now sit in front of their teacher with their eyes fixed on his text, which lies at their knees. They are no more asked to recall the sound of their teacher's words, but to grasp the architecture of his argument, which they must impress on their minds.[51]

This newly ocularcentric way of reading, however, should not belie the fact that pre-12th-century reading also had a visual element. In fact, says Illich, Hugh of St. Victor was very much visually oriented, even though he lived before the rise of the bookish text. Hugh speaks of the search for wisdom as involving three pairs of eyes: the eyes of the flesh, the eyes of the mind, and the eyes of the heart.[52] In terms of experience, says Illich, Hugh perceived the written page as immanent with light, and his own eyes as sparkling with light as well. The fabrication of the page from parchment, rather than from paper, helped to reinforce this:

> The translucent sheep or goat skin was covered with "manuscript" and brought to life by miniatures painted with thin brushes. The form of Perfect Wisdom could shine through these skins, bringing letters and symbols to light, and kindle the eye of the reader. To face a book was comparable to the experience one can relive in the morning in those Gothic churches in which the original windows have been preserved. When the sun rises it brings to life the colors of the stained glass which before dawn had seemed like black stuffing in stone arches.[53]

In summary, Illich describes the experience of pre-12th-century reading as multi-sensuous; yet also as featuring an

intense, illuminated visuality that was closely tied to the quest for wisdom, for enlightenment. The light emanating from the eye was assumed necessary for bringing the luminous objects of the world into perception.[54] In the case of reading, says Illich, the "shining eye" was understood as helping to remove the shadows and darkness associated with the fall of Adam and Eve into sin.[55] Briefly stated, reading was understood as a remedy for original sin; and, ultimately, as a search for divinely-suffused meaning.

> The book as symbol, analogue, and metaphor in Hugh's time is, above all, a symbol for reading.... (This reading is) conceptualized and experienced as a meiotic decipherment of reality by which the reader, like the midwife, brings forth -- in God's invisible light -- the sense with which all things are impregnated, God's Word.[56]

C. Contemporary Foil: The Cybernetic Dream

Illich's explication of the cybernetic shift is unfortunately "thinner" than his description of the scribal shift of the 12th century. He does not begin by tracing the constellation of technical innovations represented by word processing, nor by tracing the changes in social practice these make possible. Instead, he traces the first rumblings of the cybernetic shift to a new understanding of "text" that emerged in 1943, roughly 40 years before the rise of the home computer.

1. Cybernetic Text

In 1943, says Illich, the physicist Erwin Schrodinger

> ...suggested that genetic substance could best be understood as a stable text whose occasional variations had to be interpreted as textual variations. As a physicist, Schrodinger stepped completely beyond his domain [in] formulating this biological model several months before Avery demonstrated for the first time that genomes could be 'inserted' into bacteria, almost like a gloss that slips into the manuscript's main text. For Schrodinger, each individual -- coming into existence at the moment of fertilization -- is comparable to an original text.[57]

Illich identifies this new text -- which Schrodinger proposed even before the rise of information theory per se -- as nothing more than

> ...a meaningless and senseless bureaucratic program which acts as a determinant for the organization of a process.[58]

This might not seem alarming except that Illich locates the new, algorithmically-inspired text at the heart of the computer metaphor adopted by the cybernetic mind. What this amounts to, arguably, is the reduction of text into disembodied, unsituated information according to indiscriminately applied notions from cybernetics, information theory and general systems theory. This impoverished, systematized version of the text is superimposed, as it were, onto all of reality, so that the 20th-century individual is eventually unable to see anything except in systemic terms.

In comparison with the bookish text -- the ship that carries meaningful signs through space -- the cybernetic text has "no meaning, no sense, and no anchor,"[59] says Illich. To

elaborate:

> A bulldozer lurks in every computer with a promise to open new highways to data, replacements, inversions and instant print. A new kind of text shapes the mindset of my students, a print-out which has no anchor, which can make no claim to be either a metaphor, or an original from the author's hand. Like the signals from a phantom schooner, its digital strings form arbitrary font-shapes on the screen, ghosts which appear and then vanish. Ever fewer people come to the book as a harbour of meaning. No doubt, for some it still leads to wonder and joy, puzzlement and bitter regret, but for more -- I fear -- its legitimacy consists in being little more than a metaphor pointing toward information.[60]

Illich borrows from Morris Berman (1986) to call this impoverished state of affairs "the cybernetic dream."[61]

2. The "Mathematization" of Experience

Relying now on Uwe Porksen (1988), Illich links the evolution of the cybernetic dream with a process called the "mathematization" of ordinary language -- and by inference, of daily human experience. Porksen argues that in the last 20 years, a myriad of scientific and mathematical metaphors have invaded and colonized the realm of colloquial speech.[62] In an argument that brings to mind William Leiss's (1990) reflections on the saturation of everyday language with "technical jargon and scientific pronouncements,"[63] Porksen writes:

> The gulf separating the everyday world from the world of science, whose purest embodiment in our age is mathematics, is passed over as though it hardly existed. That which appears in one world as the extension of knowledge or as technical achievement is equally celebrated as such in the other world, as if this world had no measure of autonomy and no criteria

> of its own. This form of confusion is the real problem.[64]

Porksen suggests that bridging between the scientific and everyday spheres occurs through speech, specifically through a new class of words which has come to overlay the surface of everyday discourse.[65] Such "amoeboid words"

> ...can be compared to the floats of a fishing net. They are not isolated; they are much rather nodal points connected by a web of criss-crossing links. The result is a net drawn over and perhaps even holding captive our consciousness of the world.[66]

Examples of amoeboid words include "sexuality," "energy," "exchange," "process," "problem;" and of most relevance here, even "information" and "communication." Such words, says Porksen

> ...may originally have had a precise meaning, but now they have something indefinite about them, they express almost nothing, they are interchangable and they intrude everywhere.[67]

At this point it is important to note that Porksen does not use the word "mathematical" literally but rather to connote the nature of amoeboid words as <u>abstract</u>; <u>ahistoric</u>; <u>quasi-numeric</u>; <u>arbitrary</u>; <u>amenable to multiple patterns of configuration</u>; and perhaps most importantly of all, <u>suited for use in inspection, classification, and control</u>.[68] Says Porksen, before drawing a parallel between the world of amoeboid words and the fictional world of George Orwell's <u>1984</u>:

> As soon as a child is born, a certificate of health is issued, along with a booklet documenting medical inspection. The child is checked against a computerized catalogue of 66 criteria...and all being

> well, received a cross in the box, 'no distinguishing characteristics.' A computerized customer and citizen has been born, ahead of him a life of being checked, stamped and registered, of being defined and numbered by increasingly flawless sets of words.[69]

Porksen's assumption that words may ever have precise meaning is odd, given the work of such hermeneutic scholars as Paul Ricoeur[70] in calling attention to the inherently polysemous nature of words. Nor is it historically new to find words displaying such qualities as abstraction; amenability to multiple patterns of configuration; suitability for use in classification and control. However, Porksen's critique does shed light on Illich's dismay at the pervasiveness of the cybernetic metaphor. It suggests that what Illich is opposed to is the inherent tendency of informatic concepts towards totalization; and, once totalized, to their use in legitimizing the management of living. If everything is indeed a system, what is the individual but a node, friendship but networking, the body but an object to be carefully monitored and controlled? What is the person but a cyborg[71] and the universe but a huge computer?[72]

Indeed, Illich describes his interest in mathematization as involving

> ...the reduction of sensibility to visualization and of visualization to computer texts, graphs and screen images...(emphasis added).[73]

And he links the study of mathematization to

> ...the reconstruction of the human body, the history of the alphabet and the history of the body now graphically visualized in system terms.[74]

Unfortunately, however, such statements seem to point to areas of anticipated future research rather than to research already completed. Illich seems to provide no evidence for the reduction he describes; none, that is, beyond anecdotes: a teenager unable to feel compassion for the hunger victims about whom he collected "data;"[75] a man who said he didn't "get" Illich's "message."[76]

Just as importantly, Illich also fails to give evidence to support the historic novelty of the mathematically and managerially reconstructed body. As William Arney and Bernard Bergen (1986) have shown, the body-to-be-managed can be traced at least to the 19th-century rise of anatomy which led the way to modern medicine. Emblematic of anatomical science is the oft-reproduced frontispiece to Andreas Vesalius's De Humani Corporis Fabrica, in which Vesalius is depicted standing beside a dissecting table and proudly expounding upon his work.[77] Albrecht Durer's 16th-century illustration, "Artist Drawing a Nude Through a Gridded Screen," is an even earlier example of the "geometrization" of the body. In this work, an artist is depicted mapping the reclining body of a woman onto a grid at his work table, which serves as a copy for the gridwork of the screen. As Roman Romanyshyn (1989) observes:

> We have here the genesis of what Rudolf de Lippe, in a brilliant and fascinating work entitled La Geometrisation de l'Homme, has indicated has become for us a general condition of our vision: an analytical vision which decomposes the whole into parts, a vision whose power lies in its ability to isolate, decontextualize and anatomize the world (emphasis added).[78]

Thus, if the cybernetic mind is indeed new, it is not simply by virtue of having a mathematized perception of the body. In fact, Illich's use of the word "mathematization" may only be in appreciation for the neat symmetry of contrast with 12th-century "alphabetization." Still, it may be that "mathematization" -- or its companions, "algorithmization" and "geometrization" -- provide an inaccurate description of a phenomenon that is truly occurring and that is indeed unprecedented. Mathematics and geometry, after all, are hardly new sources of perceptual metaphor. But they do play a role in the development of cybernetics and general systems theory, both of which thematize the role of "feedback" in the functioning of self-regulating systems.

Even "cyberneticization" or "systematization," however, may not do justice to what is at stake here. This is because an electronic system is not only a system, it is also an informatic and automated system. That is, it consists of yes-no bits of information that fall, one against the next, along potentially endless lines and circuits of interaction. Once the system is in place, human "interference" is ideally minimal. In fact, as shown most clearly in efforts to enhance "user-friendliness," even the human being eventually becomes automatized as one more systemic factor to be (albeit unsuccessfully) managed and controlled. Thus, informatic automatization, clumsy as the phrase may be, is probably a description more appropriate than "mathemetization" for the

phenomenon Illich has in mind. This phenomenon involves a switch in decisive perceptual metaphors: from the book which can be read, to the automated system which can only be humored, as it were, or tolerated.

Although Illich doesn't offer this example specifically, the concept of the cybernetic mind sheds new light on the dramatic rise of environmentalism in the past decade. While the new ecological mood may indeed arise from the poisoning of the world beyond toleration, it may be significantly enhanced by the tendency to perceive reality in terms of automated informatic systems. The Gaia hypothesis originated by British scientist James Lovelock is a case in point. Taking its name from the ancient Greek mother of the gods, the Gaia hypothesis suggests that so-called inanimate nature is not dead, but rather constitutes a living, self-regulating organism.[79] This hypothesis appears to be feminine, sensuous, responsible. But on closer examination, it represents nothing less than the transformation of nature into a huge, self-regulating computer system. The boundary between personal and non-personal is erased; and especially in so-called "deep ecology," the entire concept of distinctive personhood is discarded in favor of the systemic integrity of the whole. As Lovelock states, without distinction from the thermostats he mentions in the same breath: "We are cybernetic systems."[80]

This cybernetic reductionism applies also to the so-called metaphysical realm, which of course is no more separate

from the physical than the mind is from the body. More specifically, many people are already unwilling, or perhaps unable, to understand the natural world as a book written by God, or to understand God as having person-like attributes. Not surprisingly, the electronic personality is likely to substitute acknowledgement of God for a distinctively New Age concept of a Cosmic Force which is ultimately nothing other than Supreme Information.

3. Cybernetic Reading

Illich's discussion of cybernetic reading reiterates his theme of the cybernetic personality as experientially destitute.

> Modern reading, especially of the academic and professional type, is an activity performed by commuters or tourists; it is no longer that of pedestrians and pilgrims. The speed of the car and the dullness of the road and the distraction of the billboards put the driver into a state of sensory deprivation which continues when he hurries through the manuals and journals once he arrives at his desk. Like the tourist equipped with a camera, today's student reaches for the Xerox to keep a souvenir snapshot. He is in a world of photography, illustrations and graphs which put the memory of illuminated letter landscapes beyond his reach.[81]

What Illich seems to be getting at here is that we modern readers no longer experience the text as lit up with meaning, let alone their eyes as sparkling with light. Thus, we are impoverished visually, just as we are also impoverished in relation to our other senses. As Illich notes, medieval folk spoke of "chewing" books; "munching" then; even "licking" them

up.[82]

> For an ocular reader, this testimony of the past can be shocking: he cannot share the experience created by the reverberation of oral reading in all the senses. In addition, the vocabulary for flavors and odors has withered and shrunk.[83]

It should be noted that Illich contrasts the modern experience of reading with that of Hugh who still walked in the vineyard of the text and tasted the words in his mouth. However, this contrast does not parallel the contrast between literate and cybernetic minds, because Hugh is actually more representative of residual orality than of literacy! More to the point, did the impoverishment of reading, and of human experience in general, truly begin with the rise of the cybernetic text? Or did it begin with the rise of the bookish text; which, after all, first began the ocularcentric trend?

This question leads one to notice that Illich seems less concerned with the sensory experience of electronic reading per se,[84] than with the general failure of modern people to experience reading as an intimate encounter with God. Thus, Illich ends In the Vineyard by quoting one of Hugh's "loveliest" expressions:

> "All nature is pregnant with sense, and nothing in all of the universe is sterile." In this sentence, Hugh brings centuries of Christian metaphor to their full maturity. In the lines of the page, the reader enlightened by God encounters creatures who wait there to give birth to meaning.... Reading the man-made book is an act of mid-wifery. And reading, far from being an act of abstraction, is an act of incarnation. Reading is a somatic, bodily act of birth attendance witnessing the sense brought forth by all things encountered by the pilgrim through the pages.[85]

Illich has already admitted that the transformation of reading from an act of incarnation to an act of abstraction began in the scribal revolution. Why then, does he always champion the age of bookishness and hold the cybernetic age at fault?

Before leaving this issue, it may be helpful to ask whether Illich indeed has a point on the issue of "sensory deprivation," even if he does not explain it adequately. Does the electronic shift bring with it any sort of sensory deprivation, even if not directly related to reading computer-produced text? For example, is it problematic that the computer opens the door to "virtual reality," to a world completely ruled by illusory sight? Or, is virtual reality only an extreme version of what is already taking place in the ordinary realm of word processing?

A quote from Illich's friend John McKnight will help to clarify, even though eliciting other questions of its own. McKnight, of the Centre for Urban Affairs at Northwestern University in Chicago, believes he echoes Illich when he describes the computer world as <u>derivative</u>:

> It's a way of associating with an environment where there is no kiss, there is no hand held, there is no great idea generated in the dialogue between two people, there is no creativity of a human form. There is no leaf, there is only the graphic of a leaf. So I think that...[the computer] is the ultimately unconvivial tool because it asks us to move out of our relationship with God's earth and God's people and into a symbolic set of understandings.... The word that one has to use is "derivative." People whose life is derivative of the products of systems and who themselves...are almost devoid of deep opportunities for relationship, creativity, the vernacular, the democratic.[86]

McKnight is using Illichian concepts here: "unconvivial," to describe technologies that idolize productivity over community; and "vernacular," to describe unlearned, unmanaged dialogue.[87] While McKnight's observations may well ring true for the obsessed, they seem a little extreme in relation to those who still kiss, hold hands and generate great ideas once away from the screen. Computer technologies, in addition, may well generate new kinds of opportunity for:

1) relationship (e.g., in linking people otherwise isolated by distance or disability, via electronic mail);[88]

2) creativity (e.g., in catalyzing the emergence of new art forms such as in poetry, the visual arts and music);[89]

3) the vernacular (e.g. in making possible the electronic message, which may represent a grammatically and stylistically unique vernacular in its own right);[90] and

4) the democratic (e.g., in facilitating political decision-making via electronic town hall meetings and electronic plebiscites).[91]

Still, McKnight's point goes uncontested in that these new opportunities are indeed sensuously deficient in comparison to the old. For example, "conversation" by e-mail or e-message is hardly as experientially (i.e., sensuously) rich as face-to-face interaction. Such interaction is probably also

sensuously impoverished compared to holding and reading a hand-written letter, or even a printed book.

In conclusion, publication of a book by traditional or electronic means seems to make little difference in terms of the look or feel of the finished page. Unless this changes, the critical phenomenological question is how reading a page per se differs from reading a computer screen. This question -- which Illich fails to address -- will become all the more pressing if reading the screen begins to outstrip, or at least match, bookish reading in popularity. On the other hand, if Illich is right, the statistical prevalence of screen-reading is beside the point. If he is right, then the very possibility of screen-reading will affect even today's "humble charwomen;" i.e., today's "illiterates." Whether Illich is right or wrong on this issue, however, the need for inquiry into the phenomenology of electronically-mediated reading remains critical. Without such inquiry, what is there to distinguish the glowing page of pre-12th-century Europe from the glowing square of the fluorescent screen?

D. Summary

In summary, Illich builds on the work of Ong to present the alphabet as a technology with profound implications for the sensory and perceptual texture of human experience. More specifically, Illich contrasts the cybernetic mind of the 20th century with the bookish mind originating in the scribal

revolution of 12th-century Europe. The emergence of the bookish mind, he argues, was possible because of a set of new conventions and social practices linked to the technology of the alphabet. These new conventions and social practices, in turn, were made possible by a set of technical innovations such as alphabetization and the standardization of breaks between words. As the page became decipherable, the sensory bias of reading shifted from mouth and ear, to eye. At the same time, perception became organized around the metaphor of the bookish text.

Illich traces the cybernetic shift to cybernetically-inspired concepts of the text, and in particular to Erwin Schrodinger's first rendition of same in 1943. Illich does not elaborate on the technical innovations or the changes in social practice implicated in this shift. Nor does he write to a satisfactory extent about the sensory changes involved, although he does speak darkly of experiential loss. Illich's main argument in relation to the cybernetic shift is that electronically-mediated perception is organized around the metaphor of the computer -- or more accurately, the combined metaphors of cybernetics, information theory, and general systems theory. Another way of saying this is to note that perception is dominated by the metaphor of the cybernetic, rather than bookish, text.

Illich's focus on bookish versus cybernetic reading will be complemented in the next chapter by Heim's focus on bookish

versus electronic writing. Similarly, Illich's concentration on issues of perception will be complemented by Heim's concentration on issues of cognition. Like Illich, Heim associates the cybernetic shift with sensory deprivation; but this time because of the reduced pleasure in the physical crafting of the text.

CHAPTER 4: MICHAEL HEIM

A. Introduction

Michael Heim is a relatively new contributor to the discourse blending the fields of phenomenology, history and communications. He comes to the riddle of the 20th-century electronic shift with a unique perspective owing to his background in both ancient Greek philosophy and early European phenomenology. Heim's dissertation was on "A Postmodern Theory of the Humanities: Ontological Discourse in Aristotle and Heidegger."[1] Significantly for this work, Heim also builds on the work of communications historian Walter Ong. In fact, as discussed in Chapter 5, Heim deliberately sets out to explicate and criticize Ongian scholarship.

Heim's Electric Language (1987) has received credit from at least one source as "the first philosophical study of word processing."[2] A forthcoming sequel will feature chapters on the topics of Boolean logic, hypertext, thought processing, e-mail, electronic publishing, and cyberspace.[3] Little biographical information is available on Heim, except that he was lecturing in philosophy at California State University, Long Beach, at the time of this writing.

This chapter will discuss, in turn, the bookish mind, which Heim traces back to Plato; and the "psychic framework of word processing," which Heim would probably trace to the popularization of home computers throughout much of Western

culture during the early 1980s. Each of these concepts will be discussed in relation to Heim's three basic categories of manipulation, formulation, and linkage. Discussion of the psychic framework of word processing will conclude with theoretic (rather than experientially-based) critique of two countermeasures that Heim offers against the potentially destructive effects of same.

B. Historical Foil: The Bookish Mind

As previously mentioned, Heim's primary interest is in contemporary experience, and more specifically in the contemporary experience of writing as mediated by the technology of word processing. Still, he does devote some attention to the topic of how such experience might differ from the experience of writing by hand.

Although Heim usually avoids the term "mind" (as implying a disembodied, unalterable cognitive subject[4]), he attempts to describe the book-based "model of mind" in contrast to the "psychic framework" of word processing. The bookish or classical model of mind is built on the intelligence of Platonic realism, says Heim. While the Platonic tradition is usually assumed to posit the mind or soul as absolute being, to be studied in abstraction from the surrounding world, Heim describes the Platonic mind differently. Although he commends suspicion about efforts to isolate the mind, he finds in the Platonic notion of

intelligence a sense of "contemplative awareness" which carries within it the possibility of transcending the "flurries and confusions of daily experience."[5] It is on this awareness, or deeper "stasis," that both argument and logical/calculative sequence are based, says Heim.[6]

Heim supports his Platonian-inspired thesis by describing the bookish model of mind in terms of the same three categories he uses in relation to the psychic framework of word processing. These categories are as follows:

1) manipulation, "the arranging of symbolic domains;"

2) formulation, "the way thought attains focus and integrity in a symbolic environment;" and

3) linkage, "the psychic environment created by the networking of all symbolic life in a homogenous information system."[7]

Manipulation, in other words, involves the bodily act of writing, and formulation involves the mental act of thinking. These should not be considered opposites, but rather complementary aspects of the same whole. Linkage, meanwhile, can be understood as a phenomenon made possible by specific patterns of manipulation and formulation. Heim applies "linkage" only to the psychic framework of word processing. Linkage is in fundamental tension with the privacy which he sees as characteristic of bookishness.

It should be noted here that when Heim speaks of "the book," he does not mean the book as "a mere repository of

communicative information or as a physical object."[8] Instead, he uses "the book" to describe a particular symbolic element: the element of inscription, or the "horizon of significance" in which inscribed symbols appear. Reminiscent of Innis, Heim describes "the element of language" as

> ...the concretely historical way in which symbolized thought achieves placelessness, or, alternatively, in which thought achieves, through the transcendental nature of language, different modes of inhabiting place.[9]

The term "element," then, is simply a substitute for the usual term "medium." In a curious twist on McLuhan, Heim seems to think that the latter connotes only the content or the message.

1. Manipulation of the Bookish Text

It is during his discussion of bookish manipulation that Heim, like Illich, goes back to medieval Europe to recall the "fundamentally contemplative nature of scribal culture."[10] Offering a welcome counterpoint to the usual popular accounts of power-hungry religious bureaucrats, he writes:

> The cult of the book in the Christian West, far from being an exclusive concern with proclamation (kerygma), was also essentially contemplative. Manipulation of the inscribed symbols as manuscript -- both terms containing as a component the Latin word for hand -- was a special kind of handiwork. Not only handy for the missionary apostolate of an expanding Christianity, the cult of the book was at the same time the cultivation of a transcending state of mind, of a distanced and composed contemplative attitude. The book was a psychic framework for personal transcendance.[11]

Heim quotes from Jean LeClerq's The Love of Learning and

the Desire for God (1982) to demonstrate how the contemplative "aura" of books was especially apparent in medieval reading. In a passage that echoes Illich's description of Hugh of St. Victor, LeClerq writes:

> In the Middle Ages the reader usually pronounced the words with his lips, at least in a low tone, and consequently he hears the sentence seen by his eyes.. .. What results is a muscular memory of the words pronounced and an aural memory of the words heard.[12]

LeClerq observes that reading and meditation were so closely related that they were sometimes described by the same metaphor: ruminatio, which of course we know today as "rumination." To meditate, says LeClerq, means

> ...assimilating the context of a text by means of a kind of mastication which releases its full flavour. It means...to taste it with the palatum cordis (the heart's palate) or in ore cordis (in the heart's mouth). All this activity is, necessarily, a prayer; the lectio divina is a prayerful reading.[13]

It is telling that Heim seems to spend more time discussing medieval reading than writing, in his discussion of bookish manipulation. In fact, he has little to say about medieval writing except to quote an early Renaissance humanist and Benedictine abbot on the natural superiority of handwriting. John Trithemius (1462-1516) wrote In Praise of Scribes when printing was just becoming a means for relatively rapid dissemination of knowledge. But manual writing and copying were still highly prized, at least if this quote from Trithemius is any indication:

> He who gives up copying because of the invention of printing is no genuine friend of holy Scripture. He sees only what is and contributes nothing to the

> edification of future generations. But we, beloved brothers, shall keep in mind the reward of this sacred occupation and not slacken in our efforts, even if we were to own many thousands of books. Printed books will never be the equivalent of handwritten codices, especially since printed books are often deficient in spelling and appearance. The simple reason is that copying by hand involves more diligence and industry.[14]

Because Heim fails to focus on the actual experience of medieval writing, he also fails to register any gradations of difference in the experience of writing from the beginning to the end of the Middle Ages. More importantly, he generalizes from medieval scribal activity to handwriting in general! The generalization he makes is that handwriting is a sculptural process: it involves the carving out of words on a physical surface.[15] According to one citation, this time from a contemporary source:

> I love the physical process [of handwriting]; I like to write, physically. I like shaping my paragraphs and sentences on the page. I revise and insert endlessly on the page and I get a sort of sculptural pleasure out of revising with my hands. I love the words that I use, and I like to have immediate contact with them. I love the English language and I love the words as they are, letter by letter, and the shape of them, and how I make them when I write, and I don't want to lose touch with that.[16]

Heim identifies bookish manipulation with handwriting even though electronic writing can also result in books. Since it does not seem to be the finished product that is truly at stake, perhaps it would be more helpful for him to speak of "papery" manipulation or the "paperish" text.

2. Formulation of the Bookish Text

Heim's discussion of bookish formulation finds him slipping back into the hands of Plato. Speaking in rather hazy intangibles, Heim states that the book develops "a solidity and fixity of thought in the psyche;"[17] "alert and steady attention;"[18] "deliberate care and presence of mind."[19] He notes that the medieval advocates of scribalism

> ...buttressed the Platonic approach to formulation by emphasizing the resistance of the material element of writing and by stressing the artistic craftsmanship needed to overcome recalcitrant materials.[20]

The connection between material resistance and the book's support for "the contemplative formulation of ideas"[21] is as follows:

> ...the recalcitrance of the materials becomes, through craftsman's labour, the stable basis of relative permanence and durability. The transformation of materials, turning obstacles into the very means of perpetuation, demands and evokes psychic intensity. What Plato first called the idea (Greek for mental vision or formal identification of something) is the product of great inner intensity (emphasis added).[22]

Heim suggests that this contemplative activity of idea formation is "a fundamentally different psychic activity" from information handling which involves "the management of pregiven data that is already essentially formed."[23] Unfortunately, he does not seem to distinguish adequately between data processing and writing on a word processor. Nor does he mention at this point the experience of some that there is just as much "recalcitrance" to be overcome in writing on computer as there is in writing by hand.

3. Bookish Privacy

Heim's discussion of bookish privacy -- in contrast with electronic linkage -- continues to reference the Platonic tradition. But it also cites a novel by Henry Miller (1965), in which a budding writer reflects on the personal struggle involved in the act of writing; and a novel by Ray Bradbury (1953), in which a man finally understands the incredible personal investment represented in each of the books he's been putting to flame for the State. Heim's point in citing both of these contemporary cultural fragments is that the symbolic element of the book "enhances the sense of private contemplative space"[24] -- and not only because of the portability of the physical object and the passageway it promises into wonderful imaginary worlds. The sense of the private is also, and perhaps more importantly, enhanced in bookish writing:

> The genuine formulation of an idea is always one's own, no one else's; it is a child of the psyche: the very words may belong to a commonly shared and universally viewed idea, but the words themselves, their specific formulation, is my own. The stamp of characteristic ownership marks written thought as my own, acquired through the struggle with experience and recalcitrant materials. Handwritten formulation thereby enhances a sense of personal experience or an integrity pertaining to the private, personal self (emphasis added).[25]

Here Heim falls into the same trap as he did for the previous category. He assumes that the struggle of writing is limited to writing by hand, when in fact the switch from handwriting to electronically-mediated writing only facilitates the editing process: as most writers would

arguably attest, the writing itself is just as difficult![26] If the thrill of giving birth to one's own idea (or even just the feeling of same) enhances the sense of having a private self, this enhancement is just as likely to occur on paper as on screen. In fact, for fluent typists, a sense of contemplative privacy may be just as likely to occur at the keyboard -- mechanical or electronic -- as it would in front of a piece of paper. This is because the internalized keyboard eliminates the need for constant visual "checks" with the page, screen and/or fingers. Thus, the writer can tap inner fountains of thought with extreme, even trance-like, freedom.[27]

In addition, Heim seems to ignore the fact that people choose different tools, or media, on different occasions and for different purposes. A person who writes on a word processor does not necessarily stop writing by hand, just as carpenters do not necessarily stop using hand tools once power tools come along.[28] In his captivation with transformation theory, Heim may be placing too much emphasis on tool variation, and not enough on the underlying continuities in the writing process itself.

All criticisms aside, Heim's categories are refreshingly systematic after Illich. Thus, they allow at least provisional systematic contrast of bookishness with the psychic framework of word processing. As the next section explores, digital writing can be seen as:

1) replacing the care of craftsmanship with automated manipulation;

2) transforming contemplative formulation into formulation under technostress; and

3) destroying the solitude of reading and writing with the prospect of total intertextual linkage.

It should be noted that most attention will be given to "formulation," since this is arguably the centrepiece of Heim's argument: his response, as it were, to the opening question of Electric Language, "What impact will computerized word processing have on human thought?"[29]

C. Contemporary Focus: The Psychic Framework of Word Processing

In the reverse case of Illich, Heim's description of the bookish model of mind is much "thinner" than his description of the psychic framework of word processing. At least, he spends more time on the latter and correspondingly goes into more detail on the concrete conditions of the word processing experience. Granted, this experience varies dramatically from person to person and from group to group; but Heim's argument rests on the assertion that it is indeed possible for the careful thinker to reach "beneath" or "beyond" the immediately apparent chaos to the realm of essential or universal truth. This assertion is the central claim of Edmund Husserl's so-called "transcendental" phenomenology, so that Heim is subject

to all the taunts of intellectual shipwreck that have haunted Husserl. Still, this thesis will give Heim the benefit of the doubt by assuming that transcendental phenomenology does have something to offer. It is not minimizing the transcendental contribution to suggest that it may well serve as an heuristic counterpart to the ethnographic studies which have emerged since Alfred Schutz helped extend phenomenology into empirical sociology.[30] Plato and Aristotle, after all, were teacher and student as much as they were opponents.

Heim begins his discussion of the psychic framework of word processing by drawing attention to two ways in which the essential nature of word processing is hidden from view. These include:

> 1) the tendency to understand the new in terms of the old, thus the use of such metaphors as "pages," "scrolling," "computer literacy;" and
>
> 2) the absence of mechanical cues (pulleys, springs, wheels, etc.) to help the user understand the dynamics taking place below the electronic surface.[31]

Heim's intention is to proceed beyond these roadblocks, but his purpose is not so much to answer questions as to ask them. His approach supports personal reflection, grounded in etymology and philosophy, with material gleaned from scholarly sources, works of fiction, and personal accounts from other word processing users.

1. Automated Manipulation

In discussing automated manipulation, Heim notes that word processing bypasses the inscription procedure, the engagement of the writer with physically resistant materials.

> With word processing, the manipulation of symbols is characterized not only by typification, but also by a typification that is automated. What this means is that control over the typification procedure is so great that symbols can be manipulated as they are produced rather than afterward. The inscription procedure is bypassed through electronic storage, and the actual inscription can then be expedited at any time, in any format, automatically, that is, without the inscription procedure dominating the composition process.[32]

Heim connects the reduced struggle of inscription with "the feeling of freedom and flow"[33] that many people report once they have become comfortable or at least functional in the electronic element.

But the "relative bliss of automated formatting and printing"[34] can hide the dark side of word processing. This dark side emerges from the imperative toward productivity which is inherent in automation technology. The sculptural pleasure of handwriting, of giving physical shape to words, is replaced by the digital ease which creates but also demands ever-increasing efficiency and speed.

2. Formulation Under Technostress

The productivity imperative inherent in automated manipulation, says Heim, transforms contemplative formulation into "formulation under technostress." Modifying the original

meaning somewhat from that intended by Craig Brod (1984), Heim defines technostress as "a sense of stress due to a felt acceleration of time."[35]

> As both resource and participant in the altered time structures of accelerated productivity, the human being begins to suffer under the pressures necessarily put on all materials so that maximum productivity can be achieved. Stress, then, becomes the prevalent pathology of our time, just as hysteria or neurosis was once the dominant pathology in the period of Sigmund Freud's first explorations.[36]

Formulation under technostress -- or "thinking in electric language," to use a more generic description -- tends to result in text that is more conversational,[37] formulaic[38] and copious[39] than text produced on paper. But of greater relevance is Heim's argument that thought itself is transformed in the electric element. Here, of course, he infers that the thinking involved in writing is the same thinking that is characteristic of the psyche more generally: writer and thinker become indistinguishable.

In contrast with oral dialogue and literate argumentation, the psychic framework of word processing develops conceptualization as "ideational flow," says Heim.[40]

> The accelerated automation of word processing makes possible a new immediacy in the creation of public, typified text.... As I write, I can put things directly in writing. My stream of consciousness can be paralleled by the running flow of the electronic element. Words dance on the screen. Sentences slide smoothly into place, make way for one another, while paragraphs ripple down the screen.[41]

Because of this new immediacy, and an allegedly reduced anxiety about "getting things right the first time,"

formulation becomes as fluid as the words on screen. Or, to switch metaphors, the electric element stimulates the fascination with light and fire: formulation becomes speedy, instantaneous, and intuitive.[42]

But again, the dark side emerges. Ideational fluidity, says Heim, conceals the mode of language inherent in word processing: the mode of "inFORMation" which "assumes that the formulation of something is neutral or has already been accomplished."[43] Just as automated manipulation obsolesces the engagement with physically resistant materials, so electric language obsolesces the struggle for formulation, for delineating the contours of things sensed. This amounts to a fragmentation of thinking in that the writer is more likely to grab leftovers of thought (culled from previous versions and/or other texts) than to spend time attending to the potentially new.[44] Integrity -- "wholeness of mind"[45] -- and innocence -- "the felt awareness of being a locus for the formulation of an idea"[46] -- are compromised.

Even given the unusual definition, Heim's connection of fragmentary thinking with "lost innocence" might be surprising. After all, the formulaic thinking characteristic of supposedly innocent oral cultures seems remarkably similar to what Heim is describing here. But, says Heim, there is more at stake. Both the accelerated time sense (you can do more) and the productivity imperative (you must do more) which are characteristic of the electric element fill thinking with

a new urgency. This urgency prevents the clear-eyed, contemplative focus on ideas and instead fosters "managerial and calculative modes of thought" (emphasis added).[47]

Outlining programs such as "Thinktank" and "Freestyle," says Heim, support

> ...brainstorming, fact compilation, organizing, and re-organizing in ways that go far beyond the notebooks, index cards, blackboards, and appointment books of the precomputer world.[48]

In effect, they transform the text

> ...into a dynamic yellow pad where you can move headings and subheadings and hide large amounts of text behind them. Additions can lead to changes in the organization of headings; copying parts and erasing is [sic] instantaneous; you can show hierarchical levels to any depth; you can expand, collapse, promote, and demote ideas.[49]

Not surprisingly, outliners are marketed as "idea processors" and have become favorite "tools" for planners, decision makers and managers.[50]

Just as outliners serve to instantiate the managerial mode of thought fostered by the psychic framework of word processing, so the macro device instantiates the calculative mode. Creation of a macro involves the assignment of "whole libraries of phrases and words," and/or complex processing operations, to the pushing of a single function key.[51] Heim argues that this process requires "the repeated exercise of algorithmic patterns of thought (emphasis added);"[52] or in other words, the scrutiny of human movements "for repetitive, potentially programmable sequences."[53]

And you actually do have to go through many repetitive,

> algorithmic steps in order to test a macro. You need to retrace the steps in order to debug the keyboard enhancements. Gradually it comes about that you begin to observe your own movements in writing as potential targets for improvement through algorithms. Each activity is regarded as potentially replaceable by an algorithm or programmable command. This fosters calculative thinking (emphasis added).[54]

The question arises, though, of whether the specialized programming possibilities offered by outliners and macros can legitimately be seen as shaping the psychic framework of word processing as a whole. More specifically, how many electronic writers actually take advantage of all the specialized capabilities available to them, let alone available on the market? Unlike pen and paper, or even the typewriter, a word processor is actually many technologies in one. Thus, individual habits of electronic writers are likely to vary widely. Could it be, for example, that calculatively-disposed individuals simply become more so through the use of macros, which only they would be inclined to use? According to Heim,

> ...to prefer programs that require no customization whatsoever, perhaps in the name of user-friendliness," is to trade the essential power of word processing for a "crippled" version of it. To put it simply, word processing invites programming.[55]

But what about the fact that not everyone takes up the invitation?

On the other hand, it is possible that such devices as outliners and macros are only offered as examples, as expressions, of a deeper logic that pervades the word processing enterprise more generally. If this is true, then any experience with writing on computer will tend to promote

the kinds of thinking that Heim describes. This proposition could be tested, say, by comparing writing and thinking styles across elementary classrooms with and without access to word processing.

In addition to this, Heim is not arguing that word processing alone is transforming 20th-century thinking. Instead, he is saying that this technology contributes to a process that is already under way: a process Heidegger describes as "the Enframing." Heim paraphrases Heidegger to say that "Enframing" describes the transformation of the world into

> ...a set of totally manageable human resources for the exercise of the human will. By placing everything before the human will, world ceases to be truly "world" in the existential sense of an appealing context of involvements that call the human forth into creative and responsive acts of living.[56]

3. Electronic Linkage

Automated manipulation and electric thinking combine to produce an "unprecedented" linkage of text, says Heim.[57] This linkage refers to the potential connection of the electronic text with "the entire world of information."[58] Such linkage is facilitated through a variety of devices, among them:

1) memory-resident spelling checkers, which beep at misspelled words and then provide alternatives;

2) automated thesauri, which allow access to many levels of synonyms for automatic replacement of unsatisfactory

words; and

3) memory-resident linking programs, which can be combined with compact disk storage to allow access to entire reference books, while writing is under way.[59]

Beyond the level of words and facts, entire texts can be brought into interaction through the combined technologies of optical character readers (which digitize printed books), and word processing programs with window or split screen capabilities. This combination creates the possibility of the "hypertextual" environment (or "intertextuality," as Heim prefers to call it[60]), in which the reader can key into "links" or "dynamic footnotes" to bring a paragraph, article, or entire book instantly to the screen. Pressing of the return key entails return to the point in the original text where the link symbol appeared.

Access to hypertext still requires either large amounts of electronic memory or modem connection with data banks. But while modems are still required for transferring digital information over non-carrier lines, telephone lines in North America are rapidly being converted to digital signal carriers.[61] Such conversion would eventually make modems obsolete, unless they had already been obsolesced by optical laser and compact disk technologies providing "virtually unlimited access" to stored information on the personal computer.[62] Orbital satellite technology, meanwhile, could "bring all text -- complete with images and sounds -- into a

generalized and unified signal."[63]

Such technological innovations, and promised innovations, are already well documented. Their implications for the psychic framework of word processing, however, are less well known. While some have postulated the emergence of "a new kind of collective intelligence"[64] resulting from the new possibilities for collaborative thought, others see in electronic linkage the furtherance of "a special modern kind of stupidity."[65] This stupidity, says Heim, involves the glorification of "received ideas" and the corresponding trivialization of "authentic thought" by the sheer volume of information in the digital network.[66]

Heim seems more sympathetic with this criticism than critical, but in fact it seems only peripheral to his central argument concerning the psychic implications of linkage. Also peripheral, it seems, are his observations that linkage promotes the deterioration of:

1) the authorial voice as a model of mental integrity[67] (as per the post-structuralist argument of Mark Poster, 1990); and

2) the felt sense of an original, physical text.[68]

Although not unrelated, Heim's central point is that linkage

> ...turns the private solitude of reflective reading and writing into a public network where the personal symbolic framework needed for original authorship is threatened by linkage with the total textuality of human expressions.[69]

Thus, even the notion of privacy becomes increasingly fragile:

> Word processing manifests a world in which the public itself and its publicity have become omnivorous....[70]

4. Countermeasures

In relation to the psychic framework of word processing in general, Heim recommends two meditation-oriented measures for countering its potentially negative effects. These include:

1) blockbusting,[71] an automated technique which uses a set of macros to break text into individual sentences separated by double carriage returns; and

2) clustering,[72] a manual technique which involves writing a nucleus word on a large sheet of paper and then writing related words around it.

Blockbusting, says Heim

> ...halts the accelerated pace of symbol formulation and provides a contemplative pause in writing. The technique of blockbusting does not relinquish the power of digital writing but suggests a concrete way of tempering its power.[73]

Clustering, meanwhile,

> ...reminds the writer and thinker of the sense of psychic wholeness in the world of increasingly fragmented texts and of automated symbol manipulation. Clustering also recalls the sense of private inner depths in the psyche, of whole vistas incommensurable with the encoded network of human symbols. It recovers a uniquely personal event in the face of the mechanically repeatable.[74]

Confirmation of the effectiveness of such counter-disciplines would require careful empirical research. But even theoretically, it seems clear that clustering will do little

to compensate for the reduced tactile pleasure of electronic writing -- and blockbusting even less. This reduced sensory involvement in the construction of the text is arguably the key issue, since the relegation of thinking to the mind is exactly what seems to trigger many of the symptoms connected with technostress: the sense of being "scattered;" "frazzled;" "disembodied." If reduced sensory involvement is the real issue, then eating a meal and taking a walk are more effective countermeasures to the "psychic fallout" of word processing than either blockbusting or clustering. (Their effect, however, is likely to be just as temporary.)

Heim sometimes seems to suggest that the key issue is not the reduced tactile pleasure of writing, but rather a reduced sense of craftsmanship that results from the reduced physical resistance of the materials. To argue this, however, is something like arguing that carving in balsa is less satisfying than carving in pine; or, that swimming a lake is less satisfying than climbing a mountain. As anyone who has spent hours writing at the computer can attest, the sense of craftsmanship is not necessarily alleviated by the greater malleability of the text and the reduced friction in composing it. In fact, the new malleability may well inspire writers to new heights of creativity and productivity, and even to whole new genres such as interactive fiction, computer-generated poetry and graphically-programmed text.[75] (On the other hand, many people may remain just as averse to writing as they ever

were.)

Writing on computer is not completely devoid of sensory involvement in that paper must be rolled into place; keys pressed; and the screen checked more or less frequently for accuracy, simple appreciation and/or the issue of commands. Nor is sensory involvement completely sacrificed because of the mediation of the inscription process through the printer. In fact, the sound of the printer spitting out words can be a very satisfying reward: not a tactile reward, as in handwriting, but a sensory reward nonetheless. Still, most of this presupposes that hard copy -- which some would argue is only the lingering legacy of a former epoch -- will continue to be used. Take away the paper, and sensory involvement becomes limited to keyboard manipulation broken intermittently by glances at the floating text. Add to this the prospect of headaches and eye damage because of the phosphoresence of the screen, and there isn't much left worth writing about.

According to one writer, Roland Barthes (1975, 1985) has written more than anyone on the "bodily pleasure," "bliss," and "happiness" of reading and writing.[76] Would he still have done so if he had only had access to word processing?

D. Summary

In conclusion, Heim builds on Ong by examining word processing as a technology that transforms the nature of alphabetically-constructed text -- and in the process, that

transforms the very nature of being human. Heim goes further than Ong to explore the psychocultural implications of a particular electronic technology; he does not lump all 20th-century symbolic technologies into the same category. In fact, Heim realizes that various word processing programs each represent distinct technologies in their own right.

More generally in relation to transformation theory, Heim contrasts the "psychic framework of word processing" with the bookish or classical model of mind. He traces the latter back through handwriting and medieval scribalism to the contemplatively-oriented thought of Plato. Heim fails to distinguish adequately between the chirographic cultures of ancient Greece and medieval Europe, let alone between the various medieval and post-medieval periods. Instead, he suggests that handwriting -- in general -- is an essentially contemplative activity. His rationale for this is that the physical resistance of the materials fosters a sense of craftsmanship, a tactile pleasure in the "sculpting" of the text. The bookish text, says Heim, also fosters a sense of privacy: partly because reading is a solitary activity, but also because handwriting enhances the sense of personal creativity.

In contrast, Heim describes electronically-mediated thinking as fragmented, managerial, and algorithmic. Thinking is said to become fragmented because of the tendency toward recycling preformulated pieces of text. Managerial tendencies

are said to be enhanced because of increased ease in the control and organization of text. Algorithmic, or calculative, thinking is said to be enhanced because of the constant lure to "get inside" the system: to streamline writing by redesigning the program.

In summary, Heim argues that the contemplative aura of bookishness is destroyed -- or at least profoundly disturbed -- by electronic technostress. The lingering, tactile pleasure of the pen is said to give way to the crisp efficiency of the keyboard. Meanwhile, privacy is said to be threatened by the spectre of total electronic linkage. Although Heim does wax poetic on the new fluidity of the text, he also encourages the electronic writer to take specific measures -- such as blockbusting and clustering -- to help protect against psychic "backfire."

Heim concentrates on patterns of <u>conception</u> -- as opposed to perceptual sets -- and hinges these on occurences at the level of the <u>senses</u>. Although he doesn't deal adequately with the sensory differences between types of handwriting, types of typewriting, and types of word processing, he does recognize that altered sensory experience per se is bound to affect thinking. Despite detour into issues of craftsmanship, Heim's argument for the reduced sensory pleasure of electronic writing echoes Illich's argument for the "sensory deprivation" of contemporary reading.

CHAPTER 5: EVALUATION

A. Introduction

Up to this point, criticism of both Illich and Heim has been offered only in passing. Now, criticism will be integrated to allow comparison and contrast of their respective similarities, differences, strengths and weaknesses. Both similarities and differences will be addressed in terms of the three categories of topic, approach, and conclusions.

The main similarity of conclusion is that both Illich and Heim give paramount importance to the realm of the senses. The main difference of conclusion is that Illich discusses the cybernetic mind in terms of perceptual set, while Heim discusses the psychic framework of word processing in terms of patterns of conception. The conclusions of both Illich and Heim are made from within an Ongian-inspired transformation theoretic perspective.

Illich and Heim each reveal certain strengths by virtue of their respective backgrounds in history and philosophy. But their primary shared weakness -- lack of ethnographic evidence -- is of equal, if not greater, importance. It is for this reason that this thesis will come to no definitive conclusions as to how, or whether, electronically-mediated experience is indeed historically unique. Instead, examples of relevant ethnographic study will be brought into play in relation to

both Illich and Heim, as a means of demonstrating how their lacks might conceivably be offset.

B. Similarities

1. Of Topic

As mentioned at the outset, Heim and Illich share a fascination with questions relating to the implications of new technologies for human experience. More specifically, they are intrigued by the existential implications of a particular technology for symbolic expression: the word processor. While Illich professes to be exclusively interested in the alphabet -- as opposed to the computer[1] -- he mentions word processing frequently, especially in his most recent work. This of course makes sense, given that word processing seems to change the nature of (alphabetically-constructed) sentences and texts.

Illich and Heim have many other similarities, the most obvious of which is their shared sense that the emergence of the word processor (equivalent to "information theory and technologies") coincides with a subtle but profound shift in the cultural psyche. Whether or not deliberately, and whether or not in full accord, both address the riddle of this shift by aligning themselves with transformation theory. This alignment involves, among other things, a shared reliance on such scholars as Eric Havelock and Walter Ong. The alignment is further reflected in a shared acknowledgement that

technologies are more than instrumental tools; and a shared understanding of literacy as a model for certain psychic attitudes. Interestingly enough, there is also a shared disposition toward the philosophical tradition of phenomenology, especially as represented by Maurice Merleau-Ponty, for Illich;[2] and by Martin Heidegger, for Heim.[3]

2. Of Approach

As should be obvious by now, both Illich and Heim believe in the importance of travelling through time in order to gain analytic distance from the present. Both are convinced that current certainties must be stripped away in order for freshness of awareness to thrive, and thus for true insight to emerge. To the extent that both Illich and Heim wish to counter what they see as the prevailing technocratic frenzy, they also distance themselves from the present along the axis of space. This is true in the sense that Illich and Heim seem to agree on the technocratic antidote of contemplation, which is generally part of the Eastern rather than the Western philosophical heritage (the Western monastic tradition notwithstanding). Heim, as it happens, is most explicit -- and most evangelical -- about the existential merits of living in an Eastern way.

3. Of Conclusion

Although neither answers the riddle of the 20th-century

symbolic shift completely, Illich and Heim do agree in their grim observation of:

1) the historically unprecedented importance of algorithms and/or algorithmic modes of thought; and

2) the historically unprecedented pervasiveness of an "omnivorous drive"[4] to manage.

A common denominator of such tendencies, significantly, is a shift in the realm of the senses. Illich describes this shift in terms of a reduction of sensibility to informatically-oriented visuality; and Heim describes it in terms of a reduced tactile pleasure in the construction of electronic text. Both of these descriptions, arguably, point to roughly the same conclusion: that theories and technologies of information indeed contribute to the "scopic regime of modernity,"[5] i.e., the dominance of the visual sense in contemporary Western culture.[6]

In attempting to understand the link between algorithmic thinking and the dominance of visuality, it is helpful to notice some of the unique phenomenological characteristics of sight. According to Hans Jonas (1966), sight is characterized by:

1) the simultaneity of the image (i.e., the apprehension of many things, in one field of vision, in a single instant);[7]

2) dynamic neutralization (i.e., the possibility of seeing something, yet not becoming engaged with it);[8]

3) spatial distance (i.e., the importance of distance in affording a "good view").[9]

Each of these characteristics (and especially the second), says Jonas, represents a gain in objectivity: the ability to "stand back" from the world and selectively scan its horizons. But they represent a corresponding loss in "realism," i.e., the sense of the world as physically resistant, and thus as powerfully and immediately present to the one sensing.[10]

All this does not compensate for Illich's and Heim's shared failure to provide evidence for a shift toward algorithmization and/or visualization. However, it does suggest that a link between these two dynamics is possible. More specifically, the intensification of the noted phenomenological characteristics of sight does seem to open the way to an algorithmic and managerial (i.e., objectifying) orientation toward the world.[11] After all, as any hacker would attest, a detached analytic stance does facilitate the programming impulse more readily than does multi-sensuous submersion in the immediate existential situation. This is not to say that electronic technologies alone bring about such an orientation. Many other visually biased technologies -- e.g., glass, the microscope, the wire grid, the pinhole lens, and the picture frame,[12] not to mention the alphabet[13] -- have been associated with the same geometrizing, objectifying process. Still, theories and technologies of information may indeed contribute to a process of sensory impoverishment which

is characterized by reliance on the visual at the expense of the other senses.

C. Differences

1. Of Topic

One of the most obvious differences between Illich and Heim is that while Heim deliberately sets out to study the phenomenon of word processing, Illich only seems to stumble across it during the course of his wider travels. In a similar vein, Heim approaches the phenomenon as a philosopher, while Illich approaches it as an historian. Presumptuously or not, Heim wants to think in deliberate abstraction from the realm of social practice. He wants to focus on the ways in which

> ...all contemporary contact with reality -- including the '-ologies' of sociology, psychology and anthropology -- is affected by the new writing technology (emphasis added).[13]

Although there is certainly overlap, Illich is less inclined to be ontological and more inclined to be anthropological, psychosocial, and sociological.

2. Of Approach

In relation to approach, Illich and Heim share an unconventionally speculative method which relies heavily on argument, anecdote and personal reflection. While Illich bases his medieval work on paleography, the analysis of actual manuscript pages, his reflections on the present are

significantly lacking in concrete support. At this point in his work on the cybernetic mind, he seems to rely primarily on intuition -- although to be fair, the careful analysis of actual computer-produced pages seems to be upcoming on his intellectual agenda. Illich's attitude toward method seems to be informed by the anarchistic philosophy of Paul Feyerabend (1975)[14] whom Illich considers a close associate.[15]

Meanwhile, Heim contributes to the project of speculative theory: the "open inquiry in which we can be touched by a sense of the wholeness of things."[16] Heim stresses that theorists must remove themselves from both partisan debate and accepted philosophical categories. They must reject accepted labels both in their own work, and in the labels they accept as defining <u>them</u>:

> To accept the label philosophy of word processing or even the philosophy of technology is already to have confirmed reflection too narrowly.[17]

All this means that Heim spends much time tracing the etymological origins of words, and in so doing, the evolution of names for particular experiences and ideas. In this way, Heim hopes -- some would say "only hopes" -- to find the keys to the truth of the phenomenon in question.

In line with their respective methods, Illich's writing style is often wandering and wonder-full, with personal traces left resolutely unerased; while Heim's is more straightforward and categorical, though still poetic to some degree. Also on the topic of writing style, it should be noted that Heim's

systematic approach to theme (e.g., three chapters are built around the same themes of manipulation, formulation and linkage) sometimes belies a curious hodgepodge at a finer level of analysis.[18] Partly for this reason, Illich detests writing accomplished on a word processor. He was first struck by the connection between "text composing" and paragraphs lacking inner flow when he tried to read Godel, Escher, Bach (1980), Douglas Hofstadter's avant-garde literary performance on metamathematics, symmetry and artificial intelligence. Since then, Illich has vowed

> ...not to type into the computer anything, any sequence of sentences, which I have not first written out with a much newer invention, the felt-tipped pen -- which is so soft that you can write even on a moving Mexican bus with it.[19]

In reflecting on differences of overall approach -- beyond the issues of method and writing style -- it is helpful to begin by noticing that Illich concentrates first on the text itself, the actual manuscript page. He explores the technical innovations that made possible the changes in the medieval manuscript page at the time of the scribal revolution; and in turn, the social practices that accompanied these innovations. From these explorations, he is able to make judgements about the state of Western cultural mind. Were he to explore the cybernetic shift in a fashion consistent with his medieval study, he would also begin by looking at the page (or perhaps the screen), this time bearing witness to the technical innovations wrapped up in the

computer.

Illich's concentration on the page hints at his characteristic approach to the riddle of symbolic shift. Although he does review developments related to textual production and transmission, his heart seems to be with the topic of being a reader. He approaches the page as an epoch-specific artifact studded with clues as to the nature of mind. This mind, like the page, contains a distinctive set of certainties. It is constituted by a distinctively bookish "perceptual set" which is inextricably linked with the sensory experiences involved in reading (and writing) books.

Heim, in contrast, comes to the territory squarely from the angle of being a writer. He is less interested in the product of textuality and more interested in the process of creating it. Perhaps because the typical computer-produced page is just as "gray" in appearance as the typical typewritten or typeset page, Heim seems to lack a strong interest in the look and feel of the finished text. Thus, he begins instead by exploring the technical innovations, the changes in symbol manipulation, made possible by the technology of word processing. Heim's discussion of automated manipulation leads him to discover corresponding, and centrally important, changes in formulation. Almost by way of afterthought, Heim also discovers corresponding implications for social experience (i.e., the transformation of all space into public space).

It is of key importance to notice that Heim does not search for the distinctive epochal characteristics of a containing mind, but rather for the distinctive epochal patterns of thinking as a dynamic, bodily, and technologically-mediated process. In line with his emphasis on the process of writing, Heim does not ask what the mind thinks, but rather, how it thinks.[20]

3. Of Conclusion

In terms of respective conclusions, it is helpful to note that Illich builds from the sensory realm to address mainly issues of perception; while Heim builds from the sensory realm to address mainly issues of cognition -- or more accurately, of conception. As defined by Robert Livingston (1978):

> Perception involves subjective awareness, but includes many other-than-sensory data sources. It constitutes an internal model of the world (emphasis added). Perception is an ongoing experience in consciousness, usually coherent and convincing, and, as relating to behavior, compelling. Perception includes the total mental contents of our contemporary existence, including images as we experience them from present stimuli, and images that we may call up to consciousness from previous experiences or imaginings. Perception includes the motor options of which we are aware.[21]

Livingston's use of the term "cognition" is less helpful in that he discusses it strictly in terms of brain processes. Heim himself tends to use the term "formulation" rather than "cognition," probably as a means of avoiding this same reductionistic tendency. Thus, the distinction between

perception and conception is probably more helpful in explaining how the paths of Illich and Heim diverge. Hubert Dreyfus (1972) describes the former as involving the implicit grouping of objects and the latter as involving the explicit classification of objects:

> As Aron Gurwitsch puts it in his analysis of the difference between perceptual and conceptual consciousness: "Perceived objects appear to us as generic determinations...But -- and this is the decisive point -- to perceive an object of a certain kind is not at all the same thing as grasping that object as representative of a particular case of a type.[23]

To simplify, Illich seems most interested in the internal models which shape our apprehension of the world, our world-Gestalt. Such models usually reside below the horizons of conscious awareness. Heim, meanwhile, is interested in the processes by which we consciously try to "make sense" of things, to impose order, to generate ideas. The patterns of such conceptual activity are not usually accessible to conscious awareness, but their content is. In fact, their content occupies what we usually think of as our thinking life.

In relation to the electronic shift itself, Illich is aghast at what he finds while Heim seems to be only mildly worried. More specifically, Illich finds a new 20th-century Western mind which superimposes onto all of reality the cybernetic metaphors both epitomized and exacerbated by the technology of word processing. Illich sees the totalizing cybernetic metaphor at work in both the perception of the self

as a system to be managed, and in the perception of all of reality as a system to be managed.

Heim is more open than Illich to considering both the potentially positive and potentially negative implications of word processing. On the plus side, he notices how word processing encourages a new fluidity of thinking, a new speed and intuitiveness of expression. On the minus side, he notices how word processing tends to eclipse contemplative modes of thought in favor of the managerial and calculative.

Heim gives a fairly value-balanced -- some would say vacillating[23] -- view of word processing in Electric Language. Although finally critical, his overall outlook in this work is much more lighthearted than in "The Dark Side of Infomania," an article published three years later. Here, Heim describes the 20th-century passion for information as a "madness" which ignores the (assumed) fact that human beings are biologically finite in what they can attend to meaningfully.[24] Still, Heim does see a way out of the madness. He presents blockbusting and clustering as specific -- if possibly lame[25] -- recommendations for alternative practice. Illich, meanwhile, doesn't see it as part of his role to offer solutions. His nostalgia for literacy is obvious, and he doesn't seem to see much hope for fighting its demise.[26]

D. Strengths

1. Illich

Both Illich and Heim make important contributions to the field of communications history. Illich, for example, gives careful attention to the late 12th century, a historic moment that until now has been almost completely ignored within the discipline. In exploring this moment of European history, Illich plays an important role in further destroying the popular myth concerning the dark and fallow silence of the Middle Ages. By concentrating on the unique dynamics of a specific early moment within that period, Illich also helps to dispel the popular myth of medieval homogeneity. His focus on a transition point is most welcome given that communications history in the past has probably been more comfortable with outlining static epochal discontinuities than with exploring the wild dynamics of their overlap.

Also in relation to the 12th century, Illich's emphasis on the scribal revolution helps to counter-balance a possible over-emphasis on the role of the printing press in many other accounts. If Illich is right, there were changes of crucial importance occurring a full 300 years before the printing press. In fact -- as Illich argues in one of his unpublished papers -- the scribal revolution may well have built the very foundations of print culture:

> The page became a bookish text, this latter shaped the scholastic mind, and the text-mind relationship was as necessary a foundation for print culture as alphabetic recording had been for the culture of literature and

> philosophy in ancient Greece. So far this point has not been made. Not a single book, nor a single article deals "ex professo" with the hypothesis that it was a scribal revolution which created the object which, 300 years later, was fit for print. I have written this essay with the intent of suggesting just this.[27]

Elizabeth Eisenstein (1983), well-established expert on the implications of the printing press, minimizes the importance of some of the same 12th-century changes that Illich gives a cameo role.[28] Nonetheless, it seems helpful that Illich provides challenge, even if only by way of offering an alternate viewpoint.

In relation to his overall treatment of history, Illich sets a good example in persistently refusing to superimpose the categorical assumptions of one epoch onto another.[29] One of the most obvious blunders committed by communications historians in this regard is to refer to pre-electronic technologies as "technologies of communication;" and furthermore, to describe the function of such technologies as the conveyance of "information." David Crowley and Paul Heyer (1990), for example, describe the emergence of the phonetic alphabet as "a quantum leap in information processing...."[30] As Illich makes clear, the cybernetically-inspired concepts of "information" and "communication" are so far removed from what the people who first lived with the alphabet experienced that it becomes specious to bring the same terminology into play.

As indicated in Chapter 2, Illich's critique of the negative impact of modern technology is not new. As indicated in Chapter 3, his argument for the "mathematization" of the

body is not new either. Even Illich's more specific theme of the computer as perceptual metaphor is not entirely original: scholars such as Aanstoos (1987), Bolter (1984), and Turkle (1984) each make similar points. Illich's contribution is "simply" to provide one more voice, one more perspective, in the continuing discussion of how informatic and other technologies might affect human experience. The issue at stake here -- of whether technological "progress" is truly progress in the critical realm of human experience -- is important enough that it can and must be addressed again and again.

2. Heim

Heim's greatest contribution, arguably, is not so much in the content of what he says about word processing, but rather in the way he opens the topic to philosophical debate. Instead of grappling with the controversial but conventionally-asked question of whether computers can think, he takes philosophy beyond the artificial intelligence debates into the lived domain of human activity and experience. More than this, he shows how all of artificial intelligence discourse is caught in

> ...the assumption of a fundamental square-off between the computer and human intelligence -- as if the latter were of itself something fixed, unquestionable, and given.[31]

This assumption, says Heim, belongs to the Western "logos" tradition which developed from ancient Greek thought and was carried through the Latin Christian tradition into

modernity.[32] Heim finds the logos impulse toward "unifying articulation" in both the Judaeo-Christian religion, which understands God as the ultimate Word articulating the world into being; and in Western science, which is devoted to articulating the world into its constituent parts.[33] In its contemporary moment, says Heim, the logos tradition invokes the word with new intensity, precisely because of the possibilities represented by word processing. The glowing words of the screen are said to be invested with a power, dynamism and restlessness never before known. Or to put it differently, "electrified deeds" replace the "contemplative word."[34]

In contrast, says Heim, Eastern philosophy tends to rely on "the unspeakable matrix, the 'wu-ming,' or 'nameless.'"[35]

> As the West has poured its energies into the articulation of the world, including the world of the spirit, the East has sought immersion in the silent origin from which proceeds anything defined in words. Silent, intuitive action demonstrates Eastern wisdom, while the wise men in the West, on the other hand, cultivate their sayings.... Western thought typically needs to spell things out.[36]

This contrast doesn't seem to square exactly with Heim's description of the Western, pre-electronic mind as also being contemplative in orientation. Nor, of course, does Heim demonstrate the silent, wordless wisdom of which he writes -- except in that he offers blockbusting and clustering as Eastern-inspired counter-disciplines. But he does offer a helpful alternative perspective by presenting the phenomenon of word processing as a specifically modern expression of the

logos tradition. The logos impulse still represents a drive toward expressive, ordering words. But now, with word processing, these words have become vehicles for human power, mastery, and action, to an even greater extent.[37] For Heim, the modern impulse toward dynamic action is conveniently symbolized in the phosphorescent screen. More than that, it is exemplified in word processing capabilities which allow for greatly increased efficiency and control of text. Thus, if Illich draws attention to what is new about the "cybernetic mind," Heim offsets this with the reminder that word processing expresses a deeper impulse at least as old as Western philosophy itself.

Heim's criticism of Ong for harbouring a naively progressive view of history[38] is probably unwarranted, given that Ong is careful to describe each epoch in terms of both its unique possibilities and limitations. However, Heim does draw helpful attention to flaws inherent in certain terms commonly used in transformation theory. Besides "mind," examples of such problematic terms include:

1) "consciousness," which is Hegelian, ambiguous, and attuned to social interaction rather than ontology;[39]

2) "medium," which emphasizes

> ...the instrumental method for communicative interchange [rather than] the conditions of symbolic experience and the implications of the mode in which things are represented;[40]

3) "intellect," which lends itself to reification;[41]

and

4) "noetic field" (referring to the locus of the changes effected by new writing technologies), which, like mind, still carries overly cognitive overtones.[43]

Despite one's agreement or disagreement with each of these assessments, Heim's point is well taken that the terminology used in description of psychic/symbolic shifts must be of impeccable accuracy. Attending to nuance, far from being an indulgence for philosophers, will prove critical to the enterprise.

E. Weaknesses

1. Illich

The most obvious criticism to be levelled against Illich is that his a priori suspicion of the new technology makes his sweepingly negative assessment inevitable. Illich does sound, sometimes, like he is describing a dead cat which he doesn't want to touch and yet presumes to understand in detail. His suspicions about word processing (or rather about the pervasiveness of the cybernetic metaphor which word processing reinforces) brings to mind Plato's suspicions about writing. As Ong points out, Plato put his objections about writing *in* writing to make them effective.[44] Similarly, Illich is not above taking a laptop with him on his travels, even if for serious writing he prefers the felt-tip pen.

Illich's treatment of the cybernetic mind is removed enough from ethnographic realities that he doesn't hesitate to

pinpoint the beginning of the cybernetic shift in 1943 with a theoretic transformation in the notion of "text" -- rather than in the early 1980s with the sudden proliferation of home computers. Yes, it could be true that Illich is simply more attuned than most to the obscure whispers of change that precede the deafening roar. But it could also be true that he is oblivious to the very existential realities which are supposed to be concerning him. This is where a good dose of ethnography could play an important role: for Illich, and in a similar way, also for communications history as a whole.

Scholars such as Sherry Turkle (1984) recognize that if computer consciousness indeed cuts to the very quick of everyday life, then that is precisely where scholars must go to learn about it. While the results of Turkle's 400-plus interviews confirm Illich's claims in many respects, they also help to balance his untempered skepticism. More specifically, they suggest that while the computer as "evocative object" can indeed draw people into pathology, it can also serve as a medium for psychological growth. That is, it can prompt reflection on personal modes of knowing, both in the therapeutic situation per se and in everyday life.[44]

Turkle's findings are based on many actual experiences of children with computers, as well as many actual experiences of personal computer owners, computer hackers, and artificial intelligence enthusiasts. These are admittedly specialized subcultures and thus are not necessarily representative of

contemporary Western culture as a whole. Still, such subcultural experience does help to "flesh out" Illich's explication of the cybernetic mind, in the same way that his own explication of the 12th-century mind is "fleshed out" -- to a necessarily limited extent -- by returning to the imagined experience of Hugh.

Illich's attempt to recover Hugh's experience through analysis of changes on the medieval page could make him seem oblivious to factors beyond the page. This criticism is warranted, for example, by the fact that Illich generalizes from Hugh as if the experience of this particular priest were not shaped by specific sociopolitical, economic and ideological conditions. However, the charge of "page-gazing" is not entirely justified in that Illich is quick to acknowledge that the mental changes of the 12th century did not occur in a vacuum.[45] Beyond this, it is only fair to admit that specialization of topic inevitably results in areas of omission.

2. Heim

Illich's failure to provide ethnographic evidence is most glaring in relation to his treatment of the cybernetic shift. But Heim, amazingly, is even less likely to be ethnographic. In Heim's words:

> I want...to explore the ontological dimension of word processing where the mind apprehends reality in the life of symbols. The ontological dimension, though not separate, can be examined apart from the social-

historical inquiry as another level of reflection.[47] Besides the presumably unintended use of the word "mind," this quote betrays an amazing refusal to attend to the social-historical factors which arguably impinge on the ontological realm at every turn. Many questions arise here, among them: How can Heim close himself off to the lived arena of human change, yet still criticize transformation theory for its unwitting presentation of a "disembodied, unalterable, essentially lifeless cognitive subject"?[48] Why does Heim fail to acknowledge that the phenomenology of word processing may differ significantly among various subcultures (such as those represented, say, by computer hackers versus university professors)? Similarly, how can Heim downplay the ontological relevance of mere introspection, yet still privilege his own experiences with various word processing programs?

Here again, a type of ethnography -- in the form of a study by Denise Troll (1990) on the work of the medieval scribe -- helps to finetune the sweeping assumptions of detached thought. In contrast with Heim's rhapsodic account of scribes as contemplative craftsmen, Troll suggests that scribes worked under great duress -- and if they indeed found pleasure in sculpting the physical page, it wasn't because they could understand what they were reading. In fact, says Troll, abbots assigned monks books to be copied, and this was seen as "a religious duty to fight the devil" by multiplying the words of God.[49] Scribes worked in enclosed spaces and

sat on backless stools at severely tilted work surfaces. There was seldom enough heat or light, and writing materials were "cumbersome" and "primitive."[49] If a scribe refused to copy an assigned text, he would be punished by being chained to his desk, without food or wine, until the task's completion![50]

Needless to say, monks preserved only the knowledge that the religious and political authorities chose. They did not copy on their own volition: because they wanted to learn or because they were devoted to perpetuating the intellectual content of what they were copying. According to Troll, it is only because of our own deeply ingrained literate biases that we assume the medieval scribes could read at all.[51] Troll echoes transformation theory here in emphasizing that historians must clear their minds of such biases which inevitably serve to distort the true nature of the past.

Aside from the obvious question of whether Troll or Heim is right, Troll's insights may well be colored by assumptions of her own: for example, that to be ordered to do something was experienced as burdensome; or that learning as reiteration is inherently inferior to learning as questioning. Both of these are indeed assumptions of literacy in full regalia. In a word, they interpret a residually oral culture from the superior, "enlightened" perspective of literacy.

Still, Troll's work is helpful in that it helps call Heim to task, at least in relation to the historical portion of his admittedly "speculative" theorizing. On a broader

scale, Troll's work -- along with that of Turkle and historical/ethnographic scholarship as a whole -- is most valuable in that it brings phenomenologically-oriented communications history solidly down to earth, down from the sublime transcendental heights where phenomenology indeed was born. In short, by holding it accountable, ethnography can do communications history an important service: as required, it can offer conversation, challenge, correction, support. In turn, communications history can both alert ethnography to the possibility of panoramic historic perspective, and reawaken it to the profundity of technological/experiential inter-relationships.

F. Summary

In summary, the contributions of Illich and Heim to communications history can be seen as beautifully, if unintentionally, interlocking, within the larger transformation theory project. Both scholars examine a complementary dimension of the lived experience of textuality, in the context of a specific moment in the history of the alphabet. Both scholars draw attention to historic moments which Ong, as well as transformation theory in general, have tended to neglect. Illich does this by describing and interpreting the alphabetic innovations of the 12th century; and Heim does this by describing and interpreting the informatic innovations of the 20th century.

While differing in topical focus, approach, and conclusions, Illich and Heim share a deeper interest in the implications of text-making technologies for human experience. Each brings to the discussion of electronic culture new fragments of knowledge, new lines of argument, and new criticisms, to which other scholars may now respond. Some of these responses will doubtlessly emphasize the need for thinkers such as Illich and Heim to start paying attention to concrete ethnographic realities; and if they want to be transcendental, to try transcending the realm of their own experience, no matter how fascinating this might be to themselves! Others may respect Illich and Heim as pioneering communications historians of experience: of perception and conception as inextricably bound up in the mysterious and fascinating realm of the human senses.

CHAPTER 6: CONCLUSION

A. Introduction

As noted in the previous section, a prevailing theme in both Illich and Heim is that of the basic importance of the human senses. In acknowledging the basic importance of the senses in the technologically-mediated transformation of experience, both Illich and Heim follow in the steps of communications historian Walter Ong. While Ong tends to focus on the rise of chirographic and typographic literacy, as distinct from primary orality, more work needs to be done on other key moments in communications history. This is where Illich and Heim each make important, even if exploratory, contributions.

In addition, Ong tends to focus on the rise of literacy mainly in terms of a shift from ear to eye, or from acoustic to visual space. This draws attention to the need for communications historical inquiry that builds on Ong but is alert to all the senses, not only to sight and hearing. Here the contributions of Illich and Heim are suggestive but not substantially helpful.

This chapter will demonstrate, first, that the sensory theme surfaces in both Illich and Heim, in relation to the emergence of both bookish and cybernetic text. Then, attention will be drawn to the need for Ongian-inspired work in "the communications history of the senses." Context for

such inquiry will be given by way of reference to another fledgling field of inquiry: that of "body history." An illustrated appendix will outline, in a provisional way, some of the main issues a "communications history of the senses" might address in future.

B. Illich

In relation to 12th-century Europe, Illich demonstrates how the experience of reading changed dramatically -- at the sensory level -- because of the possibilities opened up by the technical innovations of the scribal revolution. After the scribal revolution, reading was no longer an oral, and indeed multi-sensuous, activity. Reading as mumbling the words to life, as travelling the labyrinth of the page, was replaced by reading as a silent, comparatively detached activity of the eyes and mind. As Illich convincingly demonstrates, such sensory changes were accompanied by changes in perception, i.e., by unconscious or pre-reflective changes in how people "made sense of" what was happening at the level of their senses. To simplify, people after the scribal revolution began to construct mental models of the world around the central metaphor of the book. Their pre-reflective certainties -- that speech can be frozen, that memories can be stored and retrieved, etc. -- were all inspired and made possible by bookishness: i.e., the disassociation of the text from the physical page, and the resulting availability of the text as

a model of the mind.

As mentioned, Illich's work on the cybernetic mind is far less developed. He does not describe with clarity the sensory peculiarities of reading electronic text. While he does mention the "sensory deprivation" involved in modern reading, it remains unclear how this goes beyond the intensification of visuality which allegedly took place during the scribal revolution. To put it bluntly, how is reading a typewritten or typeset page different from reading a page produced by computer? Is it simply because the computer can intersperse pages lavishly with charts and graphs? If so, what about the fact that most computer-produced pages are just as "gray" as their typewritten or typeset counterparts? Or, is the issue now the sensory ramifications of reading directly from the screen? In failing to answer such questions, it seems that Illich skips a beat in making inferences directly about perception -- i.e., the replacement of the computer for the book as the primary perceptual metaphor -- without adequate explication at the level of sensation.

In summary, Illich's emphasis of the sensuous body is more apparent in his reflection on medieval culture than in his reflection on electronic culture. Even in the former, Illich's sensory alertness is sometimes obscured by his frequent use of the term "mind" in much the same way others use the term "consciousness." Still, the senses remain paramount for Illich as the bodily "place" where experience is

conditioned. Illich's H2O and the Waters of Forgetfulness (1985) provides earlier evidence of this: in discussing the changing perception of urban space, Illich devotes extensive attention to the role of smell in changing social practices in relation to personal and public waste.[1]

C. Heim

Heim is alert to the realm of the senses in both his historical retrospective and his contemporary focus. In discussing the classical model of mind, Heim suggests that handwriting affords a sculptural, tactile kind of pleasure: the pleasure of crafting the physical letters and words on the physically resistant page. Heim links this sensory experience not to a particular way of perceiving reality, but rather to a particular conceptual style: i.e., to a contemplative mode of thinking characterized by alert steadiness of attention.

In discussing the psychic framework of word processing, Heim follows a similar logic. Pecking away at the computer keys, he observes, is physically almost effortless in comparison to the careful "attending" required for handwriting. Thus, electronically-mediated cognition is said to flash forward with entirely new speed and fluidity. As word processing both allows and demands a new efficiency in text production, says Heim, thinking becomes managerial, calculative. The conceptual habit of fragmentation -- or thinking in cliche -- is said to abound as retrieval of half-

baked or pre-formulated ideas becomes easier than forging out the new.

Heim's conceptual emphasis goes beyond the strictly cerebral or "cognitive." In other words, Heim does not discuss the conceptual as removed from sensory experience; but rather as integrally tied to it, perhaps even as immanent within it. Heim's conceptual emphasis, as it happens, is remarkably similar to Ong's; and thus Heim on the psychic framework of word processing has much the same flavor as Ong on the psychodynamics of primary orality in Orality and Literacy.

In summary, Heim stresses the importance of the sensuous body explicitly in his criticism of the "mentalisms" inherent in much of transformation theory. He also does so implicitly in his treatment of both bookish and electronic formulation (i.e., thinking) in integral relation to issues of manipulation and inscription (i.e., writing). Thus, it is quite accurate to say that Heim is interested in how the body might think, as much as in how the mind might do so.

D. Toward a Communications History of the Senses

The perceptual emphasis in Illich, and the conceptual emphasis in Heim, are merely two different ways of proceeding: phenomenologically-inclined communications historians may follow their preference either way, or combine both. But underlying this variation of emphasis is a common theme: i.e., the primary role of the senses in the technological mediation

of experience. This commonality of theme points to some exciting intellectual terrain, which will be described here as the "communications history of the senses."

The question of what a communications history of the senses might entail is not easy to answer. The basic biological definition of sensation as "subjective experiences that arise from the stimulation of sensory endorgans"[2] provides an adequate starting point. But what exactly do these experiences involve, and which sensory endorgans are at stake? As Diane Ackerman observes in her enchanting and beautifully-written book, A Natural History of the Senses (1990), it is not even clear how many senses exist. In Ackerman's words, we only speak of five senses out of convenience, and perhaps in a kind of "mental pout" at how "thickly demanding" it is to be alive.[3]

Even assuming there are only five senses, the task of doing communications history in a sensory-oriented way remains a tremendous challenge. As David Howes (1990) suggests in an appeal for sensory-oriented anthropology, true understanding of a culture requires

> ...minimally, learning how to be of two sensoria at once and reflecting upon how the interplay of the senses in another culture's perceptual system both converges and diverges from the interplay in one's own.[4]

Similarly, in an earlier (1988) article, he calls for "a comparative study of the sense ratios." Such study would involve careful attunement to such questions as

> ...what kind of difference a scent makes? a sound? a sight? a touch? a taste? in the sensorium of a given culture. Or to put the question another way, what sort of presence do smells have? and sights? etc. in the sensorium of the culture under study.[5]

Answering such questions in relation to a foreign culture in which one is submerged is presumably difficult enough. But to answer them in relation to a culture from which one is separated in <u>time</u> seems even harder. Still, it is precisely these kind of questions that scholars such as Ong, Illich and Heim have begun to explore. Each in his own way has devised methods of trying to "get at" the distinctive sensory characteristics of particular time-bound cultures -- as mediated by particular communicative technologies. This is exactly what a communications history of the senses would endeavor to accomplish.

To provide some intellectual context, the communications history of the senses seems to be aligned with -- or perhaps part of -- the infant discipline of "body history."[6] As body historian Barbara Duden (1987) observes, the body has recently resurfaced as an object of study in a number of historical disciplines: women's history, the study of mentalities, social history, symbolic anthropology, and the history of medicine.[7]

> [These disciplines] deal with its image, its symbolism, its social status, its medical description and the social matrix from which embodiment springs. Without this literature, I could not have started.[8]

But body history, or "history beneath the skin," goes further than this to

> ...reach out for <u>the body as the epoch-specific locus,</u>

> direction, and shape of personal experience (emphasis added). [It asks] how...one's very flesh and blood provide the experienced basis for making sense of one's life, a sense proper to each historical epoch and place.[9]

This definition of the body puts Duden squarely into the camp of phenomenology, which emphasizes that mind and body are not separate because consciousness is always embodied consciousness.[10] The phenomenological body is not the anatomical object of Cartesian dualism but rather

> ...that body through which we live in the world, through which we know and affect the world, and in turn, appreciate its effects on us. It is my connection with the world and how I am in the world.[11]

Thus, thinking is more than the production of "mere" thoughts inside one's head. It is not a purely theoretical activity carried out by a transcendental ego but rather a possibility of our whole being-in-the-world.[12] At a more physiological level,

> ...the mind doesn't really dwell in the brain but travels the whole body on caravans of hormone and enzyme, busily making sense of the compound wonders we catalogue as touch, taste, smell, hearing, vision.[13]

If the sensuously "grounded" body of phenomenology is any indication, the phenomenological tradition may well prove to be a rich source of insight for the communications history of the senses.

E. Summary

As this thesis makes clear, much more phenomenologically-sensitive communications history remains to

be done. Illich and Heim have begun to fill in only the tiniest portions of the puzzle; or perhaps more accurately, they have only started the process of trial and error in relation to the "fit" of certain concepts and approaches. In this sense, their work is only introductory, in Heim's sense of [originating] the questions against which the phenomenon [can appear] more sharply."[14]

Still, the work of Illich and Heim on bookish and cybernetic text is important in that it builds on both Ong and transformation theory in general to explore previously neglected moments in the history of the alphabet. To the extent that both Illich and Heim are sensitive to the "sensory underpinnings" of text-related cultural change, their work represents an important step in the direction of a whole new way of doing communications history: a way which recognizes, perhaps even more than Ong, that

> ...<u>the human body is a mutable reality</u> (emphasis added). As such, the body changes not only for the individual in relation to the situations he or she encounters, but also culturally, so that the body of one historical place and time is not identical to that of a different historical era.[15]

Some day, communications history may indeed reach a place where this insight is no longer revolutionary.

ENDNOTES

CHAPTER ONE

1. The term "telecommunality" comes from James Karpen (1984). The Digitized Word: Orality, Literacy, and the Computerization of Language. Diss., Bowling Green, p. iii. The term has a decidedly pro-technological ring, as does the larger work which is structured around the themes of literary expression, information management, education, and thought processes.

2. This is not to say that the three kinds of culture are mutually exclusive. Instead, they are cumulative, so that vestiges of primary orality, for example, may exist even in cultures where electronic technology is pervasive. For instance, Ong (1981) describes the defense of the doctoral dissertation as "the last great remnant of the old agonistic way of teaching" (Fighting for Life: Contest, Sexuality, and Consciousness. Ithaca: Cornell University Press, p. 145). On the other hand, he doesn't believe this lingering oral convention will last much longer (Ibid.)

3. Letter received from Michael Heim, 31 Jan., 1991.

CHAPTER TWO

1. Jurgen Habermas (1989). The Theory of Communicative Action, vol. II. Cambridge: Polity Press, p. 151.

2. Ibid.

3. More specifically:

> ...processes of material reproduction come into view only from the perspective of acting subjects who are dealing with situations in a goal-directed manner; what gets filtered out are all the counter-intuitive aspects of the nexus of societal reproduction (Ibid.)

4. Ibid., pp. 150, 151.

5. Carl Mitcham (1986). "Introduction: Information Technology and Computers as Themes in the Philosophy of Technology." In Carl Mitcham and Alois Huning, eds., Philosophy and Technology II. Norwell, Massachusetts: D. Reidel Publishing Company, p. 5.

6. Robert Innis (1984). "Technics and the Bias of Perception." Philosophy and Social Criticism 10:1, p. 67.

7. Karl Marx (1887). Das Capital. Quoted in Innis, p. 68.

8. Innis, p. 68. In reference to Arnold Gehlen (1980). Man in the Age of Technology. New York: Columbia University Press.

9. Ibid.

10. For lively debate on current issues in artificial intelligence, see the winter, 1988 issue of Daedalus (17:1) which contains articles by such thinkers as Dreyfus, McCorduck, Papert and Turkle, among others. Of particular interest is the new wave of "connectionist" theory which proposes that "powerful new computers, guided by principles of associative memory, will quickly make major advances in simulating the human brain" (quotation by "S.R.G." in the preface to this issue).

11. Craig Brod (1984). Technostress: The Human Cost of the Computer Revolution. Don Mills, Ontario: Addison-Wesley Publishing Company, p. xi.

12. Sherry Turkle (1984). The Second Self: Computers and the Human Spirit. New York: Simon and Schuster, p. 320.

13. For a well-supported tribute to Innis as the father of communications history, as well as an exploration of the forerunners of communications history in centuries past, see Paul Heyer (1988). Communications and History: Theories of Media, Knowledge, and Civilization. New York: Greenwood Press. Also helpful: David Crowley and Paul Heyer, eds. (1991). Communications in History: Technology, Culture, Society. New York: Longman.

14. Jonathan Turner (1978). The Structure of Sociological Theory. Homewood, Illinois: Dorsey Press, p. 393.

15. Shoshanna Zuboff (1988). In the Age of the Smart Machine: The Future of Work and Power. New York: Basic Books, xiv.

16. Harold Innis, "Media in Ancient Empires." In David Crowley and Paul Heyer, pp. 29-31.

17. This criticism of McLuhan comes from sources too numerous to mention. This criticism of Ong comes from Michael Heim (1987). Electric Language: A Philosophical Study of Word Processing. New Haven: Yale University Press, p. 67.

18. Here Illich, with his deep dismay at the implications of "the cybernetic mind," is one more definite exception.

19. Crowley and Heyer, pp. 10-28, 36-43.

20. Ibid., pp. 48-62.

21. Ibid., pp. 94-101.

22. Ong does not call himself a phenomenologist per se. But, as he has written to Heim:

> You are quite right in aligning my thinking with phenomenology, for it is, I suspect, phenomenological at least in notable ways, though not in every way. I have never programmed myself for this alignment. My mind simply works this way, often enough, anyhow, and it worked this way before I had read any phenomenologists (Heim, p. 263).

Similarly, Illich does not call himself a phenomenologist, but he does engage in a kind of phenomenological enterprise. In one of his latest works, for example, Illich proposes to conduct

> ...a historical ethology of medieval reading habits, together with a historical phenomenology of reading-as-symbol in the 12th century (Illich, 1990. In the Vineyard of the Text: A Commentary to Hugh's Didscalicon. Unpublished manuscript, p. 6.)

Heim, meanwhile, builds on phenomenological foundations -- and particularly the work of Martin Heidegger -- very openly.

23. Walter Ong (1982). Orality and Literacy: The Technologizing of the Word. London: Routledge, p. 78.

24. Ibid., p. 135.

25. Heim, p. 59.

26. Jackson Hershbell (1978). "Introduction." In Eric Havelock and Jackson Hershbell, eds. Communication Arts in the Ancient World. New York: Hastings House, p. xi.

27. John Foley (1980). "Oral Literature: Premises and Problems." Choice (December), p. 487.

28. Ibid., pp. 487, 488.

29. Ibid., p. 488.

30. Ong, pp. 27, 28.

31. Ibid., p. 28.

32. Ibid., pp. 117, 118.

33. Ibid., p. 118.

34. Ibid.

35. Ibid., pp. 121-129.

36. Ibid., pp. 130, 131.

37. For example, Denise Murray (1988) criticizes what is described here as "transformation theory" for its emphasis on cultural tendency over individual human agency.

Traditional views, says Murray, have posed "a dichotomy between orality and literacy, with acquisition of literacy changing the way people think" (Murray, "The Context of Oral and Written Language: A Framework for Mode and Medium Switching." Language in Society 17, p. 351). But she argues that even a single stretch of discourse is not necessarily either oral or literate. Instead,

> ...available media are options from which speakers choose (not necessarily consciously) in the same way they make other linguistic choices, choices that depend on the context of the situation" (Ibid., p. 352).

Murray bases her conclusions on findings she made as a participant-observer in an IBM research laboratory. Her study -- which focussed on communicative choices between face-to-face, telephone, paper, and computer -- is useful in counter-balancing transformation theory's cultural emphasis. But because of this very possibility of balance between individual

and cultural perspectives, it doesn't necessarily provide as devastating a critique of transformation theory as Murray might suppose.

Aside from her own criticisms, Murray notes that some scholars, such as Brian Street (1984), claim that certain types of consciousness may be antecedent to literacy rather than a consequence of literacy: a view that challenges the direct causal view of previous scholars. Other voices of opposition, says Murray, come from those who argue that orality and literacy are not dichotomous. Deborah Tannen (1982), for example, argues that casual conversation and academic writing represent two poles on "the oral-literate continuum."

38. Yet another criticism of transformation theory, at least in its Ongian form, comes from Heim who suggests that Ong is implicitly, and sometimes explicitly, optimistic and progressive in his interpretation of Western history (Heim, pp. 67-69). However, since Ong discusses both the psychocultural possibilities opened up by new technologies of writing, and the constraints they impose, this criticism is not entirely justified. If it is partly justified, it is only to the extent that Ong does have positive observations to make about electronic culture. An example:

> Writing...brings man to consider the world around him more "objectively" and less personally. In the verbal media, the new resort to sound, which is related to actual speech and thus to personal exchange in a present, "existential" context, today personalizes in a new way the world which writing had to a degree depersonalized.... The new personalism, of course, is not exactly like the old: it is less instinctive, more reflective and deliberate. But this very fact makes it in its own way more human (Ong, 1967. In the Human Grain: Further Explorations of Contemporary Culture. New York: Macmillan, p. 14).

If Ong is indeed overly optimistic about electronic culture, Illich certainly offsets this fault.

39. Ong, Orality and Literacy, pp. 78-116.

40. Ibid., p. 83.

41. Allan Northcott (1991a). "Sense and Intelligence: Transformation Theory and the House that Ong Built." Unpublished paper, University of Calgary, pp. 8-16. Northcott argues elsewhere that the study of cultural change in relation to the alphabet itself betrays a literate bias. In Northcott's words (1991b, p. 2),

> ...we must not be blind to the fact that linguistic communication occurs in a larger context: it is but one of the ways in which we communicate our perceptions.

At least in this particular work, Northcott looks to art rather than language as a "searchlight into the history of perception" (Ibid., p. 3).

The charge of literate bias is difficult to refute, except to say that in the intellectual arena, awareness of bias can make the difference between prejudice and specialization. More to the point, specialization of topic is permissable, as long as concession is made that other topics are equally worthy of specialization.

42. On the issue of abstraction, Illich happens to note the Aristotelian distinction between "abstractio" as the separation of Platonic ideas from reality, and "abstractio" as the mental process by which objects are set apart by the categorizing mind. As Illich notes,

> It took early scholastic philosophers more than a generation to reintroduce this distinction, and to understand conceptual thought as a process of formal sequestration. Abstraction is not an issue for most of the early 12th-century thinkers. The term does not even occur in the modern index of the works of Anselm of Canterbury. When he has to explain how insight comes about, Anselm quotes one or the other passage from Augustine which tells of the mind's divine illumination, thus making God's ideas about nature intelligible to man (Ivan Illich, 1990. In the Vineyard of the Text: A Commentary to Hugh's Didascalicon. Unpublished manuscript, pp. 122, 123).

This suggests that the concept of abstraction does not necessarily have a history of steady, linear development.

43. Heim, p. 65.

44. Ibid.

45. Illich, for example, acknowledges this when he says that it is also possible to view the 12th-century scribal revolution from an economic perspective:

> The changes in literate technique can be viewed as a response of the clerical trades to the demands of princes, lawyers, and merchants (emphasis added). But I want to look at this interaction between society and the page from a certain perspective of the recording technology's impact. How did the use of the new techniques foster new ways of conceiving reality? (Illich, In the Vineyard, p. 98.)

46. In fact, says Illich, this device is so important that reference is warranted to the pre-index and post-index Middle Ages (Ibid., p. 104). The point here is not so much who is correct, but rather the importance of many voices participating in the debate.

CHAPTER THREE

1. In Illich's words:

> I am here concerned primarily with "alphabetic technology" which interacts in a unique, epoch-specific way around 1130 with the northwest European symbolic universe, and how changes in world perception in turn facilitated and oriented the choice of technologies. In taking this approach to the alphabet as a technology I am indebted to Walter Ong (Ivan Illich, 1990. In the Vineyard of the Text: A Commentary to Hugh's Didascalicon. Unpublished manuscript, p. 13).

2. John Pauly (1983). "Ivan Illich and Mass Communication Studies." Communication Research 10:2, p. 260.

3. Canadian Broadcasting Corporation (1989). "Part Moon, Part Travelling Salesman: Conversations with Ivan Illich." Ideas transcript, Nov. 21, 28, Dec. 12, 19. Quote by interviewer David Cayley, p. 10.

4. Ibid., p. 26.

5. Ivan Illich (1990). "Computer Literacy and the Cybernetic Dream," in his Celebration of Awareness Volume II, 1978-1990. Unpublished manuscript, p. 177.

6. Illich, In the Vineyard, p. 5.

7. Ibid., p. 95.

8. Ibid.

9. Ibid.

10. Says Illich:

> The transition from a script, in which single letters...are neatly placed next to each other, to one in which all the letters of a word or expression are flowing as one single line from a writer's tool, is both technically and symbolically an important change which happens during the late 12th and early 13th century. In this transition several factors are mirrored: the increasing use of the pen (rather than of dictation) by the author; a new status of the literate segment of the population; a new set of instruments -- mainly the introduction of paper (Ibid., p. 96).

11. The import of paper-making techniques was one of several factors which contributed to the rise of the portable -- and thus, privatized -- book. For example, the Bible as a single book was still unknown during the 12th century: the pages were too bulky and heavy, and the handwritten letters too large, to fit the entire work into one volume. But the preparation of a new, thinner parchment; the import of paper-making techniques; and the generalization of ink each represented 12th-century advances in the direction of the manageable book. Other innovations -- not necessarily limited to the 12th century -- included the reduction of letter size; intensive use of abbreviation; stitching methods allowing full opening of the book in the hands of the reader; and design of a newly flexible cover which allowed the book to be held, rather than opened on a support (Ibid., pp. 113-115).

12. Ibid., p. 96.

13. Ibid., p. 105. Illich acknowledges that certain alphabetization techniques were in evidence well before the scribal revolution. But he argues that until the 12th century, such techniques were used only to order words, not things:

> Alphabetic psalms or poems could be witty games, or mnemonic triggers: they did not order things but lines in the sequence of the aleph-bet. Glossaries were not unknown: lists of alphabetically arranged Greek words with their Latin equivalent written next to them. But what they order are words, not reference to things or pages on which these things appear as subjects (Ibid.).

Acrostic poems were indeed in evidence centuries before the 12th century. For example:

> Close observation of the Psalms discloses that the authors often composed with an overall design in mind. This is true of the alphabetic acrostics in which the poet devoted to each letter of the alphabet one line segment (as in Ps. 111-112), or a single line (as in Ps. 25; 34; 145), or two lines (as in Ps. 37), or eight lines (as in Ps. 119). In addition, Ps. 33; 38; 103 each have 22 lines, no doubt because of the number of letters in the Hebrew alphabet." (Kenneth Barker, ed., 1985. The New International Version Study Bible. Grand Rapids, Michigan: Zondervan, p. 784.)

14. Especially relevant here is Illich's discussion of how the new scribal techniques fostered an emphasis on "instant access" (Ibid., p. 102)! In the mid-12th century, says Illich, Peter the Lombard

> ...wants to lighten the burden of the student and speed up his reading. He wants to decrease the need for extended leafing through the pages, and insists on chapter titles that allow the reader to find

immediately what he is looking for (Ibid.)

Illich also uses the concept of "random access" in relation to the new visually-articulated text:

> In Hugh's generation the book is like a corridor with the incipit as its main entrance. If anyone thumbs through it hoping to find a certain passage, he has little more chance of happening upon it than if he had opened the book randomly. But after Hugh the book can be entered randomly, with a good chance of finding what one looks for (Ibid., p. 97).

On the issue of continuity versus discontinuity in general, it is important to note that the interpretation of history in terms of evolution or revolution need not be cast as an either/or issue. Discussion of revolution is often refreshing in that it presents familiar (or unfamiliar) facts and situations in startling new ways. It raises new questions; and, in the case of contemporary revolutions, it provides a starting point for people at large to understand what is unique about their particular historic plight. It is only with such understanding that the unique constraints and possibilities of a given cultural situation can begin to dawn on awareness, whether that awareness be popular or scholarly.

Discussion of evolution, meanwhile, is often balancing in that it tempers the sensationalizing tendencies of the previous approach. Discussion of continuities does not lend itself to mass media coverage, and it usually doesn't even go far toward stirring up scholarly controversy. But it does help to put the unique characteristics of a given age into larger context. For both scholars and people at large, it serves as a reminder that the past is still present with us as a rich and defining heritage. In fact, the link with the past opens up whole new vistas of understanding as to cultural identity, in the same way that genealogical inquiry typically unveils new secrets as to individual identity.

What all this means in relation to Illich is that his presentation of a 12th-century revolution must be seen, to some extent, as an innovation of its own: i.e., as an attention-getting device. By speaking convincingly of revolution, Illich succeeds in drawing attention to the 12th century in a way that would not have been possible had he only spoke of it in terms of "sameness." At the same time, Illich is able to challenge a consensus concerning the key importance of the printing press, in the same way that he once bucked a consensus for the value of compulsory schooling and organized medicine. In the process, he succeeds in carving out a solid intellectual "perch" for himself in the late European Middle Ages.

Illich's discussion of the cybernetic shift can also be seen as sensationalizing, except that here he does not speak of "revolution." Once again, Illich's intent seems to be on pulling certainties out from underfoot, presumably out of trust that new, more "convivial" certainties will come to take

their place.

15. Ivan Illich and Barry Sanders (1988). ABC: The Alphabetization of the Popular Mind. New York: Random House, pp. 46, 47.

16. Ivan Illich, quoted in Canadian Broadcasting Corporation, p. 29.

17. Illich, In the Vineyard, p. 97.

18. Ibid., p. 100.

19. Ibid., p. 111.

20. Ibid.

21. Ibid., p. 99.

22. Ibid., p. 101.

23. Ibid., p. 96.

24. Illich and Sanders, pp. 31-39.

25. Ibid., pp. 32, 33.

26. Conventions varied according to locale and period. For example, there were also conventions for a man laying a hand on his sword, the rim of his shield, a horse's thigh. Often the blood of a sacrificed animal would be applied to parts of the oath-taker's body or to a ritual object. See Illich and Sanders, pp. 33-35.

27. Ibid., p. 33.

28. Ibid.

29. Ibid., p. 34.

30. Ibid.

31. Ibid., pp. 34, 35.

32. Ibid., p. 35.

33. Ibid.

34. Ibid., p. 72.

35. Michael Heim (1987). Electric Language: A Philosophical Study of Word Processing. New Haven: Yale University Press, pp. 111, 112.

36. Illich, In the Vineyard, p. 121.

37. Ibid.

38. Ibid.

39. Ibid.

40. Ibid., p. 120. At the same time when the text began to float free from the page, says Illich, letters also broke their "traditional bondage" to Latin:

> Too easily one forgets that throughout their existence, Latin letters connoted one and only one "lingua," the Latin one. The letter "L" referred approximately to the first sound in "lingua," "liber," or "lumen," but never to an utterance in vernacular speech. By the middle of the 12th century, the letter "L" can just as well connote the beginning of "lieb," "love," and "lust" (Ibid., p. 123).

41. Illich acknowledges his indebtedness to George Steiner for the concept of bookishness, although Steiner traces bookishness to the rise of the printing press rather than to the scribal revolution. For Steiner, "bookishness" hinges on the possibility of individual ownership of books; of silent, private reading; and of discussing books in such "echo chambers" as coffee shops, literary gazettes, and academic journals (George Steiner, 1988. "The End of Bookishness?" Times Literary Supplement, July 8-14, p. 754).

42. Illich, "A Plea for Research on Lay Literacy," in his Celebration of Awareness, p. 135.

43. However, this certainty taken on its own would probably be representative only of earlier chirographic cultures.

44. For neurophysiological support for this definition of perception, see Robert Livingston (1978). Sensory Processing, Perception, and Behavior. New York: Raven Press.

45. For discussion of the computer as "evocative object," see Sherry Turkle (1984). The Second Self: Computers and the Human Spirit. New York: Simon and Schuster, pp. 12-16. While most people see computers as constrained by logic, Turkle takes a different slant:

> I look at the computer...not in terms of its nature as an "analytical engine," but rather in terms of its "second nature" as an evocative object, an object that

> fascinates, disturbs equanimity, and precipitates thought (Turkle, p. 13, emphasis added).

46. For discussion of the computer as the "defining technology" of our age, see J. David Bolter (1984). Turing's Man: Western Culture in a Computer Age. Chapel Hill: University of North Carolina Press, pp. 11-13. Bolter describes a defining technology as one which redefines our relationship with nature.

> [It] develops links, metaphorical or otherwise, with a culture's science, philosophy, or literature; it is always available to serve as a metaphor, model, or symbol. A defining technology resembles a magnifying glass, which collects and focuses seemingly disparate ideas into one bright, sometimes piercing ray (Bolter, p. 11).

Significantly, even technologies with great economic and social impact may not necessarily come to dominate perception:

> In medieval Europe, crop rotation and the moldboard plough had a greater economic and social impact than the early clockwork mechanisms. Yet not many philosophers and theologians compared the world to a lentil bean (Ibid.)!

47. Illich, "A Plea," p. 147.

48. Ibid.

49.Ibid., p. 148. Illich's case for the culturally contagious nature of metaphors is augmented by Don Ihde's (1979) discussion of three types of experience in relation to technology. Ihde distinguishes between:

> 1) experience through a technology (e.g., using a stick with a knife on it to cut down a bunch of bananas);
> 2) experience with a technology (e.g., interacting with a computer program); and
> 3) technology as background relation (Don Ihde, 1979. Technics and Praxis. Dordrecht, Holland: D. Reidel Publishing Company, pp. 54, 55).

While less direct and focal than the first two, the last type of experience is nonetheless of profound importance. It comes from the fact that technologies are always part of the scene, as it were, even when they are not directly noticed or used. To use a less visual metaphor, they "are the source of the general texture of life." They provide for a certain "technological texture" without which experience would be radically different.

It is in this pre-reflective realm of background relation that the book began to dawn as the decisive metaphor for the understanding of self and world. In the "cybernetic mind," says Illich, this metaphor is replaced by that of the computer.

50. Illich, In the Vineyard, p. 111.

51. Canadian Broadcasting Corporation, p. 29.

52. Illich and Sanders, pp. 50, 51.

53. Illich, In the Vineyard, p. 26.

54. Ibid., p. 20.

55. Ibid., p. 22.

56. Ibid.

57. Ibid., p. 126.

58. Illich, "Mnemosyne: The Mold of Memory," in his Celebration of Awareness, p. 175.

59. Ibid., pp. 175, 176.

60. Illich, In the Vineyard, p. 120.

61. Ibid.

62. Morris Berman (1986). "The Cybernetic Dream of the 21st Century." Journal of Humanistic Psychology 26:2, pp. 24-51.

63. Uwe Porksen (1988). "Scientific and Mathematical Colonization of Colloquial Language." Biology Forum 81:3, pp. 381, 383.

64. William Leiss (1990). Under Technology's Thumb. Montreal: McGill-Queen's University Press, p. 5. Illich and Leiss seem to have in common several other technologically-related concerns, among them the transformation of wants into so-called "needs" for commodities. In discussing his own book Toward a History of Needs (1977), Illich mentions that he often recommends to his students Leiss's The Limits of Satisfaction (1971). Says Illich:

> Eighteen years after having been written, it's still a little jewel...for discussing the rather Marxist assumption that needs -- he calls them commodity-intensive needs -- arise from a transformation of wants into demands for commodities, particularly when these demands for commodities are transmogrified into entitlements (Lee Hoinacki, ed., 1990. Illich -- Conversations. Unpublished manuscript, p. 131).

65. Porksen, p. 383.

66. Ibid.

67. Ibid.

68. Ibid., p. 384.

69. Ibid., pp. 385-388.

70. Ibid., p. 387.

71. See, for example, Paul Ricoeur (1974). The Conflict of Interpretations. Evanston: Northwestern University Press.

72. For ironic treatment of the topic of people as cybernetic organisms, see Donna Haraway (1985). "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s." Socialist Review 15:80, pp. 65-107. See also William Gibson's classic novel Neuromancer (1984). London: Gollancz.

73. A case for exactly this comes from the computer scientist and physicist Ed Fredkin. See Robert Wright (1988). Three Scientists and their Gods: Looking for Meaning in an Age of Information. New York: Random House, pp. 1-80. According to Fredkin's theory of digital physics, says Wright,

> ...information is more fundamental than matter and energy. He believes that atoms, electrons and quarks consist ultimately of bits -- binary units of information, like those that are the currency of computation in a personal computer or a pocket calculator. And he believes that the behavior of those bits, and thus of the entire universe, is governed by a single programming rule -- "the cause and prime mover of everything," as he puts it (Wright, p. 5)!

74. Personal interview with Ivan Illich, 16 Oct., 1990.

75. Ibid.

76. Illich, "Computer Literacy," pp. 180-182.

77. Canadian Broadcasting Corporation, p. 30.

78. William Arney and Bernard Bergen (1986). Medicine and the Management of Living: Taming the Last Great Beast. Chicago: University of Chicago Press, pp. 13-17.

79. Roman Romanyshyn (1989). Technology as Symptom and Dream. London: Routledge, p. 77.

80. The reflections of Lovelock and others on this and various related issues can be found in Canadian Broadcasting Corporation (1990). "The Age of Ecology." Ideas transcript, June 18-21.

81. Canadian Broadcasting Corporation (1990), p. 8.

82. Illich, In the Vineyard, p. 111.

83. Ibid., p. 56.

84. Ibid., p. 57.

85. For a phenomenological discussion of electronic text as reconstructing the relationship between reader and writer, see Peter Lyman (1989). "The Future of Sociological Literature in an Age of Computerized Text." In Grant Blank, James McCartney and Edward Brent, eds. New Technology in Sociology: Practical Applications in Research and Work. New Brunswick, U.S.A.: Transaction Publishers, pp. 19-21.

86. Illich, In the Vineyard, p. 125.

87. Canadian Broadcasting Corporation (1989), p. 31.

88. For concise summary of these and other Illichian concepts, in the context of an argument for Illich's link with the dialogic tradition of Buber and Freire, see John Pauly (1983). "Ivan Illich: The Search for Vernacular Values." Paper presented at the annual convention of the Association for Education in Journalism and Mass Communication, Corvallis, Oregon.

89. See, for example, David Lochhead's (1988) discussion of new opportunities for electronic relationship among people who might otherwise be isolated by geographic location or handicap. Lochhead argues that e-mail, for instance, is redefining the very nature of Christian community. David Lochhead (1988). Theology in a Digital World. The United Church of Canada: The United Church Publishing House.

90. For discussion of three new kinds of literary expression made possible by electronic technology, see James Karpen (1984). The Digitized Word: Orality, Literacy, and the Computerization of Language. Diss., Bowling Green, pp. 42-62. These include:

1) interactive fiction, such as adventure and mystery novels in which the reader makes choices that shape the unfolding of the plot;
2) computer-generated poetry, in which the poet enters lists of words in data statements, from which the computer then randomly selects words according to pre-formulated phrase and sentence patterns; and
3) graphically-programmed poetry and fiction, in which writers publish their work on diskette to allow for special visual and aural effects.

91. See, for example, Heim on "flaming," which he defines as

> ...the tendency to write messages on the computer so directly that the usual norms of civility and politeness fall away (Heim, p. 209).

Although some might challenge the claim that e-mail necessarily fosters flaming, Heim cites empirical research to the effect that it can. Heim uses this observation to help confirm that electronic formulation is less contemplative than other forms of writing (Ibid., p. 210).

Heim does not distinguish -- as does Denise Murray -- between e-mail, in which the message is stored; and e-message, in which the message lasts only for the life of the screen (Denise Murray, 1984. "The Context of Oral and Written Language: A Framework for Mode and Medium Switching." Language in Society 17, p. 353).

92. See especially Chapter 5, "The New Media and Democratic Participation," in Abramson, J., Arterton, F.C., and Orren, G. (1989). The Electronic Commonwealth. New York: Basic Books, pp. 164-189.

CHAPTER FOUR

1. Penn State University, 1979.

2. Edward Mendelson (1988). "The Corrupt Computer." The New Republic 198:8, p. 38.

3. The sequel was to be published in 1991 or 1992 by Oxford University Press, according to correspondence from Heim dated Jan. 31, 1991.

4. Michael Heim (1987). Electric Language: A Philosophical Study of Word Processing. New Haven: Yale University Press, p. 106.

5. Ibid., p. 170.

6. Ibid., pp. 170, 171.

7. Ibid., p. 126.

8. Ibid., p. 186.

9. Ibid., p. 43.

10. Ibid., p. 175.

11. Ibid.

12. Jean LeClerq, O.S.B. (1982). The Love of Learning and the Desire for God: A Study of Monastic Culture, trans. Catharine Misrahi. New York: Fordham University Press, pp. 72, 73. Quoted in Ibid., p. 176.

13. Ibid.

14. Johannes Trithemius (1974). De Laude Scriptorium, Latin-English edition, trans. Roland Behrendt. Lawrence, Kan.: Coronado Press, p. 65. Quoted in Ibid., p. 177.

15. Ibid., p. 194.

16. Peter Lyman, "The Book and the Computer in an Age of 'Computer Literacy.' Newsletter of the American Council of Learned Societies (Winter-Spring 1984), p. 22. Quoted in Ibid., pp. 196, 197.

17. Ibid., p. 179.

18. Ibid., p. 180.

19. Ibid.

20. Ibid.

21. Ibid., p. 183.

22. Ibid., p. 181.

23. Ibid.

24. Ibid., p. 186.

25. Ibid.

26. For a larger discussion of this argument, see Stefan Baldursson (1989). Technology, Computer Use and the Pedagogy of Writing. Diss., University of Alberta, pp. 160-174.

27. On the same topic, Lyman (1984) notes that the subjects in his study -- writers newly trained in using the computer as a word processor -- felt differently about word processing depending on whether they had previously been handwriters or typists. Lyman seems to be describing only typists who strive for perfection in the first draft when he writes:

> While handwriters thought the keyboard broke this link to culture and language [i.e., the history and facticity of the page], typists thought that the computer restored the spontaneity of handwriting without compromising the speed of the typewriter. Many typewriters perceived their typewritten style to be rigid and formal in tone, and believed that their "voice" on the computer was closer to the spontaneity of their speech. Many commented that the computer also resembled handwriting in the ease of translating imagination into text; the noise and difficulty of revising a typed page were replaced by the quiet visual cues and easy text revision of the computer (Peter Lyman, 1984, "Reading, Writing, and Word Processing: Toward a Phenomenology of the Computer Age." Qualitative Sociology 7:1/2, p. 78).

Lyman is reporting here on preliminary findings from a study of 135 Stanford University "humanists" who were given personal computers and trained to use them as word processors by the university's computer centre (Ibid., p. 76). For more on Lyman (1984), see Chapter 5, note 44.

28. Credit for this example goes to Dr. David Mitchell, my supervisor.

29. Heim, p. 1.

30. For review on the emergence of phenomenology and ethnomethodology, see Chapters 18 and 19 of Jonathan Turner (1978). The Structure of Sociological Theory. Homewood, Illinois: Dorsey Press.

31. Heim, pp. 128-132.

32. Ibid., p. 138.

33. Ibid.

34. Ibid., p. 139.

35. Ibid., p. 201.

36. Ibid., p. 202.

37. Ibid., pp. 154-155.

38. Ibid., pp. 155-157.

39. Ibid., p. 210.

40. Ibid., p. 152.

41. Ibid.

42. Ibid., p. 205.

43. Ibid., p. 158.

44. Ibid., p. 211.

45. Ibid., p. 185.

46. Ibid., p. 188.

47. Ibid., p. 204.

48. Ibid., p. 205.

49. Ibid., p. 141.

50. Ibid., pp. 140, 141.

51. Ibid., p. 146.

52. Ibid.

53. Ibid., p. 147.

54. Ibid., p. 149.

55. Ibid., p. 147.

56. Ibid., p. 80.

57. Ibid., p. 160.

58. Ibid., p. 161.

59. Ibid.

60. Ibid., p. 162.

61. Ibid.

62. Ibid.

63. Ibid., p. 163.

64. Ibid., p. 217.

65. Milan Kundera, New York Review of Books, June 13, 1985, pp. 11-12. Quoted in Ibid., p. 218.

66. Ibid.

67. Ibid., pp. 219, 220.

68. Ibid., p. 221.

69. Ibid., p. 215.

70. Ibid.

71. See David and Virginia Noble (1984). Improve Your Writing With Word Processing. Indianapolis: Que Corporation.

72. See Gabriele Lusser Rico (1983). Writing the Natural Way: Using Right-Brain Techniques to Release Your Expressive Powers. Los Angeles: J.P. Tarcher.

73. Heim, p. 242.

74. Ibid., p. 246.

75. For further discussion of this topic, see James Karpen (1984). The Digitized Word: Orality, Literacy, and the Computerization of Language. Diss., Bowling Green, pp. 47-62.

76. Baldurrson, p. 104.

CHAPTER FIVE

1. Personal interview with Ivan Illich, 15 Oct., 1990.

2. For example, Illich notes that Merleau-Ponty foresaw the rise of cyberneticism as an ideology almost 30 years ago (Ivan Illich, 1987. "Computer Literacy and the Cybernetic Dream," in his Celebration of Awareness Volume II, 1978-1990. Unpublished manuscript, p. 182).

3. Heim draws Heidegger into his critique of transformation theory by reviewing several aspects of his philosophy:

> ...the notion of existential worlds, the critique of typification or technological "Enframing ("Gestell") in the postmodern world, and the existential conception of historical development, a conception which sees development with some continuity but also frequent losses in the process of history (Michael Heim, 1987. Electric Language: The Psychic Framework of Word Processing. New Haven: Yale University Press, p. 71).

4. Ibid., p. 81.

5. See Martin Jay (1988). "Scopic Regimes of Modernity." In Hal Foster, ed. Vision and Visuality. Seattle: Bay Press, pp. 3-23.

6. For the argument of hearing-dominance giving way to sight-dominance, see Walter Ong (1982). Orality and Literacy: The Technologizing of the Word. London: Methuen, pp. 117-123. For a contrary view -- that contemporary Western culture is biased against all the senses, in favor of the rational mind -- see Christine Nystrom (1987). "Literacy as Deviance." Et cetera 44:2, pp. 111-115. Nystrom's argument is that the alphabet is not an extension of the eye, but of the mind. Thus, the alphabet separated

> ...thought from sensation, knowledge from experience, utterance from context, speech from speaker, and truth from presence, space, and time (Nystrom, p. 112).

7. Hans Jonas (1966). "The Nobility of Sight: A Study in the Phenomenology of the Senses," in his The Phenomenon of Life: Toward a Philosophical Biology. New York: Harper & Row, pp. 136-145.

8. Ibid., pp. 145-149.

9. Ibid., pp. 149-152.

10. Ibid., pp. 147, 148.

11. However, at least one scholar cautions that the "cartesian" mode of seeing doesn't necessarily have a corner on visuality. More specifically, Ihde distinguishes between two kinds of reductionism: first, that which reduces the paradigm of thought and experience to vision; and second, that which reduces vision itself to the "objectifying gaze" (Don Ihde, 1979. Technics and Praxis. Dordrecht, Holland: D. Reidel Publishing Company, p. 82). Ihde's wants to

> ..."demythologize" the tradition which links vision with objectification and show that a phenomenology of vision finds "more" in vision than the presence of "objects" (Ibid., p. 83).

Ihde does admit that the slippage of vision into objectification is one possibility for visual experience. But he does not address the question of whether certain technologies, or theories, facilitate this tendency.

The hypothesis being suggested in this thesis is simply that the first type of reductionism, which Ihde calls "visualism," is a necessary precondition for the second. In other words, if certain technologies facilitate objectification, they must facilitate visualism first. This hypothesis could be tested by trying to prove it false: if any non-visually-biased culture, or population, still showed evidence of objectification, the hypothesis would be wrong.

12. Robert Innis (1984). "Technics and the Bias of Perception." Philosophy and Social Criticism 10:1, pp. 77, 83.

13. Jonas traces the honoring of the visual sense back to ancient Greece:

> Plato, and Western philosophy after him, speaks of "the eye of the soul" and the "light of reason." Aristotle, in the first lines of the Metaphysics, relates the desire for knowledge inherent in the nature of all men to the common delight in perception, most of all in vision. Yet neither he nor any of the Greek thinkers...seems to have really explained by what properties sight qualifies for these supreme philosophical honors (Jonas, p. 135).

Jonas himself doesn't explain this failure; but a possible reason for it is that the Greeks were just then being affected by the visual bias associated with literacy!

14. Heim, p. 28.

15. In Against Method (1975), Feyerabend begins by reflecting on the complexity and unpredictability of human change. Quoting Herbert Butterfield, Feyerabend wonders:

> Are we really to believe that the naive and simple-minded rules which methodologists take as their guide are capable of accounting for such a 'maze of interactions'? And is it not clear that successful

> participation in a process of this kind is possible only for a ruthless opportunist who is not tied to any particular philosophy and who adopts whatever procedure seems to fit the occasion? (Paul Feyerabend, 1975. Against Method: Outline of an Anarchistic Theory of Knowledge. Atlantic Highlands: Humanities Press, pp. 17, 18.)

16. Personal interview with Ivan Illich, 16 Oct., 1990.

17. Heim, p. 9.

18. Ibid.

19. This discrepancy can be seen as a perfect, if ironic, example of one more way in which writing is affected by word processing: there is a tendency for the writer, somewhere along the way, to create files into which all manner of miscellaneous items are dropped. Come time to write, it becomes a masterful trick to create order out of chaos: to create smooth transitions between disparate items and also to discard items which don't strictly fit.

20. Lee Hoinacki, ed. (1990). Illich -- Conversations. Unpublished manuscript, p. 232. Illich's dismay seems to be borne strictly out of the quality of Hofstadter's writing, i.e., to its lack of coherence and "inner flow." But he might also criticize the content of Hofstadter's book, which explores the theme of recursiveness as evident in the logical theory of Godel, the visual essays of Escher, and the music of Bach. While Godel uses recursiveness to challenge the limits of logic, and while Escher uses recursiveness to challenge the limits of visual perception, Bach simply explores recursiveness for its own sake. Thus, the three are rather strange bedfellows -- except, of course, in a book lacking coherence and "inner flow"!

21. For elaboration on the complex phenomenological concept of thinking as a bodily (rather than strictly cerebral) activity, see such works as Baldursson (1989), Dreyfus (1972), Heidegger (1977), Ihde (1979), and Johnson (1987).

22. Robert Livingston (1978). Sensory Processing, Perception, and Behavior. New York: Raven Press, p. 19.

23. Aron Gurwitsch (1963). "On the Conceptual Consciousness," in Kenneth Sayre and Frederick Crosson, eds. The Modelling of Mind. South Bend, Ind.: Notre Dame University Press, p. 203. Quoted in Hubert Dreyfus (1972). What Computers Can't Do: A Critique of Artificial Reason. New York: Harper & Row, p. 34.

24. Edward Mendelson (1988). "The Corrupt Computer." The New Republic 198:8, p. 39: "When Heim writes about the effects of computers on writing, he alternates between wide-eyed exultation at the ease with which he can move sentences around and thin-lipped warnings against the division of the written word from the contemplating mind."

25. Michael Heim (1990). "The Dark Side of Infomania." Electric Word: The Magazine of Word-Based Computing 18, p. 18.

26. Mendelson, p. 39. A wry comment on Heim's presentation of meditation as the overall paradigm for counterdisciplinary practice: "This means that when you work at a computer, it's a good idea to stop and think every now and then (Ibid.)."

27. Or, perhaps he is in implicit alignment with Richard Burch (1980) who suggests that even to speak of "problems" and "solutions" implies participation in the instrumentally oriented technocratic regime. Problems are attacked, says Burch; but questions are reflected upon:

> One attacks problems using the weapons of a predetermined method and a strategy of divide and conquer. Problem-solving is instrinsically abstractive, calculative, and exacting. If the attack is successful, the problem is defeated once and for all.... In contrast, one thinks upon questions, seeking by means of this not a definitive answer, but an ever more radical and comprehensive context of understanding. Questioning is intrinsically disclosive, integrative, and invocative, with no goal beyond the on-going and open-ended venture of existential ontological self-appropriation and self-understanding (Robert Burch, 1980. "Confronting Technophobia: A Topology." Phenomenology and Pedagogy 4:2, p. 7).

28. Ivan Illich (1990). In the Vineyard of the Text: A Commentary to Hugh's Didascalicon. Unpublished manuscript, p. 118. When Illich says that the scribal revolution created an object, he is referring to the "object" of the bookish text. This passage, previously quoted in Chapter 3, is worth repeating:

> The text can now be seen as something distinct from the book. It is an object that can be visualized even with closed eyes. And it is the pen in the hand of the scribe rather than the font moved by the printer which creates this new entity (Ibid., p. 121).

Along similar lines, Illich writes that historians

> ...must carefully distinguish between manual techniques around 1150 creating the text as object, and mechanical techniques around 1460 reifying this object as a stamp. With this in mind, it appears that a very humble aggregate of scribal techniques, working in a highly

> sophisticated manner, effected a kind of change in the mind-set of European culture clearly distinct from the transition of script to print. The history of the text as the object par excellence during the following centuries demands a clear distinction between these two early moments (Ibid., pp. 117, 118).

29. Elizabeth Eisenstein (1983). The Printing Revolution in Early Modern Europe. Cambridge: Cambridge University Press, p. 10.

30. See Illich and Sanders (1988), where the authors mention the possibility of "epistemological heterogeneity" between epochs and challenges the assumption that "categories exist to describe human experience 'tout court' (Ivan Illich and Barry Sanders, 1988. ABC: The Alphabetization of the Popular Mind. New York: Random House, p. 16).

31. David Crowley and Paul Heyer (1991). Communications in History: Technology, Culture, Society. New York: Longman, p. 2.

32. Heim, Electric Language, p. 26.

33. Ibid., p. 40. As evidenced by his discussion of the logos tradition, Heim tends to be less inclined than Illich to interpret the past in terms of radical discontinuity.

34. Ibid., pp. 40, 41.

35. Ibid., p. 45.

36. Ibid., p. 40.

37. Ibid.

38. Ibid., p. 45.

39. Ibid., pp. 67-69.

40. Ibid., pp. 101, 103.

41. Ibid., p. 102.

42. Ibid., p. 108.

43. Ibid., p. 110.

44. Ong, p. 79.

45. For Turkle's balanced response to the question of whether computers are good or bad, see Turkle (1984). The Second Self: Computers and the Human Spirit. New York: Simon and Schuster, pp. 322, 323. For summary of a potential role of the computer in therapy, see her comments on "Computer as Rorschach" (Ibid., p. 322).

Another potential role might be through the analysis of dreams in which the computer, or other instruments of writing, or symbols for the computer, are featured. Although Lyman (1984) is drawing from qualitative social research rather than from therapeutic experience, he notes the following two dreams which were reported by subjects newly trained in the use of computers as word processors:

> In the first days of training one writer said, "I dreamed I was losing all my pencils and pens, all my writing equipment." Another's dream was more threatening: "I was being attacked by Indians...I was surrounded. They all had machine guns, and all I had was plastic bullets. I had a manuscript I had to save, and I stacked it on the shelf. But all I had was plastic bullets to protect it with, they had real bullets." This is not only a dream about the loss of the physical relationship between a writer and the book, but also about the displacement of the book by a new medium of information, electronic memory on plastic diskettes, which is without the historicity or facticity of the page (Peter Lyman, 1984. "Reading, Writing, and Word Processing: Toward a Phenomenology of the Computer Age." Qualitative Sociology 7:1/2, pp. 77, 78).

For more on Lyman (1984), see Chapter 4, note 27.

46. See, for example, Illich, In the Vineyard, p. 122. Here Illich links the emergence of the bookish text -- the text as abstracted object -- to hot dispute that arose in Cistercian monasteries and canonical urban schools during exactly the same decades. As Illich explains, it was no coincidence that such dispute was thematized around the nature of universals:

> The dictator had landscaped the parchment as a garden of words. The new kind of thinker and auctor, with his own hand and in quick, cursive letters, cleared a building lot for the cathedral of a summa. He took up pen and ink and paper to materialize a process of abstraction which was analogous to what was discussed in the schools of the time. The bookish text -- both in the way it was written and read -- reflects, articulates, reinforces, and legitimates the mental topology which the new approach to law, philosophy, and theology presupposes (Ibid.)

While this example certainly reveals Illich's heavy emphasis on the text, it also shows him willing to lift his head from the page on occasion and take in some of the scenery.

47. Heim, Electric Language, p. 113.

48. Ibid., p. 106.

49. Denise Troll (1990). "The Illiterate Mode of Written Communication: The Work of the Medieval Scribe." In Richard Enos, ed. Oral and Written Communication: Historical Approaches. London: Sage, p. 102.

50. Ibid., p. 99.

51. Ibid., p. 103.

52. Ibid., p. 98.

CHAPTER SIX

1. For example, Illich notes in H2O and the Waters of Forgetfulness (Berkeley: Heyday Books, pp. 57-59) that heightened sensitivity to odor in 18th-century Paris prompted the first installation of separate latrines -- at least on special occasions -- for men and women. By the end of the century, Marie Antoinette had a door installed to make her own defecation private. At around the same time, the bidet came into fashion; ventilators were installed in prisons to help reduce the stench of knee-deep filth; and social advance became associated with increased cleanliness.

2. Robert Livingstone (1978). Sensory Processing, Perception, and Behavior. New York: Raven Press, p. 19.

3. Diane Ackerman (1990). A Natural History of the Senses. New York: Random House, p. 302. Unfortunately, this is not in fact a history of the senses, at least not of the chronologically-ordered type one might expect. It is closer to a physical geography in which the author -- as both poet and scientist -- travels the universe of the body and celebrates the world of the senses. Ackerman does frequently dip into cultures past, but she does not try to sustain a particular historical argument with the many fascinating insights she gains from this.

4. David Howes (1990). "Controlling Textuality: A Call for a Return to the Senses." Anthropologica XXXII, p. 69. Howes is arguing here against the "textual fetishism" that he says was sparked by Clifford Geertz's emphasis on "reading" cultures as if they were written texts (Ibid., p. 53). The concept of learning to be "of two sensoria at once" comes from the work of pre-Geertzian anthropologist Rhoda Metraux.

Examples of sensory-oriented anthropological research -- by other members of the Concordia Sensoria Research Group -- are included in the same issue of Anthropologica:

> These essays take the "construction" (in Metraux's sense) of the sensory models or ratios of the cultures concerned -- Hindu, Hausa, Moroccan and Andean -- as their primary object and then seek to demonstrate how these models inform the discourse and practices of everyday life in the cultures under study (Ibid., p. 70).

Howes mentions that "the path of the senses" can also lead to alternate modes for presentation of ethnographic findings:

> Such "experiments," beyond writing, include having students prepare an ethnographic meal, or stage a ritual, as has been tried by an innovative group of professors at York University. This example deserves to be followed (Ibid.).

5. David Howes (1988). "The Shifting Sensorium: Walter J. Ong S.J. and the Critique of Textual Fetishism in Contemporary Anthropological Theory." Paper presented at the 12th International Congress of Anthropological and Ethnological Sciences, Between Semantics and Rationality Symposium, Zagbreb, Yugoslavia, p. 23.

Interestingly enough, there is evidence at the neurophysiological level for the classic assumption of transformation theory of the concept of sense ratio. For example, vision and and the "sixth sense" of proprioreception can compensate or substitute for one another if one of them fails. (Proprioreception allows the unconscious monitoring and adjustment of the movable parts of the body.) Thus, neurophysiologist Oliver Sacks (1970) describes the case of Christina, "the disembodied lady," who suffered a profound proprioreceptive deficit but was able to compensate to a degree by hyper-concentration on watching herself move (Oliver Sacks, 1970. The Man Who Mistook His Wife For a Hat. New York: Harper & Row, pp. 43-54).

6. See, for example, Michel Feher, Ramona Naddaff, and Nadia Tazi, eds. (1989). Fragments for a History of the Body (3 vols.). Cambridge: MIT Press. According to an anonymous review in the summer, 1989 issue of Whole Earth Review (no. 63, p. 33):

> The theme is the body as cultural construct -- so the authors explore how mental and physical capacities are entwined in the body, shaped to the particular moral and social circumstances of the time. Part One emphasizes the body's relationship to the divine, Part Two its relationship to the soul and the emotions, and Part Three the relationship of body organs to the larger social body.... Part Three ends appropriately with a fascinating 100-page annotated bibliography of texts related to body history (a work-in-progress by Barbara Duden, who is working with Ivan Illich at Penn State on the subject).

Topics covered range from perceptions of the body in ancient Gnosticism, to the female body in the Middle Ages, a history of automata, and ancient theories on semen and blood.

Other historical/phenomenological sources on the body include Armstrong (1983), Johnson (1983), Johnson (1987), Kroker (1987), and Levin (1985).

Other articles on the body are to be found in the same issue of Whole Earth Review.

7. Barbara Duden (1987). "History Beneath the Skin." Unpublished paper, Penn State University, p. 1.

8. Ibid.

9. Ibid., p. 2. Duden's work involves analysis of the diary of an early 18th-century physician, Dr. Johann Storch. This diary reports on the perception, discussion, treatment, and description of women's bodily pain and discomfort. The difficulties Duden encountered in analyzing this material, later printed as medical case histories, led her to claim the body in women's experience as "a legitimate theme for historical research" (Ibid., p. 1).

Duden's emphasis on "history beneath the skin" seems parallel with Morris Berman's (1989) appeal for the study of "corporealite": "a visceral approach to history that puts the mind and body back together again" (Morris Berman, 1989. Coming to Our Senses: Body and Spirit in the Hidden History of the West. New York: Simon and Schuster, p. 134).

10. Stefan Baldurrson (1989). Technology, Computer Use, and the Pedagogy of Writing. Diss., University of Alberta, pp. 91, 92.

11. Kenneth Shapiro (1985). Bodily Reflective Modes: A Phenomenological Method for Psychology. Durham: Duke University Press, p. xvii. Quoted in Ibid., p. 92.

The phenomenological understanding of "body" is in harmony with the word's original etymological meaning. According to Johnson (1983), quoting from the Oxford English Dictionary, "body"

> ...is derived from the Anglo-Saxon "bodig," the old High German "botah," and the German "bottich," which means a cask, a brewing tub, or a vat. Throughout its 1200-year history, the word's primary meaning has been "the whole material organism viewed as an organic entity;" "the material being of man as the sign and tangible part of his individuality, taken for the whole;" the "person," as in the 1549 Book of Common Prayer ("With this ring I thee wed...with my body I thee worship"). Or, as John Locke wrote: "One angry body decomposes the whole company" (Don Johnson, 1983. Body. Boston: Beacon Press, pp. 10, 11).

12. Ibid. What all this means, says Baldurrson, is that memory, for example, occurs as much in the body as in the brain. When Jean Cocteau writes of returning to the village of his childhood, for instance, he tells of how he bent down to let his hand trail along the walls of the houses at the same height as when he was a boy. When he did this, the past came flooding back to him, complete with memories of specific objects, names, sounds, smells. In this example, Baldurrson argues,

> ...it is the poet's finger, and not the brain, which retrieves the memory. The finger retrieves the trace of his memory by retracing its original gesture in a touching of the wall. Cocteau manages to "gather" an

> entire childhood past through a "care"-full gesture of the hand. He learned to become attentive to the deeply felt pre-ontological understanding of his body (Baldurrson, p. 95).

13. Ackerman, p. xix.

14. Michael Heim (1987). Electric Language: A Philosophical Study of Word Processing. New Haven: Yale University Press, p. 14.

15. Robert Romanyshyn (1989). Technology as Symptom and Dream. New York: Routledge, p. 110.

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APPENDIX

A. Description of the Conceptual Map

It may prove helpful to devise some sort of conceptual map, a sketch of the territory that brings some of the primary questions of a sensory-oriented communications history into stark relief. A rather elementary proposal for such a map -- as laid out step by step in Illustrations 1 to 3 -- will be offered here. This map relates only to the history of the alphabet; i.e., it follows Illich in looking at Western cultural history as a series of epochs characterized by specific ways of reading, writing, and publishing.

As Illustration 1 indicates, a map for the communications history of the senses might well begin with accepted epochal distinctions between orality, chirographic literacy, typographic literacy and electronic digitality. The proposed circular format is not intended to suggest an implicit teleology, nor a simple McLuhanesque reversion of electronic culture back into tribalism. Instead, it is offered as a way of representing, on a two-dimensional plane, the four epochs in close and integral inter-relationship. It should be noted here that epochs yet unknown may well follow the electronic, and also that epochs yet unacknowledged may well precede the oral. In addition, it should be recognized that the four epochs are cumulative rather than successive; i.e., each new epoch does not replace the preceding, but rather adds onto it

a new "layer" of complexity.

Illustration 2 adds to the basic map a set of distinctions between:

1) the lived experience of textual production;

2) the lived experience of textual reception; and

3) the lived experience of textual transmission.

These categories draw attention to the fact that the activities we think of as "reading," "writing" and "publishing" may well represent radically different sensory experiences from epoch to epoch. The reference to "lived experience" is intended to suggest the concern with bodily rather than socio-political characteristics. However, these should not be seen as mutually exclusive; the best scholars will have a sound understanding of both.

Illustration 3 fills in tentative conclusions as to the dominant sense organs involved in each of the three levels of textual activity, for each of the four epochs. As indicated, orality seems to involve the domination of the <u>mouth</u> at the level of textual production and of the <u>ear</u> at the level of textual reception. The domination of the mouth should not obscure the fact that textual production was also gestural, and thus included the entire body. The domination of the eye should not obscure the fact that textual reception also included the entire body, and especially the eyes given that oral individuals presumably look at one another while they speak. The operation of "secondary" or "corrective" senses are

noted in brackets: at the level of textual production, the ear, to receive messages of confirmation or challenge on the part of the listener(s); and at the level of textual reception, the mouth, to issue such messages to the speaker(s). Oral transmission of "text" -- in its original etymological sense of "something whose value lies in being woven together by way of a complex texture of cross-reference and systematic consistency"[1] -- occurs mainly through the medium of mnemonically-structured speech.

The shift from orality to chirographic literacy seems to involve a shift to the domination of the hand in textual production, and to the domination of the eye in textual reception. Again, this does not mean that textual production involves only the hand, or textual reception only the eye; the text of gesture obviously continues into chirographic cultures, as well as into typographic and electronic cultures. The corrective senses here are the eye for textual production and the hand for textual reception: the eye to check the formation of the written letters and the hand to actually correct them. The handwritten text itself, as frozen speech, no longer allows immediate interpersonal challenge or correction. But textual transmission continues to occur through speech until the 12th century when the author who dictates to a scribe is replaced by the author who is actually able to write. To the extent that chirographic literacy and residual orality are synonymous, speech might be expected to

retain some of its mnemonically structured character. This tendency toward formula would also be expected to carry over into writing.

Chirographic literacy and typographic literacy are continuous to the extent that the eye continues to dominate at the level of textual reception. At the level of textual production, the domination of the hand seems to continue until the emergence of the typewriter which potentiates the electronic shift from hand to fingers. The corrective sense for textual production remains the eye, to check the formation of the letters in the case of writing and to check the accuracy of the letters in the case of typewriting. The corrective sense for textual reception is the hand in the case of writing and the fingers in the case of typing. The hand, however, continues to play a limited role when the rather primitive means of liquid paper is used to correct typed mistakes. The most socio-politically dramatic characteristic of the typographic shift, of course, comes not with the emergence of the typewriter but rather with the emergence of the printing press. Thus, the rise of the printing press around 1500 is conventionally identified with the beginning of typographic literacy; it represents a shift in textual transmission from handwriting to mechanical reproduction.

During the electronic epoch, which is usually assumed to begin during the early 1980s, the domination of the fingers in textual production continues,[2] as does the domination of the

eye in textual reception. However, the device of the "mouse" creates a new, distinctively electronic possibility for textual production using the hand; the mouse is not used for the direct formation of letters but still for the quasi-manual shaping of electronically-mediated text. The corrective senses do not change, but transmission now occurs through electronic rather than mechanical mediation. This makes possible the by-now cliched observation that every writer becomers his/her own publisher. It also delays the interval between writing and publishing from months or years to seconds.

B. Implications

Future studies in the communications history of the senses must continually strive to return to the original phenomenological "freshness" of experience rather than to the accepted cliches of existing scholarship. In addition, such studies must be careful to acknowledge which textual dimension -- production, reception, or transmission -- is being addressed; and then, not to make epochal generalizations based on the phenomenological dynamics of that one dimension.

A prime example of such misleading generalization is to be found in the conventional understanding of the shift from orality to literacy. While conventional wisdom styles this transition as involving a shift from the dominant ear to the dominant eye, this obscures the fact that there was also, as

mentioned above, a shift from mouth to hand.[3] The ear-to-eye shift, in other words, assumes only the dimension of textual reception. It ignores the dimension of textual production, in which the hand begins to supplement the mouth as a means of specialized "wordy" expression. The fine bodily-phenomenological implications of this shift have yet to be explored.

Just as important, in relation to the dimension of textual production, is the currently occurring shift from hand to fingers. More specifically, it is no longer the analogical movement of the entire hand that creates text, but rather the movement of the digits, i.e., the fingers. At a perceptual level, the fingers are no longer experienced as giving commands to a machine, but rather as enabling interaction with an environment, or even with another mind. Given the phenomenological conviction that thinking is a bodily activity, and not an activity specific to the brain, what are the implications of this shift for experience? If the hand really "contains the essence of human being,"[4] as Heidegger suggests, then what is lost when the hand no longer plays a central part in word-making? Conversely, since the fingers are indeed part of the hand, is it really the shift from hand to fingers that is so important, or rather the shift in type of movement from analogic to digital? Does this particular "difference" have anything in common with the difference between, say, playing the violin and playing the piano; or

between telling time from an analogical or digital clock?

C. Conclusion

In conclusion, the whirlwind review offered here does not come close to doing justice to the actual complexities. Although many questions remain unanswered, the proposed map may nonetheless be helpful: even if only to orient newcomers and to challenge seasoned scholars with a few new questions.

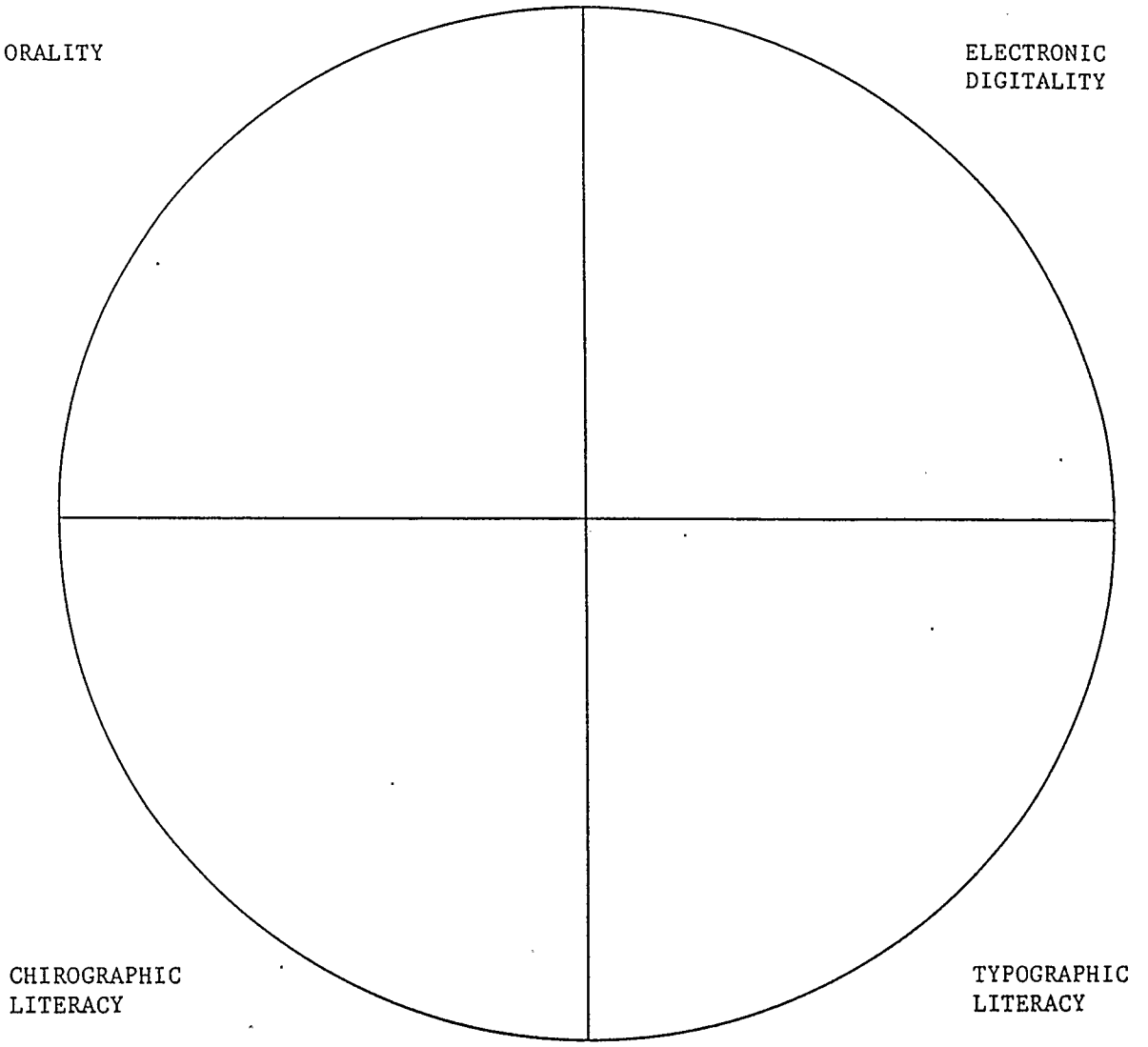
ENDNOTES

1. Michael Heim. 1987. Electric Language: A Philosophical Study of Word Processing. New Haven: Yale University Press, pp. 111, 112.

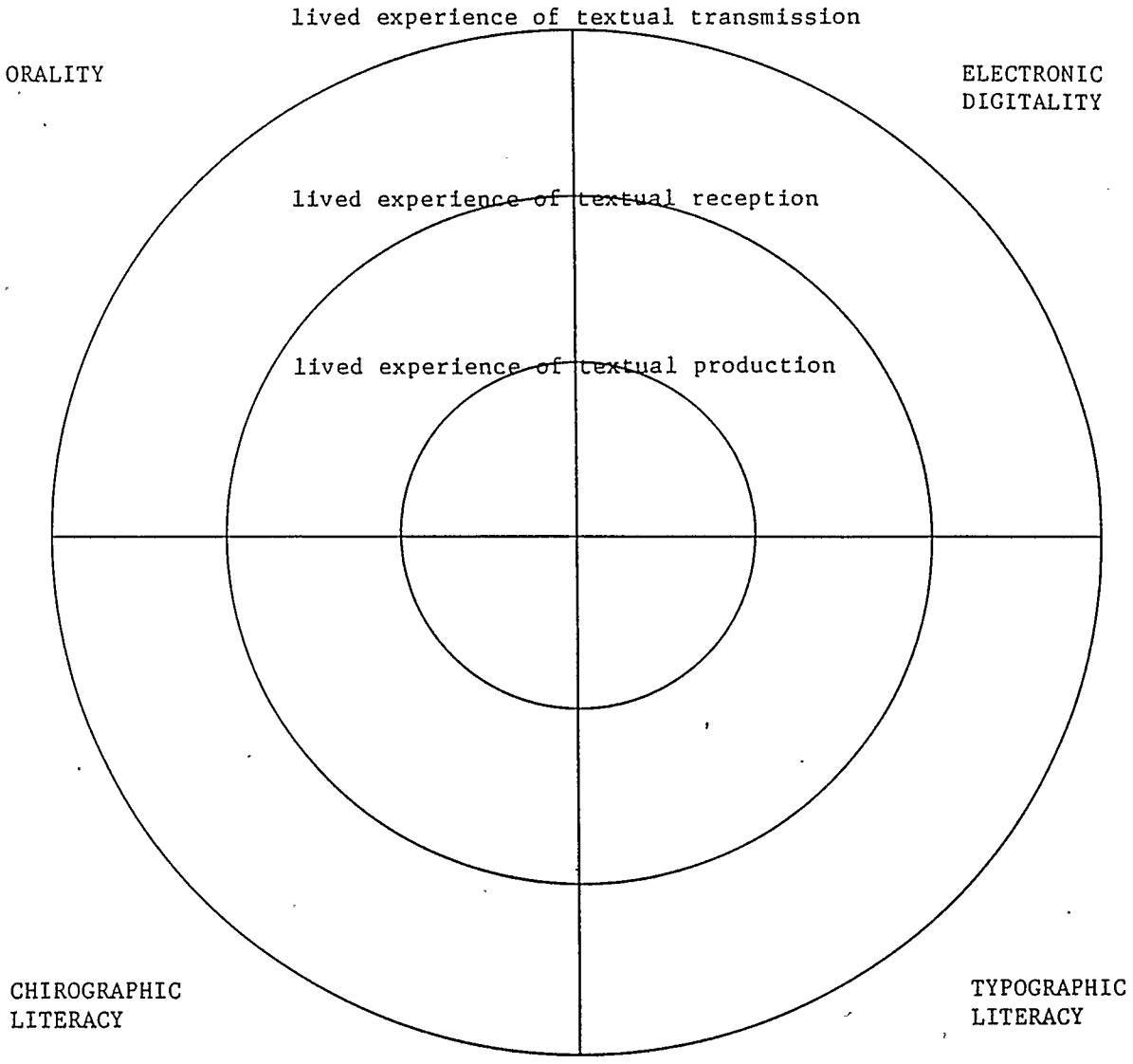
2. Once electronic text production via dictation becomes common, the role of the mouth will again come into the fore. This possibility would provide Walter Ong's term "secondary orality" with a new layer of meaning.

3. One scholar who does acknowledge both the shifts from ear to eye, and from mouth to hand, is Tom McArthur (1986). Worlds of Reference: Lexicography, Learning and Language from the Clay Tablet to the Computer. Cambridge: Cambridge University Press, p. 7.

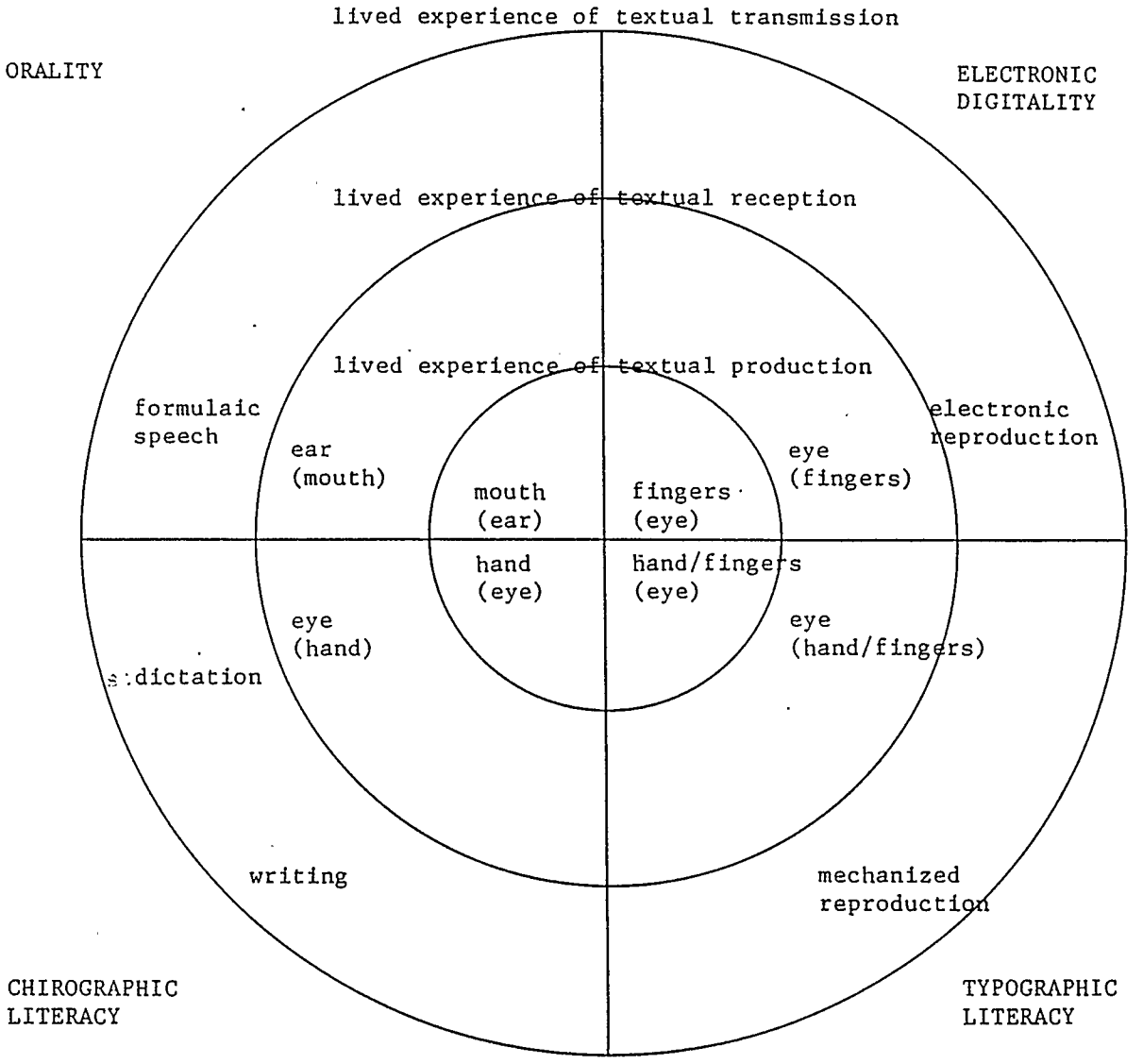
4. Martin Heidegger (1942-1943/1984). Parmenides. Frankfurt: Klostermann, p. 118. Quoted in Heim, p. 195.



THE ALPHABET THEN & NOW
A TYPOLOGY
ILLUSTRATION ONE



THE ALPHABET THEN & NOW
A TYPOLOGY
ILLUSTRATION TWO



THE ALPHABET THEN & NOW
A TYPOLOGY
ILLUSTRATION THREE