"The alphabet was the most significant of the boons conferred upon mankind by Phoenicia. It is generally considered the greatest invention ever made by man" (Hitti 1961, p. 102)

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Alphabet Mother of Invention

Introduction

We live in an age of rapid technological change in which we feel the underpinnings of our society and culture are constantly being uprooted. This might explain the present concern for "roots" that grips contemporary thought. This book is about "roots" too, those of Western civilization, which we shall trace back to our unique writing system, the phonetic alphabet. As we explore the history of ideas we shall discover that many of the seminal ideas in Western science, mathematics, jurisprudence, politics, economics, social organization, and religion are intrinsically linked with the phonetic alphabet. The magic of the phonetic alphabet is that it is more than a writing system; it is also a system for organizing information. Of all mankind's inventions, with the possible exception of writing itself, nothing has proved more useful or led to more innovations than the alphabet. It is one of the most valuable possessions in all of Western culture, yet we are blind to its effects and take its existence for granted. It has influenced the development of our thought patterns, our social institutions, and our very sense of ourselves. The alphabet, as we shall discover, has contributed to the development of codified law, monotheism, abstract science, deductive logic, and individualism, each a unique contribution of Western thought. Through the printing press it has reinforced or encouraged many of the key historical events of modern Europe including the

Renaissance, the Reformation, the Industrial Revolution, the rise of democracy, mass education, nationalism, and capitalism. Marshall McLuhan summed up this idea in a very succinct manner when he wrote in the Gutenberg Galaxy (1962, p. 65), "By the meaningless sign linked to the meaningless sound we have built the shape and meaning of Western man". The purpose of this book is to understand exactly what McLuhan meant by that pithy statement.

The alphabet is one of the first things that children learn once they are able to speak. It is the first thing that is taught in school because it is the gateway to learning and knowledge. The twenty-six letters of the English (or Roman) alphabet are the keys not only to reading and writing but also to a whole philosophy of organizing information. We use the letters of the alphabet to order the words in our dictionaries, the articles in our encyclopedias, the books in our libraries, and the files on our computers. These systematic approaches to coordinating information based on the medium of the alphabet have suggested other forms of classification and codification that are part and parcel of Western science, law, engineering, economics, and social organization.

Not only has the alphabet performed admirably as a tool for literacy, it has also served as a model for classification. It has played an instrumental role in the development of the logical style of analysis that is characteristic of the Western way of thinking. Learning how to read and write with the alphabet has brought us more than literacy and a model for classification. It has provided us with a conceptual framework for analysis and has restructured our perceptions of reality. All of these effects take place independent of what we read. The information that is coded is not important; it is the act of coding itself that has been so influential and acted as a springboard for new ideas. Other writing systems exist, but none have provided such fertile ground for abstract ideas nor such an efficient tool for organizing information.

The Alphabet as Phonetic Code

The phonetic alphabet is a unique system of writing in which a, small number of letters or visual signs (twenty-two to forty) are used to represent the basic sounds or phonemes of a spoken language. The letters are used to code the sounds of each word phonetically.

The very first alphabet was invented over 3,500 years ago in the Near East by the Canaanites, a Semitic people, and contained only twenty-two letters. It became the model for hundreds of other phonetic alphabets including English, French, Latin, Greek, Latvian, Russian, Romanian, Arabic, Turkish, Persian, Sanskrit, Korean, Hebrew, and Swahili. Each of these phonetic alphabets is descended from the first Canaanite alphabet through a complicated process of borrowing and adaptation. The English alphabet is derived from the Roman alphabet, which in turn can be traced back through the Etruscan, Greek, and Phoenician alphabets.

The letters of today's European alphabets and their sound values correspond to those of that first Semitic alphabet with some additions. (See Chapter 2.) The original alphabet invented by the Canaanites contained only consonants. The Greeks, however, improved on the Semitic alphabet by adding vowels. They also added a small number of new consonants to represent special sounds in their spoken language. In fact, each of the cultures that adopted an alphabetic writing system invariably added new letters to represent the unique sounds of their spoken language.

The order of the letters of modern alphabets is more or less the same as that of the original one. Even the names and shapes of the letters are in many cases recognizable from their original ancestors. For example, our letter B evolved from the Greek letter

beta, , which in turn is derived from beit, [Hebrew letter beit] (or |-|), which in the original Canaanite meant "a house" and was drawn as a box. The English letter B still stands for the same "b" sound and the upper case form, B, still looks a bit like its original except now the house is not so square and it has two rooms. This letter, whether as b or beta or beit, has always been the second letter of the alphabet.

Not only have the order, name, and shape of the letters remained the same for thousands of years but so too has the sound value of the letters. The "b" sound, which is represented in English or French with b, in Greek by [Greek letter beta], in Hebrew by : [Hebrew letter beit], and in Canaanite by [a "box"] , are not exactly identical; each has its own unique flavor, but they are easily recognizable from one speaking group to another. It is possible to render the approximate pronunciation of a foreign language we do not understand if it is written with the Roman alphabet. This is the power of the alphabet, namely, its ability to phonetically code the spoken word independent of the language being transcribed.

The alphabet is not the only form of writing. Because the alphabet seems to us such a natural way to write, we tend to believe that all writing systems are alphabetic. This is not true. There are two other widely used systems of writing. One is logographic writing in which each spoken word is represented by its own unique visual sign, which denotes or depicts the word symbolically (ideograms) or pictorially (pictograms). It is the oldest form of writing, dating back to 3100 B.C. when the Sumerians first developed their writing system. It is still employed in modern Chinese writing.

A third form of writing is the syllabic system, in which each individual syllable in the spoken language is phonetically coded with its own unique sign so that each of the following syllables would have its own sign or character: ba, be, bi, bo and bu. The very

first use of syllabic signs was by the Sumerians whose later writing system was a mixture of syllabic signs and ideographic characters. The first purely syllabic code was that of the Akkadians who took over the Sumerian writing system and tailored it to their needs. An example of a modern day syllabic code is the Japanese writing system which employs two different codes one a pure syllabary and the other a mixture of syllabic signs and Chinese characters. Syllabaries lie somewhere between logographic and alphabetic writing systems. Alphabets code each individual phoneme, while syllabaries code each individual syllable, and logographic systems depict an entire word with one sign. The phonetic alphabet is the most recent of the three writing systems. It is also the most economical, with the fewest number of signs, and hence is the most abstract. It is these properties of the alphabet that have influenced the development of Western culture and contributed to what we shall call the "Alphabet Effect".

Because the alphabet is so much a part of our information environment, however, we often take its existence for granted and we are blind to its effects, much as fish are unaware, of the water in which they swim. The Alphabet Effect is a subliminal phenomenon. Of all the writing systems, the phonetic alphabet permits the most economical transcription of speech into a written code. The phonetic alphabet introduced a double level of abstraction in writing. Words are divided into the meaningless phonemic (sound) elements of which they are composed and then these meaningless phonemic elements are represented visually with equally meaningless signs, namely, the letters of the alphabet. This encourages abstraction, analysis (since each word is broken down into its basic phonemes), coding (since spoken words are coded by visual signs), and decoding (since those visual signs are transformed back to spoken sounds through reading).There is more to using the alphabet than just learning how to read and write. Using the alphabet, as we shall soon discover, also entails the ability to: 1) analyze , 2) code and decode, 3) convert auditory signals or sounds into visual signs, 4) think

deductively, 5) classify information, and 6) order words through the process of alphabetization. Each of these skill sets were essential to the development of the Western or European mode of thought. These skills are the hidden lessons of the alphabet that are not contained (or at least not contained to the same degree) in learning the Chinese writing system or a number of other non-alphabetic writing systems as well. These are the features of the use of the phonetic alphabet that give rise to the Alphabet Effect.

The extra lessons of alphabetic literacy explain why schoolchildren in North America take just as long to learn to read and write as Chinese children despite the fact they have to learn only twenty-six letters compared with the one thousand basic characters required to read Chinese. In both China and North America children begin school at age five and have learned how to read and write, more or less, by the time they are eight years old. Western children take the same time because along with reading and writing they are learning many other things (Rappaport 1977). What they learn are the intellectual by-products of the alphabet, such as abstraction, analysis, rationality , and classification, which form the essence of the Alphabet Effect and the basis for Western abstract scientific and logical thinking. The use of the phonetic alphabet helps to explain why Western and Chinese thinking are so different (abstract and theoretical for the West versus concrete and practical for the East) .

Original Hypothesis

This study of the Alphabet Effect emerges from and is based upon a tradition (known originally as the Toronto School of Communications) established by Harold Innis (1971 & 1972) and Marshall McLuhan (1962 & 1964) at the University of Toronto beginning in the early fifties in which they explored the ways in which media of communication, including the alphabet, have shaped and influenced human culture and its various social

institutions. In particular, they showed that the use of the phonetic alphabet and the coding it encouraged led the Greeks to deductive logic and abstract theoretical science. (See Chapter 6) It is also worth noting that the tradition that begun as The Toronto School of Communication has a much geographic broader base and operates under the more descriptive moniker of media ecology.

My own interest in understanding the Alphabet Effect arose from my research with McLuhan and my earlier attempts to understand the origins of abstract science in the West. The earliest form of science as it was practiced in ancient China, Egypt, and Mesopotamia was strictly phenomenological and concerned with practical questions. It was based exclusively on observation and not on any particular theoretical foundation. Joseph Needham (1956 & 1979), the China scholar, nevertheless argued that the Chinese contributed to the development of abstract science in the West because of their many practical inventions and the transfer of technology from East to West. His assertion leads naturally to the question: **Why did abstract theoretical science not begin in China itself but rather in the West?**

In an attempt to answer this question I once suggested that monotheism and codified law, two features of Western culture absent in China, led to a notion of universal law, which influenced the development of abstract science in ancient Greece. When I first shared this hypothesis with McLuhan, he agreed with me but pointed out that I had failed to take into account the phonetic alphabet, another feature of Western culture not found in China, which had also contributed to the development of Western science. Realizing that our independent explanations complemented and reinforced each other, we combined them in a paper entitled "Alphabet, Mother of Invention" (McLuhan and Logan 1977) to develop the following hypothesis:

Western thought patterns are highly abstract, compared with Eastern. There developed in the West, and only in the West, a group of innovations that constitute the basis of Western thought. These include (in addition to the alphabet) codified law, monotheism, abstract theoretical science, formal logic, and individualism. All of these innovations, including the alphabet, arose within the very narrow geographic zone between the Tigris-Euphrates river system and the Aegean Sea, and within the very narrow time frame between 2000 B.C. and 500 B.C. We do not consider this to be an accident. While not suggesting a direct causal connection between the alphabet and the other innovations, we would claim, however, that the phonetic alphabet (or phonetic syllabaries) played a particularly dynamic role within this constellation of events and provided the ground or framework for the mutual development of these innovations.

The effects of the alphabet and the abstract, logical, systematic thought that it encouraged explain why science began in the West and not the East, despite the much greater technological sophistication of the Chinese, the inventors of metallurgy, irrigation systems, animal harnesses, paper, ink, printing, movable type, gunpowder, rockets, porcelain, and silk. Credit must also be given to monotheism and codified law for the role they played in developing the notion of universality, an essential building-block of science. Almost all of the early scientists, Thales, Anaximenes, Anaximander, Anaxagoras and Heraclitus, were both law-makers in their community and monotheistically inclined. They each believed that a unifying principle ruled the universe.

Phonetic writing was essential to the intellectual development in the West. No such development occurred in the East. The remainder of this book will be devoted to articulating this hypothesis, which McLuhan and I formulated in our original article. The hypothesis, however, will be extended to include the influence of the alphabet on the development of Western civilization after its first flowering in ancient Greece. To do this

we will review the history of Western ideas from the invention of writing in Sumer 5,000 years ago to the most recent applications of computer technology. We will trace the role that the phonetic alphabet has played directly and indirectly (through science, logic, codified law, and monotheism) in the development of Western civilization.

First we will review the history of writing and learn how the alphabet was first invented. We will then compare European and Chinese culture, showing how the differences in the two writing systems account for the many contrasts in these two civilizations. After this we will examine the historic accomplishments of various societies, studying the way in which the alphabet influenced the development of their thought and cultural patterns. Beginning with Mesopotamia we will examine in turn the following cultures: Hebrew, Greek, Roman, Arab, Medieval, Renaissance, Industrial, and Post-Industrial. We will show how each of these cultures was influenced by the Alphabet Effect and in turn developed its own unique application of alphabetic literacy.

A central theme in this study is the notion that a medium of communication is not merely a passive conduit for the transmission of information but rather an active force, "a living vortex of power" which creates new social patterns and new perceptual realities. Innis wrote that "a medium of communication has an important influence on the dissemination of knowledge over space and over time and it becomes necessary to study its characteristics in order to appraise its influence in its cultural setting" (Innis 1971, 33). Once the dominant media and technologies of a culture are known, one knows "the cause and shaping force of the entire structure [and] what the pattern of any culture [has] to be, both psychically and socially" (Innis 1972, xii, McLuhan's foreword). A person who is literate has a different world view than one who receives information exclusively through oral communication. The alphabet, independent of the spoken languages it transcribes or the information it makes available, has its own intrinsic impacts. These effects have

changed the nature of Western civilization so that it differs both from nonliterate cultures and from those societies whose system of writing is non-alphabetic, such as the Chinese or Japanese.

Because the effects of media are so important, one cannot understand historical processes and cultural development solely in terms of what information has been communicated. One must also understand the way in which that information was mediated. In other words, one must also examine the effects of media themselves independent of the messages they transmit. Marshall McLuhan expressed this idea with his famous adage "the medium is the message" which forms an integral part of the philosophy of the Toronto School of Communication. Like most good aphorisms, McLuhan's famous dictum can not be taken literally. It is not that the medium is literally the message but rather that, independent of its content or messages, a medium has its own intrinsic effects on our perceptions which are its unique message. "The message of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs". McLuhan cites the way the railway created "totally new kinds of cities and new kinds of work" (McLuhan 1964, 8). What McLuhan writes about the railroad applies with equal force to the medium of alphabetic writing. "The medium is the message" because it is the "medium that shapes and controls the scale and form of human association and action" (McLuhan 1964, 9). The effects of a medium impose a new environment and set of sensibilities upon its users and it is only by studying both the medium as a "message" and the messages that the medium transmits that a full appreciation of cultural and historical processes can emerge.

Three Communication Ages

McLuhan, building on the ideas of Innis, divided human history into three distinct periods based on the modes of sensibilities their media made available to them. The first era is that of oral communication and stretches from the time humankind first acquired speech to the beginnings of literacy five thousand years ago. The second era is the age of literacy and includes the period from the invention of writing to the discovery of electricity and its use in the form of the telegraph. The age of writing is further subdivided into three distinct periods, the first beginning with the advent of written symbols based on pictograms and ideograms, the second with the invention of the phonetic alphabet, and the last with the emergence of the movable type printing press. The third communication era, that of the electric flow of information, covers the period from the first use of the telegraph in 1844 to the present. Although Innis and McLuhan never made a clear distinction between electric (mass media such as telegraph, telephone, radio and TV) and electronic (computing) communications we do in this study. The focus of this book is the study of the phonetic alphabet but we will also examine the origin of writing and show how it led to the development of the phonetic alphabet. We will then study the use of the alphabet and its contribution to the development of the printing press and finally its impact on the electronic flow of information especially the way in which it shaped the use of computers and the Internet.