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KEYNOTE ADDRESS: On the Binding Biases of Time

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I want to begin by thanking Donna Flayhan for inviting me to be one of the keynote speakers at this conference. This is the second time I have been honored in this way. The first time I gave a keynote for NYSCA was ten years ago, in 1999. So, looking ahead ten years, I want you to know that I have cleared my calendar for the year 2019, and I will be entirely at your disposal.

I also want to commend Donna for her choice of conference theme, which serves as a commemoration of James W. Carey, who was a brilliant scholar, outstanding administrator, dedicated teacher, and a good friend to NYSCA. I have chosen to address one of Carey's favorite topics, the theme of time (see Strate, 2007), as an homage to him, but also because time is a topic that I find fascinating. In *A Brief History of Time*, Stephen Hawking (1998) writes that the universe started off with a bang about thirteen or fourteen billion years ago, and is continuing to expand today. That is, the Big Bang was an explosion so massive that it is still going on, with no end in sight. The explosion is taking place on such a vast scale that we do not experience it as an explosion, but we are all riding the Big Bang, clinging to a tiny bit of debris that we call Earth, as our galaxy moves at a rate of 185 miles per second.

The Bible tells us that, "to every thing there is a season, and a time to every purpose under heaven." As human beings, we traditionally looked to the cycles of nature for our sense of time, and tried to capture those cycles, in turn, in our calendars and clocks. But we also have a sense of time as an irresistible forward motion. This is, in some ways, a modern notion, as it was not until the 19th century that physicists established the Second Law of Thermodynamics, which states that the universe has a statistical tendency to move towards a greater degree of entropy over time, meaning that the passage of time is irreversible; this is sometimes referred to as time's arrow. But the idea of history as an unfolding progression dates back to antiquity, and no doubt our prehistoric ancestors understood the process of aging, and the passages from birth to childhood to maturity to death.

The topic of time is an important one for media ecology scholars (see Strate, 2006) as, for example, Marshall McLuhan talked about how we move into the future looking into the rearview mirror (McLuhan & Fiore, 1967), which is an automobile metaphor, although it does not exactly correspond to the way in which a rearview mirror works, but then again McLuhan never actually drove very much. But even if his metaphor is a bit askew, his point is quite valid, that we tend to live in the past, because that is all that we know. We think of time as a line or a road that we are traveling on, moving forward into the future, but McLuhan reminds us that in actual experience, we can see nothing of the future that lies before us, while the past is laid out clearly for our inspection. In this sense, then, we walk backwards into the future, a metaphor employed in some tribal cultures. And I could go on in this vein, but having neither world enough nor time, I must put an end to this meandering introduction, and begin in earnest by reading to you from an essay that Carey (1989) wrote about the Canadian economist and communication theorist, Harold Innis:

Innis argued that changes in communication technology affected culture by altering the structure of interests, by changing the character of symbols, and by changing the nature of community. By a space-binding culture he meant... a culture whose predominant interest was in space—land as real estate, voyage, discovery, movement, expansion, empire, control. In the realm of symbols he meant the growth of symbols and conceptions that supported these interests: the physics of space, the arts of navigation and civil engineering, the price system, the mathematics of tax collectors and bureaucracies, the entire realm of physical science, and the system of affectless, rational symbols that facilitated those interests. In the realm of communities he meant communities of space: communities that were not in place but in space, mobile, connected over vast distances by appropriate symbols, forms and interests.

To space-binding cultures he opposed time-binding cultures: cultures with interests in time—history, continuity, permanence, contraction; whose symbols were fiduciary—oral, mythopoetic, religious, ritualistic; and whose communities were rooted in place—intimate ties and a shared historical culture....

As cultures became more time-binding they became less space-binding and vice versa. The problem again was found in dominant media of communication. Space-binding media were light and portable and permitted extension in space; time-binding media were heavy and durable or, like the oral tradition, persistent and difficult to destroy. In propositional form, then, structures of consciousness paralleled structures of communication. (pp. 160-161)

Those of you who are familiar with Carey's scholarship know that he was a leading expert on the work of Innis. And those of you who are familiar with Innis may have

noticed something curious about what Carey has to say about him. As the title of Innis's book, *The Bias of Communication* (1951), indicates, Innis argues that different modes of communication are characterized by different inherent *biases*, an idea that is foundational for the field of media ecology. But Carey, rather than using Innis's terms, space *bias* and time *bias*, speaks of space-*binding* and time-*binding*. It was a seemingly minor and harmless substitution, to be sure, except for the fact that the phrases space-binding and time-binding are established terms in the discipline of general semantics, having been introduced by Alfred Korzybski in his first book, *Manhood of Humanity*, published in 1921 and included in his major work, *Science and Sanity*, published in 1933 (Korzybski, 1950, 1993).

Now, as far as I can tell, Innis did not draw upon Korzybski at all, although it is reasonable to assume that Innis was aware of Korzybski's work, as most North American intellectuals were in the mid-twentieth century. Nor does Carey make any reference to Korzybski in his writings, as far as I know, but I know that Carey was indeed familiar with Korzybski's theories and terminology. So in the end, I cannot say whether Carey meant to draw a connection between Innis and Korzybski, or substituted the terms solely for stylistic reasons, or simply made a mistake. But that point of either conflation or confusion gave me the idea to draw on both terms, and entitle my address, "On the Binding Biases of Time." And my intent is to address that aspect of time tonight, at least as much as time permits.

Korzybski's (1950, 1993) concept of time-binding is by no means a radical notion. It is the idea that human beings make progress from one generation to the next by virtue of our ability to preserve and accumulate knowledge. Nowadays, we have grown uncomfortable with the word *progress*, so we are more likely to talk about evolution, for example, in reference to cultural evolution. If you really think about it, though, in this instance evolution is being used to a large extent as a euphemism for progress. At one time, the talk was of evolution to a higher state of being; more recently we speak of evolution towards greater complexity. While I understand the need to avoid the triumphalism that was associated with the concept of progress in the early twentieth century, our language has grown poorer and less precise for having eliminated the word progress from our working vocabularies.

Korzybski used time-binding as the basis of his definition of the human race as a unique class of life, in contrast to animals, which he referred to as space-binding, and plants, which he termed chemistry-binding. His three-fold schema can best be understood when we take into account the fact that his background was in engineering. Engineers are concerned with pragmatic questions and practical concerns, with getting specific tasks accomplished, with work. From the point of view of physics, work requires the application of force, and force is the product of energy. Engineering, then, is all about energy, and it is worth noting that our contemporary understanding of energy was relatively recent when Korzybski began his investigations. Consider the fact that the pioneers of electrical research viewed electricity not as energy but as a substance. In particular, they believed that electricity was a fluid, which is why we have terms such as *flow* and *current*. It was only over the course of the 19th century that the modern concept of energy took hold, and the laws of thermodynamics were formalized. And at the

beginning of the 20th century, Albert Einstein introduced his famous equation, $E=MC^2$, which establishes that energy and matter are essentially equivalent, the third element in that equation being the square of the speed of light, which is a measure of time. What all this represents is a paradigm shift to a view that the universe is essentially energy rather than matter, and that matter is simply a form of very slow and stable energy. It is a shift away from viewing "things" as static and substantial, essentially timeless, and towards viewing all phenomena as dynamic processes, occurring in time. And it was a shift associated with the introduction of electric technologies such as the telegraph.

Korzybski was an ardent admirer of Einstein, and in fact called his early work a general theory of time-binding, following Einstein's general theory of relativity. And as an engineer working in the enthusiastic wake of a scientific revolution, Korzybski's theory of time-binding was about energy. It begins with the sun as a source of energy for life on earth. And more than any other form of life, plants have evolved a way to capture and store that energy, which is why he called plants the chemistry-binding class of life. That stored energy is then used by animals, who convert it into motion, that is, kinetic energy, moving freely about in their environment in ways that plants are not capable of, and that is why he called animals the space-binding class of life. Human beings are able to use that stored energy to move through space as well, but we have also found a way to store energy ourselves, not chemically, but in the form of knowledge, which makes us the time-binding class of life. This leads to a rather interesting economic commentary that can be found in *Manhood of Humanity* (1950): "Money is the measure and symbol of Wealth—the product of Time and Toil—the crystallization of the time-binding human capacity. **It is thus true that money is a very precious thing, the measure and symbol of work—in part the work of the living but, in the main, the living work of the dead**" (p. 117)

In Korzybski's analysis, wealth, and not just money and material goods, but also and especially knowledge and know-how, is a common human inheritance, which should in turn be utilized for the common good, rather than private gain. In remarking on "the capitalist era" he states:

It may seem strange but it is true that the time-binding exponential powers, called humans, do not die—their bodies die but their achievements live forever—a permanent source of power. All of our precious possessions—science, acquired by experience, accumulated wealth in all fields of life—are kinetic and potential use-values created and left by by-gone generations; they are humanity's treasures produced mainly in the past, and conserved for our use, by that peculiar function or power of man for the binding of time. (p. 119)

Essentially, then, every invention, every innovation, every human advancement is the product of generations, indeed millennia of previous discoveries, tens of thousands of years of intellectual and physical labor. Thus, Korzybski comments:

This fact, of supreme ethical importance, applies to all of us; none of us may speak or act as if the material or spiritual wealth we have were produced by us; for, if we be not stupid, we must see that what we call our wealth, our civilization, everything we use or enjoy, is in the main the product of the labor of men now dead, some of them slaves, some of them "owners" of slaves." (p. 124)

And he goes on to pose the following questions:

Since the wealth of the world is in the main the free gift of the past—the fruit of the labor of the dead—to whom does it of right belong? The question can not be evaded. Is the existing monopoly of the great inherited treasures produced by dead men's toil a normal and natural evolution? Or is it an artificial status imposed by the few upon the many? Such is the crux of the modern controversy. (p. 124)

Korzybski's critique of capitalism and commercialism led him to argue that we need government based on scientific principles, a technocracy run by individuals involved in human engineering, and a society where everyone would employ a rational, scientific approach in every aspect of their lives. From a contemporary perspective, this sounds at best naïve and idealistic, if not ominous and threatening, but I think it important to recall how differently we viewed science, technology, engineering, and progress in the early twentieth century. Korzybski's optimism was paralleled by that expressed by Thorstein Veblen in the *The Engineers and the Price System*, also published in 1921, and in Lewis Mumford's hopeful view of the transformative potential of electrification in his 1934 tome, *Technics and Human Civilization*.

Politics aside, what is of great significance is that Korzybski (1950) differentiates between different types of time-binding. He argues that human time-binding mostly progresses slowly, arithmetically if you like, except for the advancements that are made in science, technology, and engineering, where time-binding becomes rapid, and progress geometric. Upon further investigation, he came to understand that what set human time-binding apart from animal behavior so very dramatically was the human capacity for language and symbolic communication. Language is a storage medium, and the language that we speak is not our own invention, but the product of untold generations that have gone before us. It follows then that differences in the way that we use language can lead to differences in the process of time-binding. Thus, Korzybski (1993) concluded that the ways in which scientists and engineers use language in their professional activities are much more effective than the imprecise and ambiguous way that language is used otherwise. Consequently, he developed general semantics as a means of extending the scientific approach to all of communication, perception, and evaluation, and thereby improving the efficiency of time-binding and increasing the rate of progress in all areas of human activity.

Korzybski was wounded as a Polish soldier in the Russian army during the First World War, and in that same war, Innis was wounded as a Canadian soldier in the British army.

Korzybski went on to found the Institute of General Semantics in Chicago in 1938. Innis earned his Ph.D. from the University of Chicago in 1920, and went on to teach at the University of Toronto, where he became Canada's leading economist. He published several books on the subject of Canada's political economy during the twenties, thirties, and forties, and did not turn his attention to the study of communication until after the Second World War. It was not until 1950, the year that Korzybski died, that Innis published *Empire and Communications* (Innis, 1972), followed the next year by *The Bias of Communication* (1951), and then by *Changing Concepts of Time*, published in 1952, the year that Innis died. And it was in *The Bias of Communication* in particular that Innis discussed the biases of time, and space. The parallels are striking, but whereas Korzybski was concerned with the question of what distinguishes humanity from other forms of life, Innis was concerned with the question of what distinguishes one type of human society from another. And whereas Korzybski brought an engineer's concern with work and energy to the study of time, Innis brought an economist's concern with raw materials and staples; if time is energy to Korzybski, the media by which we communicate over time are akin to coal and oil to Innis.

Korzybski studied time, and that led him to the study of communication. Innis studied communication, and that led him to the study of time. Communication, however, has been typically talked about in terms of transportation, transmission, or pipeline metaphors. It therefore represents a significant breakthrough on Innis's part to realize that communication can take place over time as well as over space; Carey (1989) called this the ritual view of communication, which stresses the role of communication in the formation and preservation of communities and nations, in the maintenance of social cohesion and cultural continuity, in communing as opposed to commuting. In the process of binding time, we bind ourselves together in social units, as families and tribes, communities and cities, nations and societies. And as we bind ourselves together in this way, we ourselves become bound by time, prisoners of our remembered past, and imagined future. Moreover, as the means by which we bind time changes, so too does the character of human culture. This is central to Innis's insight, and is part of a broader generalization that differences in the way that we communicate with others and with ourselves, differences in the way that we mediate between ourselves and our environment, are differences that make a difference; they are differences that have a powerful influence on the way that we think, feel, and perceive the world; on our consciousness, identity, and relationships; on our forms of social organization and our culture.

In *The Bias of Communication* (1951), Innis states that his "bias is with the oral tradition, particularly as reflected in Greek civilization, and with the necessity of recapturing something of its spirit. For that purpose we should try to understand something of the importance of life or of the living tradition, which is peculiar to the oral as against the mechanized tradition" (p. 190). Having established his position, Innis goes on to explain

The oral dialectic is overwhelmingly significant where the subject-matter is human action and feeling, and it is important in the discovery of new truth but of very little value in disseminating it. The oral discussion inherently involves personal contact and a

consideration for the feelings of others, and it is in sharp contrast with the cruelty of mechanized communication and the tendencies which we have come to note in the modern world. The quantitative pressure of modern knowledge has been responsible for the decay of oral dialectic and conversation. (p. 191)

Innis favored oral tradition for its flexibility, but also understood its limitations, as he notes, "an oral tradition implies freshness and elasticity but students of anthropology have pointed to the binding character of custom in primitive cultures" (p. 4).

Time-binding in oral cultures is entirely dependent on human memory, on collective memory (see Strate, 1986). And memory, it is important to understand, is not a thing, it is not a substance. It is a form of energy, the activity of remembering, but more than that, memory is a performance, an active process of commemoration (Hobart & Schiffman, 1998). To be kept in collective memory, knowledge becomes attached to dramatic narrative, and expressed in mnemonic forms such as poetry and song (Havelock, 1963; Ong, 1982). The singer of tales in an oral culture, having no written text to study, does not have the concept of verbatim memorization that we literates do, so that no two oral performances are alike; in fact, the singer is quite willing to vary the performance to accommodate the situation, mood of the audience, and other factors. The multiformity of oral performance is the key to the flexibility of oral tradition, as the tradition being fluid can easily adapt to meet changing circumstances (Lord, 1960; Ong, 1982).

To give an example, the twelve tribes of ancient Israel are represented in the Bible by the twelve sons of Jacob, each of whom carries the name and is presented as the ancestor of one of the tribes, and this is a common motif in oral cultures. When the Assyrians destroyed the northern kingdom of Israel, ten of the twelve tribes disappeared, their people presumably killed, enslaved, or assimilated. But because the story was part of a written tradition, the ten lost tribes were not forgotten. By way of contrast, Jack Goody and Ian Watt (1968) relate the story of a West African people that told the tale of seven brothers, each the ancestor of a neighboring tribe. British researchers recorded this myth early in the 20th century, and no subsequent studies were carried out until sixty years later. During that time, two of the tribes had disappeared, and the myth had changed accordingly, so that they now told the story with only five brothers instead of seven. Not only was there was no acknowledgement that any change had occurred on the part of these peoples, but they insisted that this was the way the story had always been told. Goody and Watt refer to this characteristic of oral cultures as homeostatic. Oral cultures, lacking any storage medium outside of human memory, practice economy in their time-binding, and pass on only what is functional and useful. Historical and biographical details do not need to be preserved, especially if they are no longer relevant to the present. Oral societies are not bound by the weight of history in the way that literate societies are.

Homeostasis is not stasis, it is a dynamic equilibrium, evolving not in the progressive sense that we are accustomed to, not by accumulating increasingly greater amounts of knowledge, nor by making significant technological advancements, but simply by adapting only as much as is needed to maintain a balance in response to changing

circumstances. As Walter Ong (1982) puts it, oral cultures are conservative or traditionalist, their main concern is to maintain their precarious hold on whatever knowledge they already have, so that they tend to reject innovation and novelty. Members of oral societies, therefore, live in the present, but they continually look to the past, and value the past. They typically talk about a mythic golden age that they long to return to, a time when the world was created, society was founded, a time of perfect unity and knowledge, like the Garden of Eden. According to Mircea Eliade (1959, 1975), they find it relatively easy to move from the profane time of everyday life to a sacred time, one that connects directly to that time of creation. In this sense, oral cultures are certainly pre-scientific, and also pre-historical, myth being the content of oral tradition. And my intent is not to suggest that there is something desirable about being pre-scientific and pre-historical, nor do I want to romanticize oral societies. But I do think it important to acknowledge that they represent an ideal of balance that we find both valuable and elusive, and that it is that characteristic of flexibility and homeostasis that Innis was hoping to see restored, rather than a wholesale return to tribalism.

What was it then, that pushed us out of balance? It was a complex set of factors to be sure, but they were all bound up with and bound together by systems of notation and writing. Writing gave us a means to store knowledge outside of human memory, and Korzybski (1950, 1993) recognized that writing was a necessary prerequisite for a truly progressive form of time-binding. But writing also froze language in a relatively permanent form, replacing the flexibility of oral tradition with the rigidity of the fixed text. Homeostasis became harder to achieve when words were written in stone. And it was especially when writing was preserved by durable media such as stone, clay tablets, and the parchment codex, that the past stopped serving the present, and the present became the servant of the past. This unhealthy fixation with the past is what Innis (1951) meant when he wrote about time-biased cultures.

On this point, I differ with Carey (1989), as I would argue that Innis (1951) did not intend to categorize homeostatic oral cultures as time-biased. Time bias implies a society that is in disequilibrium, that exhibits an unbalanced obsession with preserving the past. And time bias implies a society that is dominated by some form of organized religion. The word *religion* is worthy of some attention, in that it is commonly said to have been derived from the Latin word for binding, implying a binding of human beings to the gods or God, a binding covenant expressed through ritual and dogma, and also, I think we can say, a binding of time. But no one is entirely sure of the origin of this word, and Cicero (1972) argued for a different derivation, one in which the root meaning of religion is to reread, to read again. Following Cicero, I would suggest that tribal cults turn into religions when their rituals are written down, when the oral performance of ritual drama becomes a strict rereading of a written text, when the flexibility of ritual rooted in oral tradition becomes fixed in the form of the written word. And myth become religion when a changing repertoire of songs and stories featuring supernatural agents are written down and canonized as a sacred text, formalized and frozen, and preserved with great care, often guarded and controlled by a priestly class. Complex writing systems, such as cuneiform and hieroglyphics, and texts written in archaic or dead languages, help to enforce priestly monopolies of knowledge, to use the economic metaphor that Innis

(1951, 1972) introduced. And control over texts in turn facilitates priestly control over sacred time, ending easy access to spiritual communion for the rest of the population.

Goody (1986) explains that the introduction of a sacred text transforms religious experience from a loose set of spiritual practices and beliefs, one that is fluid and flexible, to a set doctrine to which all must adhere. With the sacred text, a line is drawn between adherents who are members of the religious grouping, and all the rest who are unbelievers and infidels; religion becomes an either/or affair, as in either you swear allegiance on the text and to the text and to all that the text contains, or you are an outsider; and if you are a member of our religion, you cannot be a member of another religion at the same time. With a sacred text, conversion becomes conceivable, and so does orthodoxy, fundamentalism, and heresy. Concrete conceptions of the supernatural, in which the sacred is immanent, permeating the environment and surrounding us, give way to abstract conceptions in which the supernatural becomes distanced and transcendent, moving from the earth and water to a mountain top, from a mountain top to the sky, and from the sky to God knows where. As Innis (1951, 1972) notes, writing opens the door to monotheism, but even the polytheism of the Greeks and Romans became increasingly more abstract with literacy. With all this in mind, I would take the position that there is no such "thing" as religion without writing, that the myths and rituals, and the cults and spirituality of oral cultures do not constitute the specialized institutions and coherent belief systems, bounded and binding, that we define as religion.

Given that the introduction of writing knocks cultures out of balance, further innovations in writing technology can be seen as an attempt to restore that balance. One example would be the introduction of lightweight and transportable writing surfaces such as papyrus and paper, to offset the heavy media of stone, clay tablets, wood, and parchment. Such light media allow for a reliable means of sending messages back and forth over distances, and serve the administrative needs of the king and government, while also being useful for trade and commerce. Even more significantly, all media that facilitate communication over space are inherently military technologies, the contemporary phrase used for such functions being *command and control*. In this way, such new forms of writing in the ancient world allowed for the growth of secular sectors of society, and made it possible for societies to expand beyond local territories, into kingdoms and empires. This then results in a new kind of imbalance, as the pendulum shifts to the other extreme, and we get the kind of culture that Innis (1951) referred to as space-biased.

Time remains an important consideration, however, but the need for preservation and durability is replaced by an interest in speed and dissemination. Control also requires coordination and synchronization, which can best be achieved by systems of time-keeping and time-telling, such as the calendar in the ancient world (Innis, 1951, 1972), and the mechanical clock in medieval Europe (Mumford, 1934). These technologies, which are based on writing and reading, break time down into identical units, years, days, hours, and as a consequence our experience of time is altered. Edward T. Hall (1983) notes that oral cultures are polychromic, that is, members of such cultures see time as heterogeneous, continuous, and unstructured in character, and they consequently treat time in a way that is flexible and open to what we call multitasking. Calendars and clocks move cultures in the direction of the monochronic, in which time is experienced as

homogenous, uniform and repeatable, linear and punctuated, so that punctuality is valued, and a focused, one-thing-at-a-time approach is common. Monochronic cultures reduce the experience of sacred time down to infrequent special occasions, holiday celebrations, while opening the door to the modern metaphor of time as money (see Lakoff & Johnson, 1980), and ultimately leading to our contemporary notions of a 24/7 lifestyle.

Light and easy to use writing surfaces also facilitate copying, which not only undermines the time-bias of heavy media, but also restores some of the flexibility of oral tradition, since copying was rarely free from error, and scribes rarely concerned with exact replication of documents. Another set of innovations that served to counter time biases were the simplification of complex writing systems, such as the shift from cuneiform and hieroglyphics to phonetic writing systems, including the alphabet. This in turn led to the mechanization of writing through the invention of the printing press with moveable type, and the mass production and distribution of written works gave a great boost to the nascent space bias of Renaissance Europe. Ironically, however fragile and perishable each individual copy might be, the production and diffusion of multiple copies of the same text was more effective at preserving knowledge over time than the creation of a single copy in a highly durable medium, as Elizabeth Eisenstein (1979) notes. But the social and psychological impact was to undermine the time bias associated with the medieval manuscript, and break the monopoly of knowledge that the church held, which was based on its ownership and scribal copying of parchment manuscripts (Innis, 1951, 1972). The printing of works in contemporary vernaculars, rather than Latin and other learned languages, further contributed to this process. All of these developments served to democratize writing and reading, and this in turn led to the growth of scholarship, the critical examination of existing traditions, and the growth of knowledge. Alphabetic writing systems are intimately linked to progress in science and mathematics, through their particular ability to facilitate logical thinking, analysis, and classification (Logan, 2004).

The technologies of written communication, then, underlie both the conquest of nature and the conquest of peoples. Marxist critics have long noted the relationship between empiricism and imperialism, but there is something more at work here than some conspiracy on the part of the bourgeoisie. We can understand the idea of progress in science and technology best by understanding that progress is a spatial metaphor, based on progress as travel across territory. The very idea of progress over time originates as a by-product of a space-biased culture, and this amounts to a shift in time consciousness. Oral cultures look to the past for legitimacy, for archetypes and models, and long to return to the moment of creation, a golden age, or at least recover the lost knowledge of their ancestors. But the introduction of writing, especially when coupled with a bias towards space gradually results in a turn away from the past and towards the future, as embodied in the idea of progress. The belief is that things are getting better over time, the present is superior to the past, but the best is yet to come (Perkinson, 1995). People look forward to things getting better, come to long for the future, and sometimes for utopia. The word *old* becomes a term of derision, and during the print era readers turn their attention to two new literary forms, the *novel*, and the *news*. Perhaps the conceptual shift is best summed up by the change in the meaning of the word original, which once only

meant the first and the oldest, coming from the moment of origin in the past, but also has come to mean the newest, and most innovative.

The spatial imbalance associated with the Egyptian, Alexandrian and Roman empires in antiquity, later manifested in the commercialism, colonialism, and industrialism of modern Europe and America. Innis (1951, 1952) was profoundly concerned with the continued intensification of our space bias brought on by the application of electricity to communications, in the form of the telegraph, telephone, and broadcasting, which enable us to engage in instantaneous communication over great distances. But he also held out some hope that an acoustic medium like radio might restore some semblance of the oral tradition, and thereby help to restore balance to western societies.

We can see in both Innis and Korzybski an attempt to respond to the terrible events of the twentieth century, which included the First World War, the rise of Communism, Fascism, and Nazism, the Great Depression, the Second World War, the atom bomb, and cold war. Can anyone blame them for hoping that it might be time, at last, for us to enter a new era of sanity and balance?

Of course, it is easy enough for us to say, some sixty years later, that Korzybski and Innis were wrong, that the kinds of changes that they envisioned never came to pass. But perhaps it would be more accurate to say that the changes did come to pass, only not in the ways that they had hoped for. Korzybski's dream of a scientific society is not a reality, but we live in a society guided by the rational principle of efficiency, the foundation of what Neil Postman (1992) referred to as *technopoly, the surrender of culture to technology*. And we turn increasingly greater portions of our affairs over to that supreme engine of mathematical action, the computer. Where Korzybski wanted us to be better human beings, we have instead been taking the human element out of the equation, automating the process.

And despite Innis's hopes, oral traditions seem more distant than ever before in the age of television and the Internet. But we have experienced a continued growth in sonic technologies, which Ong (1982) termed secondary orality, an orality quite different from the primary orality of oral cultures. And we have found a new kind of interactivity made possible by computer-mediated communication, social networking, and social media, which does seem to provide us with a form of communication that resembles orality in certain respects. But are a series of updates and comments on Facebook, MySpace, and Twitter the equivalent of oral dialogue? Does blogging take the place of epic poetry and public address? Can online groups and bulletin boards and instant messaging and YouTube substitute for communities where individuals must cooperate out of necessity, in response to the requirements of material reality? Does the ephemeral nature of electronic communications, with websites and people's profiles vanishing overnight, provide us with the continuity that we so desperately need?

In one sense, electronic surveillance, and data collection and storage, present us with the possibility of balancing the space bias of western societies with a new form of time-binding, one so thorough and complete that it has been dubbed "total recall" (see Strate, 2003). Does this go so far as to threaten us with a return to a time-biased way of life, one

that would support and encourage the various fundamentalist and theocratic movements in existence today? Digital databases are easy enough to alter, it is important to note, and such alterations can be difficult if not impossible to detect. In this way, digitality does restore some of the flexibility of orality, and perhaps offer some promise for restoring homeostasis. But contemporary digital alterations are not kept in check by a conservative or traditionalist worldview, and therefore are open to relentless revisionism, a kind of temporal anarchy. If there is potential for homeostasis here, it is a dystopian balance where again the human element has been removed. The flexibility of oral tradition is based on the medium of human memory, the basis of human knowledge, for as Ong (1982) reminds us, "you know what you can recall" (p. 33).

Where oral cultures naturally look to the past, and literate cultures have the potential to turn around and look towards the future, our electronic culture seems to be fixated on the present (see Strate, 2003). The instantaneity of telecommunications communicates to us in the present tense. Even when the content is a recording or film, the broadcast signal creates the message in the present, and there is always the possibility of someone interrupting the broadcast to bring us a special message. We are plugged in, tuned in, our nervous systems "extended in a global embrace," as McLuhan (2003, p. 5) put it. We are consequently impatient, and thrive on the live, the up-to-the-minute, the on-demand, the just-in-time. And our popular culture, popular therapies, and popular spiritualities constantly advise us to live in the moment. While there is some utility to this advice, it is repeated over and over as if it is some kind of cosmic revelation, rather than a widely shared common sense assumption that is never called into question anymore. *Carpe diem! Seize the day!* Or so says Robin Williams in the 1989 film, *The Dead Poets Society*, which is presented to us as a model of what schooling ought to be like, contradicting centuries of our best time-binding efforts.

Our present-centeredness is more than a matter of the immediacy of electronic transmission and being online all the time, however, as we have also sought to bring the past and the future under the control of the present. Computer programming and digital technologies blur the once-clear distinction between a performance and its recording. A program does not play back a performance, it is itself a performer, producing an automated performance (Jones, 1992). Each performance is a new performance, but one that was constructed in the past, and each performance is identical to every previous performance, and every performance that will be repeated. The programmed performance brings the past into the present not as a recorded artifact, but as an event newly recreated. This not only brings the past into the present, but also the future. The program is an attempt to colonize the future on the part of the present (Strate, 2003). Programming the future should not be confused with planning for the future, which is what we did when we were forward-looking. Planning involves contingencies and uncertainties, and certainly our children know the difference between making plans to play after school, and the kinds of programmed afternoon activities that they often are involved in. Programming is not so much about progress as it is about controlling the future, not so much about continuity as it is about uniformity and eliminating uncertainty. We live in a *long now* that extends far into our past and that we are trying to extend far into our future. But the problem with programming the future, as opposed to planning for it, is that programming is an attempt to eliminate human judgment, to bring the future into the

present by means of hyperrationality, just as we bring the past into the present by means of hyperreality.

In one sense, we have created a new kind of sacred time, a present in which all times past and future intersect. In another sense, we have created a completely profane time, 24/7, completely uniform. We are losing the distinction between sacred and profane time, and as Donna Flayhan has commented on several occasions, we are losing our much-needed Sabbaths. I say this fully cognizant that I am speaking at this conference instead of observing my own Sabbath. We are losing the distinction between night and day, we are losing our sense that to every thing there is a season, and we are losing our past and our future.

Having said all that, I do not believe that all is lost. Although Korzybski's dream of training people to think and act with enhanced rationality never quite materialized, I do think we have seen great success in the effort to combat the irrationality of stereotyping and prejudice, an area where Korzybski's general semantics has made significant contributions. And while we have yet to achieve the flexibility and balance that Innis valued, we have become more concerned with homeostasis, more ecologically minded, in many ways, especially in regard to the natural environment. There is no question that we still need to make much more progress in these areas, but following the advice of Wendell Johnson (1946), we also need to recognize and celebrate the progress that we have achieved.

Korzybski and Innis represent different concepts of time, different positions on how human beings ought to relate to time, but they are in many ways quite complementary. Korzybski valued progress, and I've argued, we need to retrieve and reclaim that word, and stop feeling embarrassed about using it. But we have to bring back the idea of progress in the holistic sense that Korzybski asked for, not as applying to specialized sectors of society relating to science and technology. We have to insist that it can only be called progress if it includes social, political, and economic progress, and moral, ethical, and ecological progress. At the same time that we need to move forward, we need to regain and then maintain our balance. We need a balance between progress and continuity, between the individual and the community, between the profane and the sacred, between science and religion, between technology and ecology, between space and time. We need to put an end to the tyranny of the now. That means that we have to actively counter the biases of our contemporary electronic media environment. Along these lines, Postman (1979) argued that schools ought to be carrying out a thermostatic function, countering the dominant biases of society, in order to help us find homeostasis.

That means reinforcing both orality and literacy in the face of digitality. And it means that we need to teach history as a coherent narrative, or set of narratives, that help to contextualize the present, that shows the progress and the backtracking, the discoveries and the mistakes, the good and the evil, so that we can understand ourselves, as a species, in time; and this includes the history of communication, and the arts, the religions, the philosophies, and the sciences and technologies. And we need to teach the history of the future, and the future of the future, futurism not as being about entrepreneurial efforts and the introduction of new products, but about planning and conserving, about preserving

and preparing for the generations to come, about achieving and maintaining sustainability, about pondering the impact and effects of innovations, and the fact that change is always unpredictable and needs to be approached with great care. The past and the future need to be in balance with one another, with the present serving as an appropriate fulcrum between the two. And as James Carey would advise us, we need to bring our time into balance, and do so on a human scale.

We exist only because we are riding on that Big Bang that happened some fourteen billion years ago. We are alive because we are riding on a second big bang that occurred about four billion years ago on this planet, when life originated. And we are here to talk about it because we are riding on a third big bang that occurred maybe forty thousand years ago or so, the origin of language and symbolic communication, and with it, time-binding. As a species, we are binders of time, bound up by our biases of time; we are moved by our consciousness of time, as we tell time, and as we tell ourselves that only time will tell; as we play for time, and as we pray, as we pray for time.

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