

An Academic Research in Old Korea

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The word "science" comes from the Latin word "scientia" which means nothing more definite than knowledge. But the modern usage of it seems to cover only certain kinds of knowledge. Even this area is so vast and extremely diverse that no man can have a grasp of more than a minute fraction of it. They extend from subatomic particles-reactions to human mental processes; from the birth and death of stars to the migration of birds; from the statistical behavior of matter to the economics of a nation. Accordingly, the meaning of science in the mind of scholars in various fields covers a wide range of spectrum.

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However, in the fields of natural sciences, many people believe that there exists a definite scientific method. Man observes all manners of physical and biological situations, measures and classifies them, seeks to relate them to other phenomena. He attempts to formulate simple explanations for which he perceives. He seeks to contrive a set of rational postulates consistent with his array of empirical observations. Rational explanations are acceptable and satisfying if they are in accord with observations and if they predict new observations which are consistent with existing knowledge.

In this scientific endeavor, the processes take place mostly in human mind as rational thinking, and for the rational thinking written languages are known to be the most important tools. Still, physical tools are indispensable in observations and measurements of natural phenomena. And with advance of knowledge, required precision of the tools becomes higher and scale of the tools becomes bigger, consequently, cost of the tools becomes more and more expensive. Now these tools are almost beyond reach of most scientists in developing countries, in spite of the fact that need for scientific knowledge is as pressing as in advanced countries. This causes

frustration in the mind of those scientists, and the brain drain occurs from less advanced countries to more advanced one. Under this circumstance, we scientists from developing countries ask ourselves whether the traditional "scientific method" evolved from the doctrine introduced by Francis Bacon is the only one or not.

We have found analogous predicaments existed in Korea until the invention of a new method of writing Korean "Hangul" about 500 years ago. Up to that time, Korean scholars acquired knowledge mostly through Chinese characters which were hard to learn and difficult to use. In those days it was almost impossible for them to think otherwise, because China was the most advanced country in their world, and the media of culture were Chinese characters.

Surveying half-hundred kinds of written languages developed in world history, "Hangul" seems to be in a unique position in that, while others were results of gradual process of evolution, only this was the product of a concentrated research during rather short period of time by a group of young bright scholars under leadership of a great king. Moreover these scholars obtained their education only through chinese chracters.

The motivation of the research was desire to meet the needs of common people by providing them with means of expressing their thought in written form and hope of propagating a truly national culture. We may quote the following from the introduction to the "Hun Min Jon Um"; the original report of the research to people.

"While there is a great difference between Korean language and Chinese, there are no proper letters that Korean people can use in writing their language and expressing their thoughts. Since the time of Silla Daynasty (8th century) a system of writing known as "I-du" has been used in daily life of common people as well as in the offical business of the Government. But it is too complicated, imperfect and inconvenient system for Korean people to use freely in expressing their own ideas and thinkings, for too

many Chinese characters are involved in it. Koreans are in great need of their own letters with which they can write their spoken language." Here, I-du is a system of peculiar usage of Chinese characters. Sometimes it borrows only the sound, and other times it borrows meaning of Chinese characters. Even now, few scholars agree in translating a sentence written by I-du, because sounds of Chinese characters were not unique and had changed very much.

In the process of Hangul invention research, many kinds of writing systems were supposed to be studied. At the time, there were training schools for spoken Chinese, spoken mongolian, spoken Manchu and spoken Japanese. And many Buddhist monks knew Sanskrit and some scholars were aware of some writing systems in central Asia. But Chinese characters were most intensively studied. Specially the study of sounds and rhymes of Chinese characters was the basis of the new invention. A Chinese character has different sounds at different localities in China, and it is no wonder that Korean way of sounds is very different from China. It is recorded that the king sent one of his best philologists thirteen times to Liaotong Penninsula to consult with a Chinese scholar who was a expert in this field.

Chinese characters themselves at a very early date (many centuries B.C.) evolved a six-fold classification, the so-called six scripts; namely indicative characters, pictographic characters, phonetic compounds, ideographs, turned round characters and borrowed characters. But generally "pictographic" is regarded as the characteristics of them. Exact process of selecting 28 letters of original version of "Hangul" is not clear yet, but in the report of the research, it is said that the "pictographic" principle was adopted and they made shapes of letters look like seal writing of Chinese characters. But the way of adoption of the principle was rather different. Chinese characters evolved from shape of actual things, but Korean letters were designed to represent actions of speech organs.

ㄱ (Giog) represents root of tongue closing epiglottis.

ㄴ (Nion) represents tongue touching hard plate.

ㅁ (Miom) represents shape of mouth.

ㅇ (Siot) represents tooth.

ㅊ (Eoung) represents form of throat.

ㅋ (Kiuk) is more emphatic than ㄱ and so has one more stroke. The

following letters are formed under the same principle.

ㄷ & ㅌ (Diod), ㅈ & ㅊ (Tiot),

ㅂ & ㅍ (Biob), ㅍ & ㅑ (Piop)

ㅅ & ㅆ (Ziot), ㅈ & ㅊ (Chiot)

ㅇ & ㆁ (Hiot)

The eleven vowels are said to represent heaven, earth, man and their combinations with each other. • stands for heaven, — for earth and | for man. In combination, they form eight symbols, |• (a), |: (ya), •| (eo), :| (yeo), •• (oo), •• (yoo), —• (ou), —•• (you), in addition to these vowels • (a'), — (eu), | (ee). This derivation may sound somewhat abstruse, but it was thought to base the new symbols in prevailing philosophy of the day. The philosophy was built upon the principle of duality (Yang, Yin) and the five elements (wood, fire, earth, metal and water).

Even before the publication of new "Hangul" letters, several important books were written by them and printed to show effectiveness of them. One of the books was about the origin of the kingdom, Yi-daynasty, and others were about Buddhism.

It is not surprising to learn that the king and the research group were under heavy criticism from many scholars. Aside from the political reasons, main point of objection can be seen from a letter of objection to the king from one of his best scholars.

"Even though I-du is made of many Chinese characters, and has been in use since Silla daynasty, most intellectuals have looked down it and avoided

using it, because it is not the proper way of using Chinese characters. Who then would not despise "Hangul" which is nothing to do with Chinese characters at all? Imagine what will happen when no Chinese characters but "Hangul" alone is going to be used. Those who seek positions in Government will not learn Chinese characters with patience, and consequently Chinese characters which are our only way to learn culture will flourish no longer. "Hangul" which is a mere novelty will cause hindrance to study, disadvantage and inefficiency to administration."

Now we return to science, which in broader sense, may be defined as an organized system of useful knowledges acquired through human experiences. Here the method of research is recognized not to be limited to the "scientific method" of natural sciences. Even the pattern of thought seems to be not fixed. There are some system of useful knowledges not directly related with the "scientific method". One example is oriental medicine which is regarded, in many countries of East Asia, to be not far behind the western medicine in its effectiveness. Here the method for obtaining knowledges seems to be not understood well. There is a suggestion that some kind of statistical approach is involved here.

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If there were a new scientific method in natural sciences, it is possible this is already either in the developing stage along with the traditional one, or already in use outside of natural sciences. If there is other methods of science, we need to modify our education of natural sciences to include them. But could there be a discovery or synthesis of new scientific method similar to the invention of the Korean alphabets? If the new method is suited to the urgent need and traditional mentality of developing countries, then every scholars in the world would contribute their shares to the body of human knowledge. Therefore, if it is possible at all, its research will be an effort well worth while for us and may benefit the entire humanity.

