Part I

LITERACY AS A SCIENTIFIC SUBJECT

CHAPTER 1

The Literacy Episteme

From Innis to Derrida

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The significance of a basic medium to its civilization is difficult to appraise since the means of appraisal are influenced by the media, and indeed the fact of appraisal appears to be peculiar to certain types of media. A change in the type of medium implies a change in the type of appraisal and hence makes it difficult for one civilization to understand another.

Harold Innis (1950/1986, p. 6)

Samuel Johnson loved writing. From early on, he was a gifted and prolific writer. While working on his *Dictionary of the English Language*, he also regularly contributed to *The Gentleman's Magazine* and wrote a series of semiweekly essays in publications that ran under such titles as *The Idler* and *The Rambler*. For Dr. Johnson and his mid-eighteenth-century readers, it was common to view writing and reading as one of a gentleman's noblest pastimes. Besides, it was the art of writing and reading that distinguished man from uncivilized savages, as Thomas Astle, the Keeper of Records at the Tower of London, summarized the widespread opinion of the day in his *The Origin and Progress of Writing* (1784/1876).

Although clerical uses of writing had long been established practices in London's branch offices, commercial chambers, boards, courts, and navy colleges, for a true gentleman, reading and writing were seen as a form of amusement. It was what Bourdieu would have called a "clubby habitus," shared by that small fragment of the population that happened to have enough education to participate and enough time and money to indulge. Why would one spend one's leisure time dealing with *lettres*? In addition to pleasure, it provided distinction. In a time of long working days and hardship for most, what could be more representative of a privileged gentleman's status than sitting comfortably in an armchair and reading *The Idler*?

If we compare the world of letters and armchairs inhabited by Dr. Johnson and the readers of his *Gentleman's Magazine* to the state of the world today, it is obvious why it

has become next to impossible to give a clear and bounded definition of literacy: the array of phenomena referred to as literacy has become unclear and unbounded itself. Perhaps Dr. Johnson still could have included in his famous *Dictionary of the English Language* an entry on literacy such as "The quality or state of being literate; esp. ability to read and write; knowledge of letters; condition in respect to education." (He did not. The entry is from the current edition of the *Oxford English Dictionary*, which dates the first appearance of the term *literacy* to the 1880s.) In today's cultural semiosphere, however, not only the concept of literacy has exploded – or imploded, for that matter – but also all related concepts and ideas that might have been valid in Dr. Johnson's linguistic and social universe. The spectrum ranges from the idea that literacy is linked to a specific class, gender, educational status, and mental attitude to the very concepts of "dictionary" and "the English language" – as if there were one dictionary or one English language in a world where countless dialects in countless ethnic and cultural contexts serve a myriad of continuously evolving uses, enriching the language by hundreds of new entries every day.

Whereas the readers of *The Gentlemen's Magazine* could still choose whether they wanted to dedicate some of their time to the letters rather than to, say, hunting, dancing, or military services, today no member of any class or social field in a modern society has a choice at all: the ability to actively participate in the life of a modern society, including the common life, depends to a large extent on the ability to read and write. At the same time, these ways of participating have become infinitely more diverse and call for a variety of literate competences and practices (see Street, Chapter 18, this volume). They also include the new repertoire of literacy competences and practices that has emerged with the digital revolution: in the 1980s, with the public uptake of the computer; in the 1990s, with the rise of the Internet and the use of hypermedia; and, more recently, with the emergence of a networked information economy (see Dobson & Willinsky, Chapter 16, this volume). To be sure, in a developed culture of literacy, there is not much left of the "clubby" feel to reading and writing.

Literacy has not only become essential for all fundamental social, societal, economic, and political conditions under which we live, it also has become inextricably tied to our private, psychological lives, our diaries, our confessions, and our last wills and testaments. So pervasive is our involvement in literacy that such concepts as writing, reading, and text have become traveling concepts, theoretical metaphors, and methodological shorthands that have effortlessly crossed borders between disciplines and discourses. We read pictures, cities, landscapes, and decipher texts of cultures, lives, and minds. Recent decades have seen an unprecedented general interest in issues of writing – a general cultural concern with literacy and literacies that goes far beyond the waves of intellectual fashion. "The study of literacy," Wagner (1999, p. 1) concluded, "combines all the social science disciplines, from psychology and linguistics to history, anthropology, sociology, and demographics, but the field itself broadens beyond research to both policy and practice, from childhood though adulthood." In fact, issues of literacy have been discussed far beyond the academic realm. Literacy is high on the agendas of organizations such as the United Nations, World Bank, World Health Organization, and many other nongovernmental organizations. Literacy has become part of the human rights agenda; as an educational right, literacy has sponsored global strategies for improved education, human development, and well-being.

If we consider these different institutional orders in which literacy plays a role – whether in research and scholarship, communication and entertainment, public and political administration, politics and international development, as well as the more private and local uses of writing and reading – it becomes clear that, unlike in the days of Dr. Johnson, there is no such thing as a clear and bound definition or empirically based concept of literacy simply because the

range of activities encompassed by the concept of literacy has expanded and continues to expand enormously. Even in taking a more theoretical stance, it is somewhat misleading to speak of literacy as the focus of a paradigm of academic study and research, with a paradigm understood, following Kuhn (1962), as a perspectival framework of assumptions and beliefs that organizes concepts, models, theories, and research methodologies for scientific knowledge in a particular domain. The far-reaching cross-disciplinary interest in literacy is not merely tied to the rise of a new paradigm in the human sciences; indeed, it cannot be reduced to an academic phenomenon at all.

Thus, it seems that we are faced with a dilemma. On the one hand, to understand the specific empirical properties and implications of literacy, it is necessary to abandon the notion of a single competence that we may think of as literacy and to embrace the broad range of particular competencies and practices that, in turn, may be analyzed in linguistic, cognitive, semiotic, technological, and cultural terms. On the other hand, we cannot overlook the underlying relationships and common themes within this diversity – themes that can be adequately understood only if located within an overarching cultural discourse. This discourse we call the *literacy episteme*.

In this chapter, we define what is meant by the literacy episteme, proposing that it is only within such a larger cultural-historical trajectory that we can capture the astonishing rise of a set of activities and issues subsumed under the notion of literacy (or writing) to an area of academic and applied inquiry that, by now, is well established – as, not least of all, this *Handbook* demonstrates. Only within such an overarching order, we suggest, do these practices and problems take on an epistemic form and become subjects of thought and theoretical curiosity as well as public attention. Only within the literacy episteme can the social, intellectual, and cultural implications of writing become epistemic objects: "things" that appear as intelligible objects of theory and investigation and whose investigation is considered to be fulfilling societal demands and cultural interests.

The notion of the literacy episteme brings into play a long-standing epistemological tradition, in both philosophy and the human sciences. In the twentieth century, this tradition increasingly was concerned with the significance of language for thought and culture, including an appreciation of writing as a special form and practice of language. Philosophical discourse on the nature of man shifted from Descartes' "one who thinks" to Wittgenstein's "one who speaks" and, even more recently, as we try to show, to "one who writes." But, this turn to language and writing may be seen as the more recent phase of a much longer tradition; it began with philosophers' search for the general conditions that make human knowledge possible. Since Kant, such conditions have been described as the a priori of our empirical knowledge. What we show in this chapter is that the literacy episteme can be understood as an historical priori, a sort of epistemological background for our understanding of writing and its implications and uses in shaping a cultural discourse of literacy.

Because the historical fabric of the literacy episteme comprises both material and conceptual factors, we give particular prominence to the work of two scholars: the Canadian economist and theorist of communication, Harold Innis, and the French philosopher, Jacques Derrida, who, albeit in different ways, have drawn attention to the materiality of the conceptual and thus to the physicality of language and communication as materialized in writing. Further, we suggest that, regardless of these theoretical debates, the rise of the literacy episteme is not simply the result of accumulative scholarship, scientific discovery, or century-long debates on the very nature of language. Rather, it is the result, if not the side effect, of more profound sociocultural changes in the twentieth century, among which the revolutions in modes of communication – perhaps most significantly the digital revolution – have played a crucial role.

The Literacy Episteme and its Scope

The notion of an episteme is meant to enable us to understand what organizes the theoretical order of a culture, assuming that the organizing forces are themselves not just theoretical. We also could say that an episteme is the cultural order of ideas and concepts that define, at a given moment in history, what knowledge is and how we gain and transmit it.

To illustrate this, let us consider a few examples. On a smaller scale, such an epistemic definition is operative in the material and symbolic practices carried out in an experimental laboratory. A molecular-biology laboratory for synthesizing proteins, for example, may be viewed as constituting a specific epistemic system. Within this system, some things are assumed, some are made visible, and yet others ruled out of court. Typically, in their talking and thinking, the laboratory researchers do not differentiate between a computer-generated inscription – endless columns of numeric entries or graphs registering the course of measurements during an experiment – and what they conclude about certain protein connections. Within the universe of "laboratory life" (Latour & Woolgar, 1979), the inscription or writing becomes indistinguishable from "what it represents." The inscriptions are the "real things" the researchers deal with, model, and operate on and whose experimental reality is, in this way, continuously fixed and practically acknowledged (Rheinberger, 1997). In a similar case, a number of high-tech physics laboratories recently examined a state they call "supercool," or the "ultracold." The ultracold is artificially created – it is the amazing domain of almost absolute zero that exists only in that ultracold laboratory. But, within the epistemic system of the laboratory, it has been turned from something unattainable into something with which we can interact (Hacking, 2006). Philosophers of science have called these states and creations *epistemic objects*. Although they exist only within a specific epistemic matrix, their "reality" is taken for granted in the fullest of all senses. Is it possible to view the diverse forms and practices of literacy as members of one such family, one episteme?

Chamberlin (2002) pointed out that even the hunting practices of hunter-gatherers can be understood as reading practices. In this way, Chamberlin moves the notion of reading to encompass a broad spectrum of practices of deciphering all kinds of signs and "traces." Such practices, at the same time, interpret and constitute a specific epistemic reality. "Hunters read visible signs," Chamberlin (2002, p. 82) writes, "but they know them to be signs of the visible, almost exactly as other readers of signs such as nuclear physicists do. A track, even when it's very clear, tells you where an animal (or a neutron) was, not where it is. To figure that out, a hunter uses a combination of experience and imagination." Chamberlin concludes, "The hunter's imagination shapes reality through re-presentation."

Another much-discussed example of an epistemic object is the social, psychological, and cultural dimensions of the "self." Geertz (1983) and other social scientists and historians argued that the idea of an individual, bound, self-referential, and independent self is a very specific – Geertz calls it "peculiar" – Western creation. Even within the Western tradition, the self has become a "substantial" epistemic thing only in modern times, with our principles of individual human rights and responsibilities. Is this to say that the historical Julius Caesar did not have a "self"? Well, he certainly had an *anima*, as he would have replied, but he did not have anything that resembled what we today mean by a "self" because, as a speaker of Roman Latin, he simply did not have the words to talk about his "self" apart from his being a general, politician, writer, husband, citizen, and believer in the Roman gods.

The historian of concepts, Reinhard Koselleck (1985), made the case that whenever people want to express more complex ideas, these ideas are inextricably mingled with the linguistic concepts they have at hand. The meanings of these concepts, however, do not depend only on people's "ideas" and "intentions" but also on the historical

network of meanings into which these concepts are inserted. For Koselleck, there is an "historical semantic" that underlies the cultural-historical context of use that gives concepts and other linguistic expressions their specific meanings. Outside of this historical context, concepts such as the Roman *anima* are meaningless – that is, without use. In turn, in referring to the epistemic reality of one's "self," we bind ourselves into an epistemic community that via further linguistic and communicative practices (e.g., greeting formulas, pronouns, autobiographical narratives, and written identity documents) continuously confirms one's sense of self or identity (Kroskrity, 2001; Wang & Brockmeier, 2002). The meaning of such expressions is best understood in terms of use, as Wittgenstein (1953) insisted – meaning as use within a given cultural grammar or, as we may say, epistemic system.

Taylor (1989) made a similar point, emphasizing that things and discourses that are part of an episteme also have a moral dimension. He maintained that the "moral ontology" of a culture changes from one historical episteme to another. A moral ontology is constituted by the set of concepts and assumptions that lay out what we believe to be good and bad, right and wrong, ethically appropriate and inappropriate. For example, the particular moral value that Western cultures allot to the "self" is a crucial element of its ontology. To advance our line of argument, we associate with Taylor's moral ontology an "epistemic ontology": the system of beliefs and rules that sets out what is considered knowledge worth knowing and that motivates us to consider some "things" as real. This epistemic ontology expands on the traditional idea of a relationship between the knowing subject and the (potential) object of knowledge – a relationship that defines the horizon of our intellectual imagination.

This notion of an episteme as a framework within which objects of knowledge, ways of knowing, and ways of being in the world are organized in a particular epoch is borrowed from Michel Foucault (1970) who described it as an "historical a priori." Foucault's paradigm case is the "episteme of Man," the amalgamation of ideas, forms of knowledge, social and cultural practices, and institutions emerging in the eighteenth century that created, among others, the bourgeois "individual" as well as the cluster of concepts and discourses that since then have been revolving around it. According to Foucault, the episteme of Man is the cultural system of representation that shaped the modern idea of human being and thinking, giving epistemic reality to concepts such as the self and the individual mind, conscience, consciousness and the unconscious, and normalcy and deviance. Foucault (1970, p. 127) wrote that historically a priori conditions organize the "emergence of statements, the law of their coexistence with others, the specific form of their mode of being, the principles according to which they survive, become transformed, and disappear."

The notion of an historical a priori contrasts sharply with the original Kantian notion. For Kant, the term *a priori* denotes what is considered the transcendental dimension of human knowledge, those categories that cannot be derived from experience because they are necessary preconditions of experience itself. Categories of space and time are such transcendental concepts in that they are prior to and make possible all forms of experience, including historical experience. For Foucault, however, those categories (and the discourses, as he put it, to which they belong) are historical, tied to a time and a concrete world as well as to ways of acting and understanding. Instead of claiming to be universal and merely categorical (i.e., intellectual) conditions, they draw the attention to the cultural context in which ideas, institutions, and practices emerge. On this account, such categories can be viewed as historical forms of life rather than transcendental (or logical, linguistic, or cognitive) universals. It is in this sense that we have used the concept of episteme to describe the cultural discourse of literacy. The literacy episteme can be understood as an historical a priori. It defines the terms under which we conceptualize what

we have called a fully developed "culture of literacy" (Brockmeier & Olson, 2002).

To see literacy as an episteme rather than as simply a skill, a competence, a social practice, or a universal good – that is, as a frame rather than a content – has brought to the fore two ideas that had been absent from academic and public discourse on language. One is that writing is a peculiar form of language and not simply a secondary representation of speech. This seems to be, by now, a widely accepted view, even if the question of just what exactly makes writing a particular form of language has led to new debates. The other idea is that the prototypical form of written language – extended, monological prose, traditionally conceived of as a dominant feature of our civilization and hallmark of high culture – is an historical form. It came to have its pride of place – in science, in philosophy, in government, in the courts, in church, in school, and in public discourse – with Dr. Johnson as one of its articulate promoters. But, like all historical phenomena, language forms wax and wane. Perhaps what we are witnessing with the rise of the literacy episteme is the final dissolution of Dr. Johnson's privileged claim of cultural superiority for writing and bookishness, a process in which writing is forfeiting its dominant role in both the management of knowledge and information and in the organization of bureaucratic societies. "Minerva's owl begins its flight only in the gathering dusk," Innis (1951, p. 3) quotes Hegel at the beginning of his book on the interplay among communication, culture, and history.

The Rise of the Literacy Episteme

Describing the rise of the literacy episteme as a phenomenon of the twentieth century is not to say that matters of writing and reading were not dealt with in earlier times. Beginning with Plato's critique of writing as failing to live up to the rhetorical, mnemonic, and moral standards of oral discourse, the phenomenon of writing has been discussed in philosophical, religious, social, and political contexts. We might think of authors such as Luther, Erasmus, and the early Protestants; philosophers of the Enlightenment including Rousseau, Vico, and Turgot; and archival practitioners such as the Keeper of the Records at the Tower of London, Thomas Astle.

However, the 'discovery' of writing and literacy – that is, its constitution as an epistemic subject in the second half of the last century – has a different epistemic quality. On the theoretical side of this process, we witness nothing less than a breakthrough: within a couple of years in the 1960s, there was an unparalleled concentration of publications on issues of literacy, followed by the institutionalization of a new academic field of research. At the same time, the United Nations became a leading advocate of the Basic Rights of the Child, which included access to basic education and, more specifically, literacy and numeracy (see Farrell, Chapter 28, this volume). This new interest in writing and the new focus on literacy are even more stunning because modern linguistic theory, following de Saussure, was concerned almost exclusively with the spoken form. In fact, the significance of writing had been ignored and dismissed for centuries – an attitude that can be traced back to Aristotle's infamous definition and Plato's even more fundamental repudiation of the written word. Derrida (1976) argued that there is a tradition of adopting a dismissive attitude toward writing that is deeply rooted in Western metaphysics, even if it found its most systematic expression in modern linguistic thought.

An episteme, we have maintained, is not just about books and thoughts; however, books can be indicators and symptoms of more than just bookishness. This is particularly true for the series of books published in the 1960s by a number of authors from different disciplines and different countries. Today, from a distance of four decades, we see those publications as precise and reliable indicators of a new perspective; they set the stage for a new epistemic ontology of language. Havelock (1991, p. 12) provided a

first-person account of the origins of this perspective, pointing out that the almost concurrent appearance of these books marked a turning point in the Western attitude toward writing, a "watershed . . . that had been reached, or perhaps more accurately they point to a dam starting to burst," releasing a flood of cultural interest and intellectual activity devoted to showing the importance of literacy as well as attempting to understand it.

Although most of these remarkable books – we look into their contents presently – focused primarily on the implications of writing and printing in the contexts of specific academic debates, they were eagerly received by readers with their own problems and concerns, especially those attempting to understand the impact of newer media such as television and the computer, and by those concerned with issues of human and social development, issues of education and training in modern societies, and issues of international development centered around the newly formed United Nations. In the 1950s and 1960s, there was a strong sense that education and literacy were pivotal for social and cultural progress and that they could be used as powerful means to reach this goal. As Cole and Cole (2006) observed, this was a time when many countries were still emerging from the aftermath of World War II and centuries of colonialism: "There appeared to be a general consensus that the former colonized societies should be brought into more equitable interaction with their former colonizers in the industrialized world. Many people conceived of this process of change as a process of development in all spheres of life – the political, the economic, and the psychological." Referring to the role of UNESCO in the 1950s, Cole and Cole say, "in all spheres, people believed that literacy (ordinarily equated with formal education) was an essential engine of change" (pp. 308–309).

What Havelock described as a bursting dam is the sudden 'discovery' of literacy as an epistemic subject, its constitution as a prestigious subject, worthy of intellectual attention and academic investigation, and bringing with it the possibility of important social change. Havelock, the renowned Harvard and Yale classicist, is a case in point. His *Preface to Plato* (1963) was soon to become a milestone in the history of the literacy episteme. It set out to present Havelock's view of a "literate revolution" when the alphabet was introduced into the oral culture of ancient Greece, affecting all spheres of society and the individual mind. In a lecture presented at the University of Toronto three months before he died, Havelock described what he called "the breakthrough: 1962–63." He saw this breakthrough constituted by the appearance of four publications "that, in retrospect, can be said to have made a joint announcement": *The Gutenberg Galaxy* by McLuhan, *La Pensee Sauvage* by Levi-Strauss, and *The Consequences of Literacy* by Goody and Watt, as well as Havelock's own *Preface to Plato*. The statement they made was that orality and, thus, literacy "had to be put on the map. As a subject of intellectual interest, it's time was arriving" (Havelock, 1991, p. 12). We take a closer look at these breakthrough publications and, while adding some more to them, consider how all of them have changed the map of the emerging literacy episteme.

It is interesting that Havelock himself saw the breakthrough as the recognition of the oral as a mode of information storage and retrieval. He credits Milman Parry and his student, Alfred Lord, with the idea – well summarized in Lord's *The Singer of Tales* (1960) – that the recurring formulaic phrases in the Homeric epics (e.g., "rosy fingered dawn," "the wine dark sea," "Hector, tamer of horses") are a product of *oral* composition, the epithets being essential aids to memory. By comparing the Homeric tradition with an oral epic tradition that Parry and Lord found still existing in Serbia and Bosnia, they concluded that Homer was an oral poet. Havelock's contribution to the story was to show that by the time of Plato, oral methods of composition of extended texts had been rejected in favor of models

based on written prose – even if Plato, as mentioned, was also the first critic of writing. Writing – in particular, alphabetic writing – he claimed, made the transcription of the oral epics possible; by looking at the written marks, one could mentally reconstruct the very voice of the speaker/poet. More important, Havelock claimed that because the alphabet bypassed the memory problem, it was possible to compose in a way that resembled ordinary speech and yet be preserved through time. This, Havelock argued, was the beginning of the distinction between the knower and the known and the birth of prose (for the current state of research on orality and literacy in ancient Greece, see Thomas, Chapter 19, this volume).

The idea of such differences among forms of language, modes of thought, the uses of memory, and, ultimately, the organization of societies based on the alternative "technologies" of orality and literacy caught the imagination of an entire generation of intellectuals and researchers. There may be no book more emblematic of this new fascination with matters of speech and writing than Lévi-Strauss's *La Pensée Sauvage*, published in 1962. Lévi-Strauss, who had made structuralism an intellectual mass movement, played a central role in associating the new look at writing with a new valuation of traditional, nonliterate or oral cultures: a move shifting the moral ontology. The resulting picture showed a fundamentally binary structure, to be sure, not unfamiliar to structuralists: a clear-cut distinction between speech and writing – the former viewed as a medium of natural human communication and authenticity, the latter as an unnatural and violent alienation of the voice and, in effect, a distortion of human nature. Lévi-Strauss's title, *La Pensée Sauvage*, was emphatic. It proclaimed a new view of a type of thought that most anthropologists and philosophers had until then considered the "primitive" (Malinowski, 1954), "pre-logical" (Lévy-Bruhl, 1923), and "mythic" (Cassirer, 1957) thought of native people in "traditional societies." For Lévi-Strauss, "savage thinking" became a positive quality – in fact, a value associated with "natural" orality that was to be seen as in sharp contrast with the "artificial" structures of Western literacy. Havelock (1991, p. 21) insisted that what Lévi-Strauss was investigating was not la *pensée sauvage* but rather la *pensée oraliste*. Oral thinking, in this view, was a thinking uncorrupted by writing (with "writing" exclusively understood in terms of the Western alphabet). How the dichotomy of orality and literacy – each linked to a specific "technology of the intellect" – powerfully affected the imagination of many is well laid out in Ong's (1967) *The Presence of the Word*, a book that radicalized and extended what critics called the theory of the "great divide."

Only a few months after publication of Lévi-Strauss's *La Pensée Sauvage*, Goody and Watt (1963) presented the first version of their cross-cultural studies, *The Consequences of Literacy*. The enormous influence of Goody's work on a broad spectrum of sociological-anthropological research on the relationships among literacy, thought, and society recently became the subject of an extensive reevaluation (Olson & Cole, 2006a). Goody's fundamental interest was in the development of Eurasian and African societies and the emergence of the "culture of cities" with the growth of bureaucratic institutions that overrode traditional forms of social organization, including families and tribes. In this development, the technologies of communication, especially writing, were crucial for the emergence of a variety of new social and cultural forms as well as corresponding psychological processes. In Goody's view, the beginning of writing in the Middle East was linked to the task of managing economic surplus and later to various forms of literature. Like Havelock, he saw ancient Greece and the invention of the alphabet as a paradigm case: given the historically unique combination of social, cultural, and material factors in Greek society, an efficient writing system, once introduced, could have a momentous impact on the development of science, philosophy, history, and democracy – creating, in effect, a new psychological mentality.

Goody, a Cambridge anthropologist, is best known for his detailed fieldwork among the LoDagaa peoples of Ghana. In addition to describing their social system, funeral rites, and rules of inheritance, as any good anthropologist would do, Goody was particularly attentive to their extended oral poetic tradition, embodied in *The Myth of the Bagra*. This interest was kindled by his experience as a prisoner of war who escaped and lived in a remote Italian village in the more or less complete absence of books – an even more peculiar experience for a Cambridge don. Yet, he became aware that this, in some ways, was a literate society, with its church, school, train schedules, postal system, taxes, and bureaucracy. The attraction of the LoDagaa was the striking contrast: here was a people whose social life was unaffected by writing, and Goody attributed many features of that society to the fact that its knowledge and traditions were preserved through songs and other oral rituals. Although Goody staunchly disavowed that an oral society is a primitive one, he is often taken to be the primary spokesperson for a "great divide" between the oral and the literate, the traditional and the civilized, *Gemeinschaft* and *Gesellschaft* societies, between us and them.

The influence that Goody's views exerted on various disciplines might have been that it offered a number of readily identifiable factors that could be applied to either any historical and contemporary social system or to systematic changes over time (Olson & Cole, 2006b, p. x). At the same time, this approach did, perhaps, sponsor a reductionist – unidirectional or monocausal – focus just on writing systems despite Goody's acknowledgment that "only to a limited extent can the means of communication, to use Marx's terminology from a different context, be separated from the relations of communication, which together form the mode of communication" (1977, p. 46).

Also in 1963, the book of another classicist, Hermann Koller, titled *Dichtung und Musik im frühen Griechenland* (*Poetry and Music in Early Greece*), independent of Havelock's and Goody's work, supported the hypothesis of a changing relationship between ancient orality and literacy but now in the domain of music and poetry. Koller drew on Snell's classic work, *The Discovery of the Mind* (1960), which advanced arguments that were comparable to those made with a wider scope in the volume, *L'écriture et la psychologie des peuples* (*Writing and Folk Psychology*), edited by Cohen et al. (1963). With a still wider scope, and certainly with an incomparably more spectacular thrill, there was the publication of Marshall McLuhan's *The Gutenberg Galaxy* in 1962. It put the entire study of the media and technologies of communication into an explicitly global and historical perspective and added to it what we today would call the global media hype. Media revolutions, McLuhan proclaimed on all channels, are revolutions of consciousness. New media are not merely new forms of communication of existing concepts, but rather they transform the very contents. McLuhan's slogan, "the medium is the message," albeit primarily based on the experience of first-generation television broadcasting, reverberated in all quarters of the 1960s culture and counterculture in the West. Indeed, it has never stopped.

Let us add a few more books to this list. Even scientists contributed to the emerging new epistemic ontology of the literacy episteme. In 1963, biologist Ernst Mayr published his *Species and Evolution*, a classic synthesis of evolutionary biology. Mayr claimed that language played a pivotal role in the evolution of the human species because it allowed for cultural development to be superimposed on biological structures. A similar view was articulated by the prehistorian and paleontolgist, André Leroi-Gourhan. In his *La Geste e la Parole* (*Gesture and Speech*) (Volume 1, *Technique et Langage;* Volume 2, *La Mémorire e les Rythmes*), published in 1964–65 (in English in 1993), he drew an evolutionary and cultural-historical line of development from the first traces of prehistoric writing practices to the manifold inscriptions that accompanied and, in fact, made possible the biological-cultural emergence of modern humans on their way to the computer age. For Leroi-Gourhan, this