Chapter 3: Foundational Literature in Media Ecology

The world that God created understandably troubles us today. ... Some are inclined to blame our present woes on technology. Yet there are paradoxes here. Technology is artificial, but for a human being there is nothing more natural than to be artificial.

Walter Ong

Media ecology is the study of the interrelationships among culture, technology, and communication.2 “It is the study of media as environments, the idea that technology and techniques, modes of information and codes of communication play a leading role in human affairs.”3 The approach of media ecology as a sub-discipline4 in communications studies, like the entire field, is relatively young. The first academic program to bear the name was New York University’s doctoral program in Media Ecology in 1970, founded by English education professor Neil Postman.5 Postman notes the term was originally inspired less by the modern understanding of “ecology” than the biological metaphor recalling a petri dish.6 The “medium” was substance placed in the dish in which to grow the “culture.” Taking that substance to be

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4 Casey Man Kong Lum prefers “theory group.” Man Kong Lum, Perspectives on Culture, Technology and Communication: The Media Ecology Tradition, 6. As well, he convincingly shows that the mainstream communications research guild has largely ignored or at least been ignorant of media ecology as a recognized sub-discipline of communication studies, a list that more commonly includes areas like: critical studies, rhetorical studies, interpersonal communication, organizational communication, political communication, mass communications. (examples taken from Hollihan, “NCA Doctoral Program Reputational Study”, 2004
5 Man Kong Lum, Perspectives on Culture, Technology and Communication: The Media Ecology Tradition, 2.
“technology,” a medium becomes, by definition, a place where culture (in this case, human) grows.

But further etymology of the word contributes. Postman notes that Aristotle used ecology to mean “household,” and commended keeping it in order. Adjoined to the modern usage (attributed to Ernst Haeckel in the late nineteenth century) concerning the balance of the natural world, Postman suggests that media ecology was intended to be a study that retained a critical eye toward ordering the technological environment; making moral judgments about its balance or imbalance, positive or negative effects.

Not all would nod agreeably with his latter point, but Postman is not the only name with “founder” status. In fact, here we’ll tend towards his mentor, Canadian public intellectual Marshall McLuhan and St. Louis University language theorist Walter Ong. These two and their interpreters have provided the broadest contribution to the thought in this study, although we’ll hope to meet a few others (and the room is crowded) briefly.

Marshall McLuhan

The most well known scholar in the room is certainly Marshall McLuhan, whose aphorisms and cultural commentary in the 1960s repeated their way into popular culture enough for Bartlett’s Familiar Quotations to record two of them “The medium is the message,” and the one that is remembered by its last two words, “The new electronic interdependence recreates the

7 As we’ll note shortly, Marshall McLuhan disagreed with Postman’s strong lean towards making moral judgments about media, although he did purport a view of ecological balance. McLuhan’s view of balance, however, was in conversation with the individual sensory perception of media. Postman’s had a socio-political and prophetic tone— often towards the failures United States public education system and the impending negative effects.

8 In addition to James Carey, who will receive brief treatment below, important names unmentioned might include: Harold Innis, Elizabeth Eisenstein, Jacques Ellul, Christine Nystrom, Camille Paglia, Eric Havelock, and Susanne K Langer. Interpreters for the current generation might include Lance Strate, Paul Levinson, Casey Man Kong Lum and Paul Soukup. See also Lance Strate, “Media Ecology as a Scholarly Activity,” in President’s Address (presented at the Third Annual Convention of the Media Ecology Association, Marymount Manhattan College, 2002).

9 Actually Herbert Marshall McLuhan
world in the image of the global village.”\textsuperscript{10} Because these phrases were as likely to appear at cocktail parties as scholarly journals, journalist Tom Wolfe in 1965 asked if McLuhan might be “the most important thinker since Newton, Darwin, Freud, Einstein, and Pavlov”\textsuperscript{11} McLuhan interpreter Paul Levinson, after noting that Pavlov is misplaced on Wolfe’s list, insists that McLuhan is not.

A Canadian by birth, McLuhan’s academic home would become St. Michael’s College at the University of Toronto, which would spawn what media ecologists now call the Toronto School. His training, however began in Canada and moved to England, settling him with two bachelors, two masters, and finally a doctoral degree from Cambridge in 1943, all related to training in English Literature (his dissertation on the work of sixteenth century pamphleteer Thomas Nashe), but especially appropriating the work of contemporary authors, notably James Joyce.\textsuperscript{12}

\textbf{Key Works and Ideas and Interpreters}

Though he authored twelve full-length books and many academic articles, many said that McLuhan’s influence was most felt via his area of study: media. “As much as the media made McLuhan a popular icon, McLuhan made the media a popular subject,” write Strate and Wachtel, noting the dialectic. As “Canada’s Intellectual Coment” and the “Sage of Aquarius,” his writings and ideas evolved over years of interview and articles in everything from \textit{Newsweek} to the \textit{TODAY Show}.\textsuperscript{13} Yet his books set the intellectual foundation, and two should particularly

\begin{itemize}
  \item \textsuperscript{12} Lance Strate and Edward Wachtel, eds., \textit{The Legacy of McLuhan} (Cresskill, NJ: Hampton Press, 2005), 5. James Joyce’s environmental approach to writing literature affected McLuhan’s theories, but also the disconcerting immersive literary approach McLuhan would later adopt as his writing style.
  \item \textsuperscript{13} Marshall McLuhan on the \textit{TODAY Show} (Today Show, 1976), http://www.youtube.com/watch?v=ZF8jej3j5vA. (1976 – see Bibliography) is a late example, three years before a debilitating stroke in September 1979. (Strate and Wachtel, 8)
\end{itemize}
noted. Though his first book *The Mechanical Bride: Folklore of Industrial Man* (1951) examined cultural forms, the influence of the dean of Toronto’s graduate studies, Harold A. Innis, lead McLuhan to adjust his focus in media studies to the medium itself, leading to the first of his most influential volumes, *The Gutenberg Galaxy: The Making of Typographic Man* in 1962. Examining the influence of the printing press, McLuhan asserted that that typography altered language, created national uniformity (but also individualistic resistance to their governments), and desacralized life. Tracing intellectual history from *King Lear* through *Finnegans Wake* (the professor of literature evident), his emphasis on the impact of Gutenberg cast a trajectory that also caused him to label, even early in this thought, the coming “global village.”

But his 1964 work *Understanding Media: The Extensions of Man* was McLuhan’s “single most important work.” Here his revolutionary understanding of media forced the word into common usage (previously more commonly “press” or “speech”) and simultaneously expanded its definition. A medium becomes any extension of a natural human faculty, either mental or physical. The vehicle (more precisely, the wheel) is an extension of legs and feet. An axe can extend an arm. Both the axe or the wheel are technological mediums. But so are the more mental extensions such as the alphabet and subsequent print, which extend human thought, or forms we now associate with the term, such as radio, and TV, which McLuhan would say are extensions of our central nervous system. W. Terrence Gordon, editor of the most recent critical edition of *Understanding Media*, notes several additional themes in the work that are helpful to summarize here. First, the content of a medium is always another medium. The telegraph

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15 Ibid., 31.
17 Ibid., 2.
19 *Understanding Media*, xiv.
encodes the medium of the printed word, which contains the alphabet, which contains human speech, which contains human thought. The impact of messages therefore are obscured, making the container—the medium—the message. Secondly, new media do not replace prior media but modify or obscure them. The printing press does not replace manuscript handwriting, but alters the way it is used. These first two themes will form a backdrop for our look at Scripture’ mediated character. The digital character of Scripture is not a neutral transition but inherently alters the way it is appropriated and its content is perceived. And looking in reverse, the transition to digital scripture does not eliminate print, but modifies the role and function of print. Thirdly, some media contain a high level of data, and could be classified as “high definition,” or what McLuhan would call hot, such as print or movies. By contrast, other media are low definition—or cool—and therefore require the physical senses to engage more heavily to fill in missing data, such as the telephone or cartoons. Fourthly, the effect of adding a new medium or extension to human function is one of numbness—we don’t feel its effects until later.

Late in his thought (posthumously published by his son Eric), McLuhan developed a tool for systematic analysis of media: the Laws of Media “tetrad.” Sensitive to criticism that his prophetic cultural voice had no discernable method, he began a project to find a set of testable statements that applied universally to media. The resulting heuristic device was the tetrad, which Eric McLuhan claimed (perhaps hyperbolically) as the “single biggest intellectual discovery…of the last couple centuries.” Still, the resulting distillable insights are at the very least significant starting points. Each tetrad answers four questions about the medium under consideration:

1. What does it enhance or intensify?
2. What does it render obsolete or displace?
3. What does it retrieve that was previously obsolesced?
4. What does it produce or become when pressed to an extreme?

By virtue of simple example, see the figure which gives McLuhan’s tetrad evaluating the “high-rise apartment building.” More complex evaluations include the credit card or computer or

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20 McLuhan and McLuhan, Laws of Media, ix.
21 Ibid., 6, 98-99. The later reference expands the brief wording of each question.
Aristotelian Causality. Of course, McLuhan himself never published an evaluation of the millennium technologies we will be examining here—digital technologies of social media, mash-up, cultural memes—and so the explanatory power of the tetrad may be tested.

The reaction to and extension of McLuhan’s thought at the time was significant, but after his death in 1980, it lulled for a time until the mid-nineties and appearance of the Internet which revived interest and spawned republication of his writings that had lapsed from print. Notable interpreters include W Terrance Gordon, who completed a major biography on McLuhan, and Paul Levinson, whose *Digital McLuhan: A Guide to the Information Millenium* provides us with starting points for new adaptation of McLuhan’s theories throughout this presentation. However, the title may be ambitious—the 1999 work covers the basic Internet and computers, but leaves us almost completely on our own on crucial phenomena with perhaps the highest cultural and theological potential—namely social media.

**McLuhan and Theology**

Notable for our purposes, McLuhan became an adult convert to Roman Catholicism in 1937 while finding one of his first teaching jobs at the premier Jesuit institution of St. Louis University, a post he held for six years. First influenced by G.K Chesterton, here he studied Thomas Aquinas. And though McLuhan’s work would never be labeled Christian in nature, he commented enough on the relationship of the Church to communication and culture that a posthumous compilation *The Medium and the Light: Reflections on Religion* was released by his son Eric McLuhan. True to form, much of these reflections noted the assumed cultural settings of church history in both the East and West as well as the context of academic theological

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22 A rather comprehensive survey of literature and criticism of McLuhan can be found in Strate and Wachtel, *The Legacy of McLuhan*, 8-11.

23 Levinson, *Digital McLuhan*.

24 Strate and Wachtel, *The Legacy of McLuhan*, 4. He actually held the position from 1937-1939, visited to Cambridge to complete his PhD, and returned to St. Louis from 1940 until 1944. His following post took him to Canada as the head of the English Department at Assumption College.
thought. Indicting in particular the Council of Trent and Vatican II, McLuhan’s repeated lament was that theologians appeared “hopelessly unaware” of the cultural context they faced.25

**McLuhan’s Method**

Critiques of McLuhan’s thought often indict his method—or its apparent lack. Gordon lists critical reviews of *Understanding Media* that include descriptors like “crystal balls,” and “incoherent.”26 But though it seems that at the publication of the *Laws of Media*, the critique had produced some change in course, McLuhan and later students defended his approach and style as important as his content. We note it here because environmentally, it has certainly had an effect on this study. Three aspects are worth noting:

- **Probes and explorations.** Rather than discuss “concepts and precepts,” McLuhan suggested instead that his thoughts were “probes and percepts.”27 They did not sort as much as discuss, turn, and discuss again. Multiple viewpoints at one time were acceptable.28

- **Prophetic voice.** There is an element of futurism to McLuhan’s work that can be judged as intellectually irresponsible,29 yet reading his works gives one the sense that he was not living in the 1950s or 60s but at the turn of the millennium in an information age. The gap is hard to account for other than something going quite right; despite the criticism, Walter Ong writes, “A dismaying number of his ‘generalizations’ turned out to be true.”30 It also leads by example into an approach that is free to imagine the future, an ability that McLuhan pointed out, does not belong to the common person (they see

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28 This might be illustrated by the way McLuhan structures his books. *Understanding Media*’s second section exemplifies McLuhan, who writes a different chapter examining the media-like extensions of the written word, clothing, housing, money, comics, wheel, phonograph, weapons, and more. The chapters do not serve as proof of his previous thesis, and although they vaguely follow a media history, they are not a history. They are instead twenty-six interdependent ways to look at nearly the same idea, with little attempt at harmonization.
29 An article defending against such claims notes G. K. Chesterton’s assertion, “The highest use of the imagination is to learn from what never happened.” As a favorite of McLuhan, there was a natural link between the two thinkers. See McLuhan, *The Medium and the Light*, 7.

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only the past), nor the prophet (they alone truly see the present), but the artist.\textsuperscript{31}

- **Pattern recognition.** Lance Strate notes that McLuhan believed in flooding his readers with a flood of information—a “chaotic maelstrom.”\textsuperscript{32} The result was complex sentences, repeating paragraphs and unique page layouts that feel more at home to an Internet user than McLuhan’s implied reader forty years prior.\textsuperscript{33} *The Medium is the Massage* is a visual mash-up that places black and white photography in juxtaposition with text on the opposing and previous pages. Published three years after *Understanding Media, Massage* presents the same basic concepts by visually jarring patterns that force the reader to try to “figure out” the book. Pattern recognition—the ability to understand the implications of how the arranged elements are arranged—remains a key approach in media ecology and a pedagogical must in the digital age.\textsuperscript{34}

**Walter Ong**

During McLuhan’s tenure at St. Louis University, he supervised a young Jesuit named Walter J. Ong who studied the rhetoric of Peter Ramus.\textsuperscript{35} Ong’s later work on the history of literacy would establish his own significant credentials and his own list of devotees. Established at St. Louis University as a professor of English, Ong’s work followed an interdisciplinary track that caused his students to dub it “Onglish” instead, and changed his appointment to “University Professor,” reporting to no particular field chair.\textsuperscript{36} We’ll first look at his most significant contribution via his 1982 publication *Orality and Literacy: The Technologizing of the Word*, then look at his studies’ intersection with theology.

\begin{thebibliography}{99}
\bibitem{32} Strate and Wachtel, *The Legacy of McLuhan*, 4.
\bibitem{33} McLuhan’s enjoyment of James Joyce is evident.
\bibitem{34} This book is ironic, because I wonder if a digital generation would understand it better than the age it was published, or else it only goes “part-way” in its ability to illustrate its thesis because it must explain multi-threaded principles in a linear fashion. Pattern recognition is an underdeveloped skill in a print generation that is used to only one standard pattern: linear arguments that travel from front to back, early to late. In linear arguments, gaps or holes are detrimental to the argument. In pattern recognition, they are insignificant.
\bibitem{35} Ong, *Faith and Contexts*, Vol 1, 1:11.
\end{thebibliography}
Orality and Literacy

Though he was not the first to introduce the theories (McLuhan and Eric Havelock have some claim),37 Walter Ong’s detailed work on primary oral cultures firmly established the framework of literacy theorems that form a guiding meta-story within media ecology, the “epochal historiography of media.”38

Orality, as the first epoch, is period of human history before the invention of the alphabet. As the cultural home of the poet Homer,39 or the curators of the Old Testament, we struggle to understand a world without chirography, especially as its historical visibility relies on oral stories eventually being recorded to print. But the “psychodynamics” of orality are detectible and quite different from later ages, argues Ong. “To look up something,” he writes, “would have no conceivable meaning.”40 Thinking would be done aloud, and often with a partner instead of a text for interaction (thus a Socratic dialogue). In order to retain thoughts, they must be “memorable”—so repetition, alliteration, and wordplay were not simply stylistic, but essential to knowledge being passed on. Language was additive—“ands” tack on more, and do not necessarily create a subordinate idea or structure. Language was redundant, looping back to repeat often what was most important. Language was conservative—valuing continuity with the past. Language was agonistically toned and combative—with ideas never divorced from the mouth that spoke them. Language was situational instead of abstract. And language favored narrative with stereotypical characters, again, for memory’s sake.

The invention of writing entirely “restructured human consciousness,” asserts Ong.41 With a new ability to record knowledge on a printed page, memory would take a new a role. While words do not become pure symbols until print, handwriting still created an abstract

38 Man Kong Lum, Perspectives on Culture, Technology and Communication: The Media Ecology Tradition, 35.
40 Ibid., 31.
41 Ibid., 77.
relationship to language, allowing for ideas free of the context of a particular person. This second epoch of “literacy” typically existed as craft literacy—writing being the purview of the public minority of scholars, priests, or slaves trained as scribes. But the cultural ability to store and transmit information fundamentally changed civilization, allowing linear thought, private consciousness, and greater precision.42

The studies on the third epoch are now many and they surround the advent of the print press. While Elizabeth Eisenstiens’ two volume work The Printing Press as an Agent of Change43 may be the most comprehensive detailed study of the time (i.e. the fifteenth and sixteenth centuries), Ong’s work suggests that the invention of moveable type “reified the word.”44 Aside from enormous socio-political effects that gave the vernacular public access to information, Ong elucidates another string of resulting phenomenon: silent reading, information retrieval by alphabetization or the index, book titles, typographic space, charts, private ownership of words or ideas (copyright law), and fixed point of view.45

Ong’s primary work only hints at the last epoch, the advent of the electronic period marked by most scholars at the invention of the Samuel Morse’s telegraph in 1846.46 The technology spread shockingly fast; in just four years (1850), 12,000 miles of telegraph wire were operated by twelve companies; in 1852 an English Channel line linked London and Paris. By 1861, California was connected to the rest of North America, shutting down the Pony Express.47 This last event was representative—for the first time in history, human transportation and human communication were decoupled. The move through telephone (1880s), radio (1920s), and television (1950s) is the shift into new media and is the setting that gives Ong his influential

42 Ibid., 75-114.
44 Ong, Orality and Literacy, 117. By “reify” Ong means that words become “things” separated from their human origins and objects able to take on properties.
46 Less-known are the pre-cursors to the electric telegraph that used a similar principle, especially in France. See Headrick, “The Optical Telegraph”
47 Standage, “The Victorian Internet,” 132.
observation that the new electronic speech has elements of both oral and literate cultures: a secondary orality.\textsuperscript{48} We’ll deal with this more directly in later chapters.

Ong’s theorems provide an important setting for our discussion of scripture in a digital culture, and ahead we’ll think of scripture in each of these epochs: oral, chirographic, print, and electronic. However, because of his role as a priest as well as scholar, Ong gives us some direct reflection on the intersection of communication media and theology.

\textit{Ong and Theology}

Paul Soukup, S.J. likely ranks as Walter Ong’s primary interpreter,\textsuperscript{49} and as his former student and fellow Catholic priest, is particularly qualified to explicate Ong’s theological worldview: “the human word related to God’s word and hence to God’s world.”\textsuperscript{50} As a theologian, the analogy of the Word proper was central. Ong’s best known \textit{Orality and Literacy: The Technologizing of the Word} were preceded by two previous volumes on the “word,” \textit{The Presence of the Word: Some Prolegomena on Cultural and Religious History} and \textit{Interfaces of the Word}.\textsuperscript{51} He restates his orienting question in \textit{Faith and Contexts}, a compiled volume of Ong’s essays especially on Catholic theology:

The word on a piece of parchment or paper, the written word—in what sense can this be the word of God when the Incarnate Word of God is not merely something else, but Someone else, to whom all creatures are subservient in heaven and on earth, including bits of parchment or paper with writing on them?\textsuperscript{52}


\textsuperscript{50} Paul A Soukup, “Orality and Literacy 25 Years Later,” 186.

\textsuperscript{51} Ibid., 175.

\textsuperscript{52} Ong, \textit{Faith and Contexts}, Vol 1, 1:158.
It’s particularly his theological convictions that sparked Ong’s interest in oral cultures. For Ong, sound as a medium has a central place in human communication, above other senses. This assertion came from observation—he viewed sound as having the most direct link to human words and thought.53 But one gets the impression that his theological study had first convinced him this would be true. “Eo Verbum quo Filius”—“He is Word by the fact that he is Son”—was the Thomistic link between speech and the second person of the Trinity,54 and Ong quotes this as support for oral priority. Jesus himself, though he could write, instead chose to leave oral tradition, he insists.55

This explains the tones of disappointment laced through Ong’s description of the change in culture in Roman Catholic seminaries that, in the late 1960s, were discarding the methods of oral disputation in Latin. His later description of primary oral cultures as “agonistically toned” is a positive characterization, with pedagogy in view. We have much reason to believe that our later appropriation of Ong’s characteristics to digital culture—a developing fresh form of orality—would meet his optimistic theological approach on sound. Technology for Ong was never the enemy, and always compatible with a high theological anthropology. “Technology can dehumanize us and at times has dehumanized us,” Ong writes, “but it can also humanize us. Indeed, technology is absolutely indispensable for many of our absolutely humanizing achievements.”—achievements that Ong saw in the process of theological scholarship itself.56

Additional Key Figures

That two additional names are only briefly mentioned is not necessarily resonant with their impact on the field, but simply their lesser impact on our study here. It’s likely that if time

53 Ibid., 1:156.
56 Ibid., 1:7.
allowed, much additional fruit would come from contemplation of the following figures and the question of scripture in a digital context.

**Neil Postman**

We’ve already noted his position as a founder of the media ecology discipline, and he stands out not only because of his significant catalog of works, but because of his insistence that moral judgments must be made on the effects of media on society. His Judeo-Christian background manifested rather differently than Walter Ong, using theological reasoning on caution against departure from the written word. Note specifically how he invokes “word” imagery, but clearly has “author” and “written word” in mind rather than Ong’s focus on audible speech:

I remind you of the implied prophecy in the Second Commandment of the Decalogue. It is the commandment that forbids Israelites to make graven images of any likeness of anything in the world. I take it that the author of that prohibition believed that the making of concrete, visual images would weaken the capacity of people to conceive of abstract ideas, specifically a God that has no material existence but exists only in the Word and through the Word.

Postman can be accused of taking a curmudgeonly stance toward newer technologies, emphasizing literacy over orality or post-literate oralities. His criticisms of technology-gone-wrong are centered on his ideas of ecological balance—that technologies unchecked first come to control us (“technocracy”) and eventually make us like them (“technopoly”). In evaluating media, Postman asks if it encourages rational thought (print does, TV does not), democracy, and the ability to decide whether information is meaningful. In wider scope, he asks, “To what

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extent do new media enhance or diminish our moral sense, our capacity for goodness?”61 The question of a moral theologian is answered by Postman rather decisively: Nazism, Communism, Fascism and countless wars were results of the twentieth century, the location of new media’s debut. In his words, “there lurks something dark and sinister.”62

**James Carey**

The University of Illinois communications scholar is possibly best known for his definition, “communication is a symbolic process whereby reality is produced, maintained, repaired, and transformed.”63 His “synthetic” approach wasn’t antagonistic, yet changes conceptions in both cultural and communication studies. Towards culture, he sided with Clifford Geertz to define culture as a “way of life rather than a hierarchy of taste.”64 Citing McLuhan’s reversal of figure and ground, Carey rejected transmission models of communication and established a cultural approach to communications.65 His most important work—also influenced by John Dewey—became his collection of essays aptly entitled *Communications As Culture*(1983).

Carey’s influence is foundational, but we will use only bits of his influence in this study. Most particularly, his interest in the role of journalism in the American political spectrum has emphasized the problem of disembodied media entities who communicate with no personal moral stake—for example, the VH-1 network.66 In this sense, we’ll agree with his critique of disembodiment while arguing that digital space is not inherently impersonal or spectral, and the

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62 Ibid., 68.
65 His preferred language is a “ritual model” of communication.
body of Christ, as personal and vibrant can be incarnated not corporally but digitally—a premise with which Carey might agree.  

**Media Ecology as Theory Group**

Having met some key voices, it may be helpful to summarize some of the key factors and assumptions of the media ecology approach—the first two are methodological:  

- **Inter-disciplinary.** While its own distinct theory group, media ecology naturally fits in the new world of academic inquiry that values systems and interrelationship. Forerunners in the field have had their traditional training in a variety of disciplines. Walter Ong said “interconnectedness is the mark of our age.” Depth is not valued as much as width.  

- **Exploratory.** Following McLuhan’s lead—who resisted building coherent theoretical systems—media ecology’s method typically describes or explores rather than making taxonomical or causal assertions. This naturally fits from an understanding of environment as irreducible and often invisible.  

- **Media content is a red herring.** Eric McLuhan referred to an approach to media focused on content or messages as “the old science.” The medium itself is the focus.  

- **Media is not TV news or Compact Discs.** Widespread use of the term “media” limits its use to journalism (most often short-form television journalism) or audio storage media. While both these are media, in media ecology, McLuhan’s definition of “extensions of humanity” reigns.

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67 An entity like VH-1 was never alive to begin with.
68 Much of the following (though not all) is summarized from the very helpful Man Kong Lum, *Perspectives on Culture, Technology and Communication: The Media Ecology Tradition*, 16-35.
69 As quoted by Man Kong Lum. Ibid., 16.
71 Marshall McLuhan’s first journal was entitled *Explorations*, and the current journal of the academic guild is entitled *Explorations in Media Ecology*. For a short discussion of the word “theorem” as used by media ecologists as opposed to other disciplines, see Gronbeck, “The Orality-Literacy Theorems and Media Ecology,” 339..
• **Media as sensorial and symbolic environments.** Human communication naturally works on two levels: the physiological use of senses like sight and sound, and the symbolic assignment of meaning to things like shared language. Media plays on both levels: for instance, at the sensorial level, digital podcasts allows us to hear things much further away than our natural hearing range. At the symbolic level, we learn and adapt to the symbolic cultural assumptions of a podcast in order to understand it. In both cases, we exist within the world created by the medium.

• **Media = environments = media.** If media can be understood as environments, than environments—transportation, living space, churches—can be understood as media. The insight is reversible.

• **Media are not neutral carriers.** While not requiring a judgment on positive or negative (though they are made), the medium itself has significant effects. It is not simply a carrier for content.

• **The structure of media creates biases.** Its physical and semiotic systems create realities. Different media carry different biases: intellectual, emotional, temporal-spatial, socio-political—resulting in epistemological biases.

• **Media biases have cultural consequences.** How much they affect the development of human culture is up for debate. Hard determinism insists media is the leading story in human affairs, while soft determinism acknowledges effects but gives more weight to human agency—with a spectrum existing between.

• **The history of orality-literacy-post-literacy is the most important meta-narrative of cultural consequence,** as we see outlined by Ong, McLuhan, Eisenstein, Postman and others. Although there are disagreements on how to interpret the epochs of history, nobody disputes their importance.

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73 Man Kong Lum, *Perspectives on Culture, Technology and Communication: The Media Ecology Tradition*, 28-34. The following bullet points (except the last) also adapt Lum’s summaries.

74 McLuhan and Harold Innis are often seen as hard determinists. James Carey, who prefers the verb “accompany” rather than “follow” to speak of the relation to social and technological change, takes a softer stance. See Gronbeck, “The Orality-Literacy Theorems and Media Ecology,” 340.