

# *The Brain and the Media: The "Western" Hemisphere*

by Marshall McLuhan

*While the Western world remains  
dominated by the logic of the left brain hemisphere,  
its art and entertainment are moving right—  
"a formula for complete chaos."*

In writing on "one of the most fascinating and fastest growing areas of brain research, . . . hemispheric dominance," Robert J. Trotter chooses the Inuit people of Northern Canada as an example of a culture where "the other hemisphere" is dominant. The Inuit language was discovered to reflect "a high degree of spatial, right hemispheric orientation. Linguistic studies rate it as being the most synthetic of languages [American English being at the other end of the same scale]" (6, p. 218). Inuit sculptures, lithographs, and tapestries were "without apparent linear or three-dimensional analytic orientation." Art, then, also afforded "a unique opportunity to observe people carrying out work that demands tremendous spatial skills."

The characteristics of the right hemisphere as compared to the left hemisphere of the brain can be seen in Figure 1. Because the dominant feature of the left hemisphere is linearity and sequentiality, there are good reasons for calling it the "visual" (quantitative) side of the brain; and because the dominant features of the right hemisphere are the simultaneous, holistic and synthetic, there are good reasons for indicating it as the "acoustic" (qualitative) side of the brain.

Visual space, as elucidated in Euclidean geometry, has the basic characters of lineality, connectedness, homogeneity, and stasis. These characteristics are not found in any of the other senses. On the other hand, acoustic space has the basic character of a sphere whose focus or center is simultaneously everywhere and whose margin is nowhere. It is the "acoustic" pattern of "simultaneous

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<u>Left Hemisphere</u> (Right side of body)	<u>Right Hemisphere</u> (Left side of body)
Speech/Verbal	Spatial/Musical
Logical, Mathematical	Holistic
Linear, Detailed	Artistic, Symbolic
Sequential	Simultaneous
Controlled	Emotional
Intellectual	Intuitive, Creative
Dominant	Minor (Quiet)
Worldly	Spiritual
Active	Receptive
Analytic	Synthetic, Gestalt
Reading, Writing, Naming	Facial Recognition
Sequential Ordering	Simultaneous Comprehension
Perception of Significant Order	Perception of Abstract Patterns
Complex Motor Sequences	Recognition of Complex Figures

Figure 1: Characteristics of the right and left hemispheres of the brain

comprehension" which gives the right hemisphere the power of "facial recognition." The synesthetic interplay among all the senses too would seem to relate mainly to the right hemisphere. That Trotter selects a non-literate society for observation and illustration points also to the fact that societies that have not developed the use of the phonetic alphabet tend to exhibit the same right-hemispheric orientation. Non-literate cultures are mainly oral/aural, even when they cultivate some non-phonetic form of writing such as Sanskrit. On the other hand, literate cultures tend to be visual and dependent on left hemisphere reasoning. The dominance of either the left or the right hemisphere is largely dependent upon environmental factors. Thus the lineality of the left hemisphere is reinforced by a service environment of roads and transportation, and logical or rational activities in legal administration. The dominance of the right hemisphere, on the other hand, depends upon an environment of a simultaneous resonating character, as is normal in oral societies. Today, when the visual culture of industrial societies has been greatly influenced in an acoustic direction by the simultaneous environment of electronic technologies, the dominance of the left hemisphere can no longer be taken for granted.

*The invention of the phonetic alphabet created a visual environment of services and experiences which contributed to the ascendancy or dominance of the left, or lineal hemisphere.*

This conjecture is consistent with the findings of the Russian neurophysiologist Luria who found that the area of the brain which controls linear sequencing and, hence, mathematics and scientific thinking, is located in the pre-frontal region of the left hemisphere:



*The mental process for writing a word entails still another specialization: putting the letters in the proper sequence to form the word. Lashley discovered many years ago that sequential analysis involved a zone of the brain different from that employed for spatial analysis. In the course of our extensive studies we have located the region responsible for sequential analysis in the anterior regions of the left hemisphere (2, pp. 71-72).*

Luria's results show that the expression "linear thinking" is not merely a figure of speech, but a mode of activity which is peculiar to the anterior regions of the left hemisphere of the brain. His results also indicate that the use of the alphabet, with its emphasis on linear sequence, stimulates dominance of this area of the brain in cultural patterns. Luria's observations provide an understanding of how the written alphabet, with its lineal structure, was able to create the conditions conducive to the development of Western science, technology, and rationality.

The notion of space is important to clarify. When neurophysiologists assign a vague "spatial" property to the right hemisphere, they are referring to the simultaneous and discontinuous properties of audile-tactile and multiple other spaces of the sensorium. The Euclidean space of analytic geometry is a concept of the left hemisphere of the brain, while the multi-dimensional spaces of the holistic sensorium are percepts of the right hemisphere of the brain. Where the phonetic alphabet comes into play, the visual faculty tends to separate from the other senses, making possible the perception of abstract Euclidean space. The rise of Euclidean geometry offers a direct parallel with the rise of phonetic literacy; and phonetic literacy, in turn, is co-existent and co-extensive with the rise of logic.

*The rise of phonetic literacy and logic  
and hence of left-hemispheric dominance  
can be seen in the history of ancient Greece.*

Phonetic literacy in Athens and Greece was an intensely disruptive force, as explained by Phillip E. Slater in *The Glory of Hera* (5) and by Karl Popper in *The Open Society and its Enemies* (3). Slater is concerned with the break-up of Greek family life and the rise of the new democratic and competitive individualism as pronounced reactions against all the new qualities of mind and spirit released by the impact of literacy. Popper asks: "How can we explain the fact that outstanding Athenians like Thucydides stood on the side of reaction against these new developments?" (3, p. 178). What the big tribal leaders of Athens such as Thucydides were trying so hard to resist was what in effect was a violent transition from the holistic institutions of their oral society (right hemisphere) to the fragmented and scientific bias of the visual revolution evoked by the onset of literacy and individualism (left hemisphere).

The same literacy, which destroyed the traditional institutions of Athens, created an abstract rationalism inseparable from the new dominance of the left hemisphere: "But at this time, in the same generation to which Thucydides belonged, there rose a new faith in reason . . ." (3, p. 180). Literacy played a role in the breakdown of Greek tribalism by separating the individual from the group, and contributed to the so-called democratic individualism climaxing in



the Peloponnesian War in the fifth century (3, p. 178). The present electronic age, in its inescapable confrontation with simultaneity, may present the first serious threat to the dominance of the left hemisphere since that time.

*However, hemispheric dominance does not mean there can be no interplay between the hemispheres.*

No matter how extreme the dominance of either hemisphere in a particular culture, there is always some degree of interplay between the hemispheres, thanks to the *corpus collosum*, that part of the nervous system which bridges the hemispheres. The Oriental cultures provide a good example of this interplay. With their extreme cultivation of the right hemisphere, which invests their lives, their language, and their writing with artistic delicacy, still the Chinese exert much left hemisphere bias and quality in their practicality and their concern with moral wisdom. However, their stress falls heavily on a particular use of space as explained by Chiang Yee (7, pp. 189-90):

*Indeed the use of space is one of the Chinese painter's most coveted secrets, one of the first thoughts in his head when he begins to plan his composition. Almost every space in our pictures has a significance: the onlooker may fill them up with his own imagined scenery or with feeling merely. There was a Chinese poet of the Sung dynasty, Yeh Ch'ing Ch'en, who wrote the sorrows of a parting and described the scene as follows:*

*Of the three parts Spring scene, two are sadness,  
And other part is nothing but wind and rain.*

*Who would venture to paint this scenery, but yet who would deny the truth of it? This is what we leave to the well-disposed blank, more eloquent than pictorial expression.*

Chiang Yee is explaining that the Chinese use the blank, the interval between things, as the primary means of getting "in touch" with situations. Nothing could be more expressive of the properties of the right hemisphere in contrast to the left, for the left hemisphere "sees" space as an interval which must be logically connected, filled and bridged. Such is the dictate of lineality and visual order.

The Japanese attitude to social relationships as "a constant readjustment to our surroundings" (1, p. 44) is another illustration of an Eastern understanding of space. This attitude is the extreme contrast to the Western or visual "point of view" which assumes a fixed position from which to examine each situation and seeks to "connect" situations and relationships rather than "tune." Kakuzo in *The Book of Tea* expresses the continued adjustment to the surroundings of the part to the whole:

*The Taoists claimed that the comedy of life could be made more interesting if everyone would preserve the unities. To keep the proportion of things and give place to others without losing one's own position was the secret of success in the mundane drama. We must know the whole play in order to properly act our parts; the conception of totality must never be lost in that of the individual. This Laotse illustrates by his favourite metaphor of the Vacuum. He claimed that only in vacuum lay the truly essential. The reality*



*of a room, for instance, was to be found in vacant space enclosed by the roof and walls, not in the roof and walls themselves. The usefulness of a water pitcher dwelt in the emptiness where water might be put, not in the form of the pitcher or the material of which it was made. Vacuum is all potent because all containing. In vacuum alone motion becomes possible (1, pp. 44-45).*

*Today, the paradox is that the most recent Western technologies are electronic and simultaneous, and are thus structurally right hemisphere and "Oriental" in their nature and effects.*

This situation, of course, is not new, having begun with the telegraph 100 years ago. But the overwhelming foundation or *ground* of the Western world remains lineal, sequential and connected, in its legal institutions, and also in its education and commerce, while its entertainment and its art are representative of right hemispheric structures. A formula for complete chaos. The *ground* of the Oriental right hemisphere, meantime, is rapidly acquiring some of the hardware connectedness of the left hemisphere Western world. Yet, as we have seen, the right hemisphere culture is at least always intensely aware of *ground*, and in fact prefers the experience of participation in *ground*, while members of Western culture are able to detach themselves from participation in the *ground* through individualism and the advent of phonetic alphabets.

*Nowhere is this more evident than in the Western approach to the study of media and its effects.*

The left hemispheric Westerner approaches the study of media in terms of linear motion or sequential transportation of images as detached *figures* (content), while the right hemisphere approach examines the *ground* of media effects instead. For example, the Shannon-Weaver model of communication shown in Figure 2 (see 4) is widely used, and is an extreme example of the lineal bias in communication: it is a kind of pipeline model of hardware container for

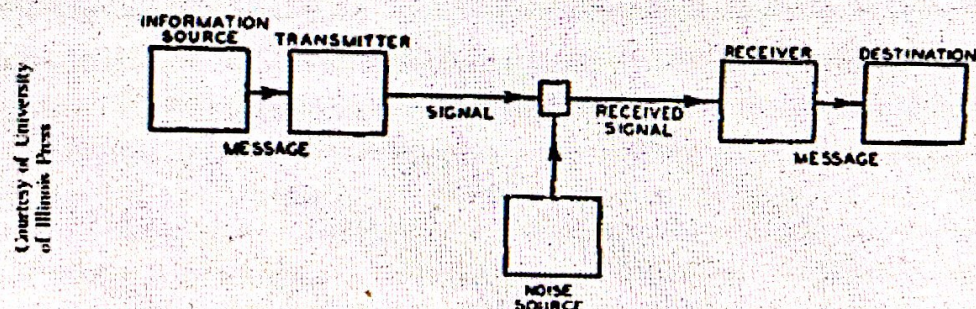


Figure 2: The Shannon-Weaver model of communication



software content. It stresses the idea of "inside" and "outside" and assumes that communication is a kind of literal *matching* rather than *making*. Claude Shannon (4, p. 31) notes:

*The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have meaning; . . .*

In point of fact, the side effects of any communication system tend to be an entire environment of interfacing, a kind of subculture which accompanies the central "service" or channel of communication. For example, the side effects of the Alaska oil pipeline might mean that the entire native population would be deprived of its environmental livelihood with its construction. Or equally, the system of roads and services that accompany the motor car alter the entire face (and odor) of any society. In the same way, the side effects of telephone or radio assume a complex system of electric technology which transforms the entire society.

There is a paradox that the "hardware" channels of radio and telephonic communication contribute to an extraordinary "software" effect. When people are on the telephone or on the air, they have no physical bodies, but are only abstract images. The result is a disembodied man, an effect which the Shannon-Weaver theory would simply designate as *noise*. Minus his body, the user of a telephone or radio is also minus his private identity.

We turn to abstract art for an illustration of this simultaneity of, this time, the electronic environment. The mural by the French painter, René Cera (see Figure 3) is an image of the TV tube in action, illustrating the experience of

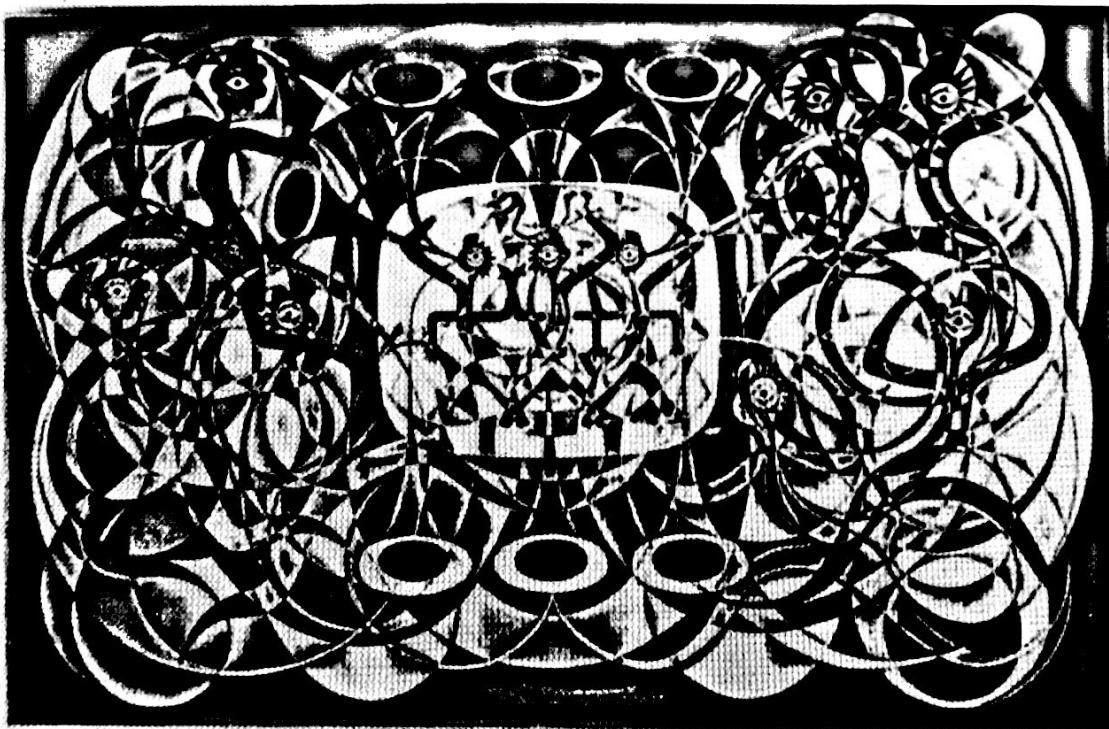


Figure 3: "Pied Pipers All" by René Cera



TV as primarily acoustic rather than visual. He titled his picture "Pied Pipers All," referring to the famous legend of "The Pied Piper of Hamelin" who, not paid for his work by the villagers, led their children away. Cera's title wittily reminds us that today we have forgotten to "pay the piper" in the case of TV, and that as a result a generation gap has opened up. Cera's image, showing simultaneously the causes and effects of the TV experience, is a right-hemispheric illustration of a new, right-hemispheric environment.

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