

Preliminary Study on the Differences of Scientific Development between Chinese and Western

Jing xiao

The Maxism School of China West Normal University
Normal Road No.1, Shun Qing Area,
Nan Chong City, Sichuan Province,
People's Republic of China 637009
E-mail: jingxiao2015@163.com

Abstract:

China has a long history, many of who is glorious era. Ancient China has plenty of outstanding achievements in mathematics, astronomy, chemistry, geography, and other fields. However, those did not trigger a modern scientific revolution in China. What are the conditions of the west that have the industrial revolution? This paper begins with the famous Needham, and it studies by raising questions and analyzing problems. This paper aims to explore the differences between China and the West's development path of modern science, by carrying out a comparative study of scientific development environment and conditions.

Key words: Scientific development; differences between Chinese and Western

1. Introduction

As one of the four major ancient civilizations, China has a continuous history. In addition, China's science and technology takes the road from around the Christian era to the 15th Century, and it takes up to fifteen hundred years. During this period, China gets outstanding achievements in mathematics, astronomy, chemistry, geography, and other fields. For example, Zu chongzhi accurately calculated circumference ratios seventh decimal places. An astronomical geodetic survey was organized by Zhang Sui, the Tang Dynasty astronomer. The ancient Chinese drew the constellation on a large scale in the southern hemisphere. What 's more, there were the manufacture of gunpowder and advanced sailing ships in ancient China and so on. These are the embodiment of prosperity of science and technology in ancient China. However, why China did not set off modern scientific revolution.

To our surprised, the first person to ask this question is Needham, which is not a Chinese. Of course, maybe he is not the first to ask the question but the first one to be taken seriously. Because Chinese do not be sure that the ancient Chinese is related to modern science revolution with poor and weak condition.

2. Differences in path of scientific development between Chinese and Western

Needham thinks that the problem of ancient Chinese bureaucracy is an important factor. Politicization of culture hampered the development of science and technology, which has been recognized in many literatures.

Firstly, the mainstream political thought making the intellectuals who have the ability to make technological innovation disdain to be classified as Great master. Then they are less likely to produce relevant technical innovations. In addition, this idea cannot directly impact on the public who cannot get the system education and afford to live. Thus, the public lack guidance of technological innovation. Thus, the technology obstructed both in human resources and intellectual resources.

Secondly, ordinary people have little chance of get formal professional training, because agriculture, medicine, astronomy, arithmetic and other subjects were under the direct control of the government. Take astronomy as an example, it is a government monopoly in the Jin Dynasty. After that, it becomes increasingly severe controlling. Thus, theoretical science is far from its broad foundation.

Thirdly, culture is attributed to another obstacle to science and technology development in ancient Chinese. Chinese traditional culture pays attention to the integration and tacit knowledge which stressed that the overall, so the partial analysis do not affect the whole. The tacit knowledge hampered exchange of details, resulting in a lack of sensitivity to digital, and even affecting heritage of the overall disciplines. In essence, the tacit knowledge placed elite education on a vital link, which makes the loss of road where ancient China can get a series of basic training basic talent.

In conclusion, the above-mentioned factors are the reason why China do not form the scientific system in modern times, then why did scientific revolution happened in the sixteenth century in the Western?

As we all know, the modern science of the west originated in the Renaissance. At that time, in order to surviving and development, the emerging bourgeoisie set off a struggle that uses ancient Greek philosophy, science and art as the main content to fight with feudalism and superstition church. In addition, the development of foreign trade in the West also contributed to accumulation of astronomy, geography knowledge. Thus, the modern scientific system is formed. In this process, the first condition of the Renaissance is bourgeois revolution. The reality factor is the Western bourgeoisie, differing from East companions under a strong centralized government, gradually form a class which can ask for rights from theocracy and monarchy.

The second factor is the choice of fighting tool. The theocracy origin from the distorted theology. To weaken their rights, we need to overthrow their fundamental theory. So the bourgeoisie choose the ancient Greek cultural heritage, scientific, literary to against it. However, if you want to rebel against the ruler in ancient China, the rebels would not be bourgeois who did not form a system. Of course, they can not consider science and literature as a tool.

Last but not the least, an important factor is make the most of the advantage, namely fighting tool. The modern science the rapid and independent development because it entail the advantages of ancient Greek science, culture thinking with the application of scientific and technological achievements of the East (printing, the compass, gunpowder).

3. Conclusion

In fact, we maintain that it is only as a reference to the development process and not play a decisive role in history. Cultural stagnation in the west lasts more than a century due to the harsh theological in the Dark Ages, but it provides a breakthrough to Renaissance. China's centralization of state power brought relative stability and steady development of society for two thousand years, and created narrow stick mentality. The world is not flat, every nation has their own long and short development process, and no cultural groups can ensure their own lead the world in every age. On this premise, in order to achieve the development of the own nation, the system mechanization learning of others is not the best approach. We are supposed to maximize favorable factors and minimize unfavorable ones. The idea that the nation is the world is the optimum selection.