



A Comparative Study of the Origins of Phonography and Ideograph

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Abstract

Human script has gone through a long process and many developments, eventually evolving into two main branches, namely, the ideograph and the phonography. However, the reasons for the separation of ideograph and phonography, as well as the features of the two, have been the subject of much disagreement in the academic community. Taking Chinese characters as an example for ideograph, English, Sumerian cuneiform, and Phoenician as examples for phonography, this article makes a detailed study of the reasons for differences in the origins of ideograph and phonography from the aspects of geography, national concepts of time and space, and phonetic structure.

Subject Areas

Linguistics and Philosophy

Keywords

Ideograph, Phonography, Geography, Phonetics, Philosophy

1. Introduction

The question of the origin of writing is a common concern of mankind since ancient times. Almost all ancient peoples with a writing tradition have legends about the origin of writing [1]. There are thousands of languages in the world today, and about half of them have their writing systems, which can be categorized into two major ones: ideograph and phonography. At present, most of the researches are about the concepts and characteristics of ideograph and phonography, while there is a lack of fundamental study on the origin of these two different writing systems, leaving a mystery in the field of linguistics which is worth

exploring. In other words, why did human language not develop uniformly in one kind, but respectively produced and developed two categories, ideograph and phonography? More specifically, why did ideograph develop in countries such as China, while phonography developed in Western world?

Language embodies human attitude towards the world, and the use and development of language cannot be separated from the social reality to exist independently [2]. Therefore, the reasons for the parting of the ways between ideograph and phonography depend on, to certain extent, the different social realities including unique geographic environments and distinguishing ways of thinking in different nations from which the two writing systems emerged. Therefore, this paper will focus on the reasons for separate development of ideograph and phonography from the perspectives of geography, the different ways of thinking between nations, and phonological and linguistic structures. Moreover, in studying the origin of ideograph and phonography, this paper attempts to explain the sequence of their emergence.

Theoretically, this study will be helpful to reflect on whether the existing method of dividing writing systems is scientific or not and to reveal the root causes of the differences between languages. Practically, since language is the most important component and carrier of different civilizations, this study will promote a series of related researches including cross-cultural communication, English-Chinese translation, comparison of Chinese and Western philosophies, histories, and literature.

2. Phonography and Ideograph

2.1. Ideograph

Chinese characters, one of the earliest characters in the world, are written symbols to record the Chinese language. On the one hand, the ideographic method, to a great extent, makes Chinese characters gradually move away from recording the shape of objects to become pure ideographic symbols. On the other hand, it creates pure ideographic symbols by using existing pictograph or adding other symbols to express new meanings.

Ideographs have a great adaptability, which can be used directly in glyphs for people of different times and dialect areas regardless of the historical changes in phonetics and dialect [3]. However, ideographs also have the feature that a phrase or a morpheme must be recorded in a character, and the characters themselves could not directly represent sounds, making it difficult to learn and use them.

2.2. Phonography

Phonography is a writing system that uses written symbols, namely letters, to express the pronunciation of words. Its written symbol is neither the image of the physical object nor directly represents words or morphemes, but only represents smaller phonetic units that do not contain meaning. Therefore, pho-

nography is directly related to the phonetic material of language. According to the combined pronunciation of the letters of phonography, people can identify the meaning units of the words or morphemes they represent, which shows that people have recognized the phonological material form and its analyzability. As a result, the corresponding units of meaning can be recorded and expressed through the writing of phonetic units. Because of the small number of phonetic units in the language, the written symbols of phonetic characters are relatively few, far less complex than ideograph, and more convenient to master and use.

However, phonography also has its disadvantages. First, because language changes with the times compared with the long history of mankind, its evolution can be described as rapid and fleeting. With the passage of time, it can be difficult for future generations to understand the meaning of the previous spoken language, making phonographic characters somewhat/more abstruse. Second, phonography is easily confusing when used to express many homophones, and it is difficult to understand their specific meanings without referring to the context [4].

Theoretically, the time of origin of phonography and ideograph, as well as the likelihood of both being created in a given region, are equal. Mr. Zhou Youguang divided the evolution of characters into three periods [5]. According to him division, after the ancient pictographic period, the two kinds of writings, the phonography and ideograph, were parallel and had the same chance of being produced. In addition, the archaeological discovery of the two linear scripts of ancient Greece well supports the fact that the phonography and ideograph had the chance to be created at the same time or in the same area. Archaeologists have found two ancient forms of writing in the clay tablets found in Crete, named Linear A and Linear B [6]. These two kinds of writings have been identified as ideograph and phonography respectively after careful study. Both were produced at roughly the same time and were not preserved in their entirety with the fall of the Mycenaean civilization.

3. Reasons for the Divergence of Phonography and Ideograph

3.1. Differences in Geography

The variation in geography has affected the creation of ideographic and phonographic writing systems, leading to the creation of phonography largely in the West and ideograph mainly in the East. These writing systems have been conserved and advanced respectively in these areas up to the present time.

Firstly, the difference in natural geography answers the question of why ideograph and phonography were created and developed in the East and the West respectively, rather than the other way round. The ancient civilization of the East relied on fertile plains irrigated by large rivers, while the civilization of the West originated from the sea. The East's productive land brought forth a self-sufficient agricultural civilization. In the West, however, the Mediterranean climate, with its warm, rainy winters and hot, dry summers, was very unsuitable for the de-

velopment of agriculture. People in the West had to make full use of marine resources and open up sea trade routes. Social existence determines social consciousness. Characters produced in different geographical environments were created to fulfil the different needs of their people and society. Phonography and ideograph served distinct purposes and were applicable to different social conditions and economic activities. Phonography represents auditory symbols of human cognition, while ideograph reflects visual symbols of human thinking—the former primarily mark the reception of and response to auditory information, while the latter focuses on the storage of visual information [4]. Therefore, phonographic facilitates real-time communication between people, and the writing system is relatively simple, making it easy to disseminate and use widely. Ideograph, as visual symbols of human cognition, has a more complex writing system. Merchants and colonists by the sea sought efficiency in communication and gradually tended to give up the ideographs, which were complicated and time-consuming to write, and chose to simplify the symbols of communication in their exchanges. However, people lived in a self-sufficient agricultural civilization pay more attention to the development of their own culture, which is well suited by the characteristics of ideograph.

In *The Origin of Language*, Derrida formulated the beginnings of phonography: “...break down the speaking voice into a given number of elementary parts, either vocal or articulate, with which one can form all the words and syllables imaginable. This way of writing, which is ours, must have been invented by commercial peoples who, in traveling to various countries, had to speak various languages, which would have impelled them to invent characters that could be common to all of them.” [7]. The emergence of phonography made it possible to fully transcribe speech into written form. This was an advantage over ideograph writing, which could not be used to depict a multitude of abstract ideas that did not have a physical form. Consequently, Western peoples, who were mainly traders and seafarers, gradually devised phonography for their own communicative purposes.

The specific Phoenician alphabet can be used as an example. Many phonetic writing systems such as Hebrew, Arabic, and Greek have the Phoenician alphabet as their common origin. The Phoenicians lived in a mountain-backed geographical environment, with access to the sea. They had to depend on maritime trade, as they could not rely on agriculture. Moreover, a series of small city-states appeared at an early stage on the eastern shore of the Mediterranean Sea. Hence, the Phoenicians devoted great attention to the expansion of their colonies. The development of Phoenician trade and colonization was advanced. The Phoenicians sought fast communication and instant transactions, and thus gradually adopted the ancient Egyptian hieroglyphics, and simplified the Sumerian cuneiform. The Phoenicians simplified pictography to indicate local language components, that is, letters. This served as a communication bridge for commercial or colonial activities. In summary, phonography is more suitable for speech interaction, promoting instant communication and exchange. For this reason, it is suitable for

the needs of commercial trade in the West.

Ideograph, on the other hand, is more suitable for the Eastern farming civilization, as it prioritizes preserving the meaning of words and aims to record them for long-term retention. Firstly, ideograph was derived from pictograms, which would not impede the recognition and understanding of the meaning of words, no matter how much the language has changed over time. Moreover, the majority of the ideographs discovered in archaeology were incised on pottery, jade, and stone tools. These relatively robust carriers allowed the ideographs to be conserved for a significant period. Further, the main function of the early ideographs was to record divination, calendars, humanities, and other events for long-term preservation, to be archived and handed down to the descendants. In brief, the fertile land in the east has given rise to a self-sufficient agricultural civilization where residents don't require external communication and trade. Hence, people living in the vast plains have low demand and desire for communication and trade with people from outside, and they pay more attention to the accurate indication function and cultural inheritance of writing system [8]. Furthermore, physical geographical variations account for why there is a more extensive range and broader application of phonography in the modern world.

As stated earlier, the Mediterranean Sea's vicinity, with its multiple islands, proved to be well-suited for navigation and commerce. Throughout the seafaring commerce and conflicts amongst different communities, civilizations were shared, exchanged, and amalgamated. For instance, the Phoenicians developed the Phoenician alphabet that proliferated in Greece through maritime trade. The Greek alphabet was created by adapting and refining the Phoenician alphabet [9]. On the one hand, they borrowed from each other in the writing process, and on the other, for the ease of communication, all these countries developed phonography to varying degrees. As the course of history unfolded, the frequency of civilization exchanges among different nations naturally increased. These heightened interactions between civilizations can be viewed as a contributing factor to the widespread usage of phonography in the modern world. Now, we turn to Chinese characters. Unlike many other nations, China has been relatively isolated geographically. Consequently, despite the accidental emergence of ideograph in China, the country has not experienced the same fate as Mycenae, where the invasion of external forces resulted in the cessation of their own scripts. However, this geographic isolation has also hindered the development of new ideographs in China due to the limited trade and cultural exchange with the outside world. In brief, China's relatively isolated geography has, on the one hand, enabled the preservation of Chinese ideographs and, on the other hand, deprived the opportunity to exchange, learn from, and integrate with other scripts.





3.2. Differences in the Temporal and Spatial Thinking

The ideograph and phonography represented by Chinese and English respectively belong to the Sino-Tibetan and Indo-European language families, and

what is noteworthy is that the characteristics of the national thinking in which these two writing systems arose and developed are markedly different. Language is a tool of communication, and also the component and carrier of culture [10]. Von Humboldt (1999) also pointed out that “Every language is the historical product of national thinking, which reflects a nation’s unique thinking paradigm for observing, perceiving and understanding the world” [11]. And according to Fang Dongmei, in order to understand the thinking of a nation, we must first start with temporal and spatial thinking [12]. Therefore, this thesis holds the view that the reason why languages have not developed uniformly but have diverged into ideograph represented by Chinese and phonography represented by English, is closely related to the differences in the spatial and temporal thinking of the nations from which these two writing systems originated. British people had a stronger preference for time-based thinking, while Chinese had a stronger preference for spatial thinking; and that the differences in the spacetime characteristics of language and the national temporal and spatial thinking preferences of the English and Chinese were closely related to the respective language origins, philosophies and ways of thinking [13]. That is, nations of phonography origin perceive the world in terms of time, and nations of ideograph origin perceive the world in terms of space. This can be proved by an experiment. Wang Dan and Zhang Jiejia explored the different spatial-temporal characteristics of English and Chinese languages and national spatial-temporal thinking preferences with empirical methods [14]. Their experiment proves that English and Chinese subjects, in their expressions, pay different attention to temporal and spatial information: English subjects pay more attention to the expression of temporal information than Chinese subjects, while Chinese subjects emphasize more on the spatial information than English ones. This indicates that English subjects have stronger temporal thinking than Chinese subjects, and Chinese subjects have stronger spatial thinking than English subjects [14].

The root cause for the divergence of temporal thinking and spatial thinking can be traced to differences in the philosophical thinking of Western and Chinese nations. Ancient western philosophy holds that time, which is sacred and eternal, creates everything. Also, from the time when Copernicus composed *On the Revolutions OF the Celestial Spheres*, the Western view of the universe has changed dramatically [14] Western philosophy no longer perceives world in a static way, instead, it believes that the fundamentals of the universe lie in movements and actions, prompting the national thinking that movement is the essential, while static is the manifestation. Moreover, westerners’ lifestyle also influences their thinking. For instance, British people are traditionally nomadic and migrate a lot, making their philosophy emphasizes more on the movement and change. Comparatively speaking, though the representative of ideograph, the Chinese nation, has the concepts of the alternation of day and night and the cycle of seasons, the centric place of Chinese philosophy is never occupied by the ideas of dynamism, movement, and change. For example, Confucianism, the

main ideology of the Chinese nation, advocates “the culture of moderation”, and Taoism advocates “govern by non-interference”. Obviously, the core of these two ideologies is “stillness” not “movement”. In addition, the Chinese people have traditionally been a farming nation, settling in one place for a long time, which makes the Chinese people permeated with the idea of “Live out the life in peace and in one place”, showing less enthusiasm about “action” as well as “movement”.

It’s worth noting that temporal thinking has the characteristics consistent with time, including one-dimensionality, abstraction, and the focus on logical thinking as well as abstract thinking [15]. By contrast, spatial thinking has the characteristics consistent with space, including multi-dimensionality, concreteness, and focus on correlation thinking as well as figurative thinking. Consequently, western people, with stronger logical and abstract thinking ability, are inclined to make assumptions boldly, verify carefully until the nature and rules are completely explored. Under the penetration of these ways of thinking, the language of western nations will also be abstract in nature, developing into phonography with abstract letters as basic components that could not express meaning figuratively, and word forms have nothing to do with the shape of things. On the other hand, as a kind of old ideogram, the characteristics of Chinese character are different from European alphabetic writing. The Chinese have a strong ability to think in images and focus on the objective, real and concrete aspects of the world, leading to the development of pictograms, which are intuitive and vivid images and concrete shapes can be observed, and then evolved into ideograms. Pictograms, as the predecessor of ideograph and the crystallization of Chinese figurative thinking, utilize shapes to create characters. That is, the characters resemble the images of the things they represent in specific shapes. For example, the character “” resembles the shape of a bend of the moon, the character “” looks like a swimming fish with a head, body and tail, the character “” imitates the shape of two doors on the left and right, and the character “” resembles a circle with a point in the center, very much like the image one sees when looking directly at the sun. Benefiting from the Chinese people’s concept of spatial and figurative thinking, pictograms were able to develop in China and evolve into today’s ideograph. This is difficult to realize in Western countries because their way of thinking, which emphasizes abstract thinking and temporal thinking, is not conducive to the origins and development of concrete pictograms. On the other hand, phonography, in which the shape of the word had no relationship to the form of the thing it refers to, developed accordingly. Nowadays, Chinese characters have developed into ideograph, adding other methods of character creation, including indication, ideogrammic compounds, the borrowing of homophones, the phono-semantic compounds, and the derivative cognates according to the system of the six categories of Chinese characters [16]. However, these are made by combining, subtracting, adding or deleting symbolic components based on pictographs.

Thus, in essence, these new methods of character creation also reflect the significant influence of figurative thinking on ideographs. So the conclusion can be drawn that the emphasis on spatial and figurative thinking influenced the origin of pictograms and ideographs profoundly, and these particular types of writing also promoted the deepening of the Chinese concept of spatial and figurative thinking in return.

3.3. Differences in Phonological and Linguistic Structure

Taking the phonological structure of Sumerian cuneiform and Chinese characters as examples, the reasons for the separate development of phonography and ideograph can be well explained.

The Sumerian cuneiform, created 5000 years ago, is one of the earliest written characters in the world, and can be said to be the ancestor of all existing alphabetic writing. The Sumerian cuneiform in its infancy was almost identical to early Chinese characters in its developmental path and character formation. The earliest Sumerian cuneiform, like the earliest Chinese characters, is pictograph evolved from the primitive symbols. With the passage of time, the ways of creating characters, such as knowing and pictophonetic, gradually appeared. Both Sumerian cuneiform and early Chinese oracle bone inscriptions had a stage of development from ideograms to phonography through the use of loan characters. However, the development of Sumerian cuneiform towards phonography continued and became the originator of all alphabetic writing in the world. The Chinese characters, however, did not make the transition to phonography and eventually became the world's only ideograph.

The reason for the creation of loan characters is very simple—the original characters are not enough. This is because when the ancestors first created characters, they used pictograms and their extensions to refer to things and to mean things, which simulated natural things. The number and range of characters they could create were limited, not enough to face the increasing complexity of life, let alone to express some non-physical or abstract concepts. So they had to borrow existing characters with the same or similar sound to represent the words and meanings they wanted to express. As the number of loan characters, which were used only for phonetic purposes, increased and became the dominant characters in the writing, the writing also changed from ideograph to phonography [17].

The Sumerian states began to wane, but writing did not disappear. The Sumerian cuneiform, a great invention, gradually spread throughout the Two Rivers Valley and even throughout Western Asia. In the process of spreading, the cuneiform shifted from being mainly ideographic to being mainly phonographic. In the early stage, the way of phonography was somewhat similar to Chinese loan characters, but differs from them in that they borrowed existing characters with the same or similar sounds to represent the intended words and meanings, while Sumerian loan characters borrowed ideographic symbols to represent syllabic

symbols of the same pronunciation, *i.e.*, the role of symbols shifted from ideograph to phonography, which were used to represent foreign names and words that they didn't understand. For example, on a few clay tablets belonging to the Djemdet-Nasr period (c. 2900 B.C.), the word for "arrow" was given the pronunciation TI, and since then it has not only had a practical meaning (meaning "arrow" and "life"), but also the syllable ti, which was then used to spell other words. At this time, many homophones or homonyms appeared [18]. Because the number of syllables in a language is after all limited, the Sumerian cuneiform was in the process of transformation, and the number of symbols continued to decrease, from a maximum of more than 2000 symbols to more than 500 in the Assyrian period, and became a syllabic-based phonography. The various alphabets that later became popular around the world were derived from this syllabic script.

The Yin and Shang oracle bones are the earliest Chinese characters we have known, but they were already a fairly sophisticated writing system. In the oracle bones, a considerable portion of the characters appeared in the form of loan characters, that is, these characters were phonographic but not ideographic. Therefore, it can be said that the writing at that time already had a tendency to be phonetic. If it could continue in this direction, Chinese characters would eventually become phonographically syllabic, *i.e.*, each syllable would be represented by one Chinese character (symbol), just as the number of post-Sumerian characters was reduced to only a few hundred.

However, the main reason why the Chinese characters were halted in their development in the direction of phonetics was that at that time the Chinese language was dominated by monosyllabic words, and a Chinese character needed only one sound and one syllable, so it could be combined with the signifier to form a square character. At the same time, there were very few two-syllable words in the Chinese language, and there were almost no words with more than three syllables. In the case of predominantly monosyllabic words, the probability of repetition of the pronunciation of words is very high, and the use of phonography is impractical. If a syllable is epitomised by only one syllabic symbol, it results in one character representing several, dozens or even hundreds of homophones, which is very likely to cause confusion. And such syllables are centred on vowels, with consonants adhering to the front and back of the vowels, seemingly indistinguishable from each other [19]. No wonder, then, that Sanskrit, the greatest invention of the 3rd century, can only be analyzed for sounds and rhymes, without a clear alphabet [20].

Whereas the Sumerian language is all consonant-dominated, with vowels somewhat indeterminate and seeming to adhere to the consonants, their writing, more often than not, only spells out the consonants [21]. Their language, being both polysyllabic and compound consonants, requires more than two phonetic components for a word, and cannot be a combined square character.

The languages of the western peoples were all based on multi-syllabic words,

with little chance of repetition of certain pronunciation, so the cuneiform they continued to use was in a good position to develop in the direction of phonography. As for Chinese characters, they could only add signifier to the loan characters of phonography in order to distinguish characters with the same sound but different meanings. The problem of homophonic confusion in loan characters was well solved by pictophonetic characters, which became the main force in the development of Chinese characters. Today, 90 percent of all Chinese characters are pictophonetic characters. However, Chinese characters have never been related to phonography.

4. Conclusion

As two main branches of human script, ideograph and phonography have their own characteristics, functions and history. Language has always been created and developed in the service of social reality and human needs. Thus, externally speaking, the reasons for the independent development of ideograph and phonography are due to the different geographical environments of their origins. And internally, the special phonetic structures as well as the characteristics of the national thinking fundamentally led to the separate development of the two.

Conflicts of Interest

The authors declare no conflicts of interest.

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