

THE DESTRUCTION OF ANCIENT ECOLOGICAL ENVIRONMENT AND THE MOVEMENT OF CIVILIZATION CENTER IN CHINA

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ABSTRACT: China is one of the ancient civilization countries. Owing to the blind reclamation, the vegetation had been destroyed, causing soil erosion and desertification, and making the civilization center move to the Changjiang (Yangtze) River valley from the Huanghe (Yellow) River. This movement began in the Qin and Han dynasties (221 B.C.—220 A.D.) because at that time the large-scale reclamation was felled, the grassland was reclaimed into farmland, the vegetation was seriously destroyed in the loess and north of the Huanghe River, and the climate was getting colder; and the turn from north to south occurred in the Sui and Tang dynasties (581—907 A.D.) and completed in the Song Dynasty (960—1279 A.D.). However, at present the vegetation damage of the Changjiang River valley is very serious too and the silt carrying capacity of the Changjiang River is increasing sharply; thus the Changjiang River is in danger of becoming a second Huanghe River, so we must pay attention to the protection of ecological environment.

KEY WORDS: blind reclamation, destruction of vegetation, soil erosion, desertification, movement of civilization center

The reclamation appeared more than 8,000 years ago in China with a long history, and then China had become one of the world-famous ancient civilization center. After the Qin and Han dynasties, owing to the blind reclamation, the vegetation were destroyed on a large scale, to gave rise to soil erosion and desertification and cause the destruction of ancient ecological environment, making the civilization center move to south from north gradually. We have learnt a profound history lessons from this movement.

I. THE GENERATION AND DISTRIBUTION OF CHINESE ANCIENT CIVILIZATION

Good conditions had generated for evolution of the ancient mankind when surface environment of the earth entered the optimum period of climate in the later glacial epoch. The climate was warm and moist at that time. Then the reclamation appeared early or late in somewhere of the world. So, mankind had a bit stable food source and there appeared a tremendous leap of human history. This leap was called "The First Wave" by Toffla, an american futurist. Ancient China, like ancient Egypt, ancient Babylon, ancient India and ancient Greece had made a brilliant ancient civilization, and had become the center of ancient civilization.

The initial reclamation was to produce by new stone implement such as stone axes, stone shovels and stone ploughs. This production was more stable than the production such as fishing, hunting and gathering although the productive forces was low and weak at that time. Therefore, the population increased speedily, but the total figure was small. A lot of ruins of Chinese new stone implement have been discovered. These ruins have distributed widely in the district of river valley. The major reasons were that the soil was deep and fertile and water supply of living was very convenient in the region. Mankind was not away from natural water resource because they could not dig a well using new stone implement. The ruins of Chinese new stone implement were most concentrative in the Huanghe River valley, they distributed mainly in the region of different levels tributaries, river valleys of the Huanghe River and the intersects of rivers such as the Taohe, Weihe, Jinghe, Luohe, Fenhe, Yihe, Weihe and Zhanghe rivers and their tributaries. Climate was warm and moist in the New Stone Age in ancient China. It is estimated that the average temperature at that time was 5℃ higher than today, and the precipitation was more than present time. There were plants such as bamboos, ferns, and animals such as elephants, river deers and bamboo rats in the Huanghe River valley at that time. The soil was loose and fertile in the valley region of the Huanghe River valley, it was reclaimed easily in the conditions that the productive tools were mainly new stone implement. Additionally, mankind could not build a house, just lived in caves in the New Stone Age, The thick loess in the Huanghe River valley was easily excavated for housing. There were not fixed river courses in the lower reaches of the Huanghe River and the river flowed irregularly. So, the alluvial plain in the lower reaches of the Huanghe River was not easily developed. Also, it was very difficult to develop the Changjiang River valley due to much more subtropical forests covering, a crisscross network of irrigation channels, lakes and swamps spreading widely and stable soil. It is doubtless that Chinese civilization center in the New Stone Age was in the valley region of the Huanghe River valley.

Though the bronze ware had been used 4,000 years ago in China, the bronze tools had been used just in the Shang and Zhou dynasties. The usage of the bronze tools raised, the

productive forces, and promoted the society development to form the civilization of the Shang and Zhou dynasties. The climate was also warm and moist in the Shang Dynasty. There were also elephants and bamboos to live in the central plain of China. Although it was getting colder in the Western Zhou Dynasty, the natural environment was also advantageous to living and developing of mankind.

In the Spring and Autumn, and the Warring State periods, there were two crops a year because the climate was getting warm. The iron ware appeared and was applied to production gradually. At the same time, the farm cattle was also used in production. So, the productive forces was raised greatly and population increased rapidly. Finally, Chinese society entered into a completely new stage, Feudal Society. Then mankind could dig a well and the reclamation extended to open places from the river valley. Dykes and dams of the Huanghe River were strengthened in Warring State Period, and the alluvial plain in the lower reaches of the Huanghe River valley began to be exploited. Meanwhile, the developed scale of the Changjiang River valley was getting larger and larger, and some powerful countries such as Chu, Wu and Yue appeared. Because the mankind activity capacity was limited at that time, the vegetation on the Loess Plateau was basically intact and covering ratio of forest was about 53 per cent, at the same time a lot of grasslands in the north were also pastoral areas. Concentration of silt in the Huanghe River, called Great River or River at that time, was low. The vegetation in the lower reaches of the Huanghe River valley and the Changjiang River valley were also not destroyed basically. The center of Chinese civilization was still in north Huanghe River valley and ecological environment was also good.

II. THE DESTRUCTION OF ECOLOGICAL ENVIRONMENT IN THE QIN AND HAN DYNASTIES AND THE MOVEMENT OF CIVILIZATION CENTER IN THE WEI AND JIN DYNASTIES

The first emperor Shi Huang of the Qin Dynasty unified China in 221 B.C. He defeated the north nomadic tribes, expanded the territory northward, and linked the Great Wall that was situated at north of the Great Wall of the Ming Dynasty and the Dayin Mountain. Owing to the large-scale reclamation to the south of the Great Wall, the vegetation in the region of the middle reaches of the Huanghe River was destroyed seriously and the dividing line of reclamation extended northward rapidly.

In the early Western Han Dynasty, emperor WuDi ordered Wei Qing and Huo Qubing to defeat Xiongnu (Hun) (an ancient nationality in China), and built the Great Wall. The territory and limits of reclamation continued to expand northward. Troops stationed to the south of the Great Wall continued to reclaim in the Loess Plateau and the prairie north of the Huanghe River. So, the developed agricultural area called "New Qin Zhong" was formed. China made a great progress in agriculture in the Western Han Dynasty and population increased to more than 50 million. The plains in the Fenhe and Weihe rivers valleys

and the Loess Plateau became the civilization center of China. The capitals both of the Qin and Western Han dynasties were situated in Guan Zhong because of the combination of political center with economical center. The alluvial plain in the lower reaches of the Huanghe River valley had been developed gradually but it didn't hold the chief position. While the south where population was about one-fifteenth of the total was very bleak and wild, and its economic capacity was still very low.

Because the large-scale reclamation was carried out, the forest was felled, and the grassland was reclaimed to farmland, the vegetation was destroyed seriously and large piece of desert was formed in the region of the Loess Plateau and north of the Huanghe River in the Qin and Western Han dynasties. The Loess Plateau was situated in the monsoon area, its precipitation was concentrated in summer with much rainstorm under the influence of monsoon of East Asia. Porous soil without the protection of vegetation was easily eroded. Therefore large quantities of valuable land resources and water resources were lost, the concentration of silt in the Huanghe River increased, and calamities of the flood and waterlogging in the lower reaches of the Huanghe River occurred frequently in the late Western Han Dynasty. The Huanghe River changed its course when Wang Mang was in power. Concentration of silt in the Huanghe River was 60 per cent in the early stage of the Eastern Han Dynasty.

Due to the serious soil erosion in the Loess Plateau and the desertification north of the Huanghe River, the agricultural area in "New Qin Zhong" began to decline, economic center of the Han Dynasty began to move toward the lower reaches of the Huanghe River. The lower reaches of Huanghe River which had been exploited for many years became the principal agricultural area. It was due to closing up the political center to economical center that the capital moved to Luoyang in the Eastern Han Dynasty. At the same time, the Changjiang River valley was also developing, its population had been one-tenth of the total. By the end of the Eastern Han Dynasty, the productive forces of agriculture was getting weak due to the destruction of environment, the increasing of flood and the climate getting cold. Especially, the class contradictions had been intensified due to annexing land by landlords. Then the Yellow Turbans Uprising broken out, and the feudal ruler encountered the relentless blow. As a result, large quantities of the north nomadic tribes and people in central plains moved southward and the civilization center began to move to the south.

In the Wei, Jin, and Northern and Southern dynasties period the climate was getting cold and dry, the average annual temperature was 2—4℃ lower than at present, and the precipitation was also less than at present. The limits of farming and animal husbandry had moved to the middle reaches of the Huanghe River because of the soil erosion, the increasing of flood calamity, the destruction of agriculture, and the decreasing of population, caused by large-scale reclamation in the middle reaches of the Huanghe River, as well as the wars and southern migration of the north nomadic tribes. The forest and grassland were renewed in the Loess Plateau due to the reclamation decreasing and nomadic increasing. As

a result of the protection of vegetation, the decreasing of soil erosion and desertification in the north and the concentration of silt in the Huanghe River, the ecological environment was resumed obviously. The Changjiang River valley and the Zhujiang (Pearl) River valley were developed rapidly because the north people had brought the large quantities of labour forces, advanced agriculture and technology of handicraft. The Development in the south was much quicker than in the north although the level of economy in the south fell behind the north. The south population proportion increased quickly, and the culture in the south was getting prosperous due to the advanced civilization in the central plain moving the south. It was the first step that Chinese ancient civilization moved to the south in the Wei, Jin, and Northern and Southern dynasties period.

III. THE CIVILIZATION CENTER CONTINUING TO MOVE SOUTHWARD IN PERIODS OF THE SUI AND TANG DYNASTIES AND THE FIVE DYNASTIES

Chinese feudal society had come in a period of great prosperity in periods of the Sui and Tang dynasties. At that time, climate was warm and moist. National power was strong and the territory was expanded enormously and population totalled more than 50 million. In the Wei and Jin dynasties and the Northern and Southern dynasties, under the influence of means of production of farming of the Han nationality, the nomadic tribes which had moved to the south used to farming. The vegetation that had been renewed obviously in the Northern and Southern Dynasties period was destroyed again because the large-scale reclamation appeared again in the Loess Plateau and north grassland in the Sui and Tang dynasties. The soil erosion was serious in the middle reaches of the Huanghe River. The concentration of silt in the Huanghe River and the flood in the lower reaches of the Huanghe River increased quickly. The "Huanghe River" called sometime before was named from then on, and the name of "River" or "Great River" nearly disappeared. The reclamation in the north grassland also made wind erosion aggravated and the desertification serious. Some deserts were formed in Mu Su region and the Hexi Corridor area due to the desertification of grassland. Chinese ancient civilization center continued to move southward as a result of the ecological environment destroyed again in the north. Therefore, the developing capacity was getting stronger in the south, and the population increased to one third of the total. The grains and taxes provided by the south began to exceed the north in the Tang Dynasty (742 A.D.). The south became the major mainstay of national economy and finance. Foods produced by the south were transported mostly to the north, especially the capital Guan Zhong by the canal in the Sui and Tang dynasties. The food was transported to the Huanghe River firstly by the Tongji Canal which was the part of southern Grand Canal, then to the capital Guan Zhong. It showed clearly that the center of finance and economy had moved to the south since the Grand Canal were built

and used in the Sui and Tang dynasties. This movement began in the Sui and Tang dynasties was getting obvious in the late Tang Dynasty and the Five Dynasties. So, we can say that the Sui and Tang dynasties was the period of the turn from north to south of Chinese civilization center.

IV. MOVEMENT OF THE CHINESE CIVILIZATION CENTER SOUTHWARD COMPLETED IN THE SONG DYNASTY

In the Song Dynasty, though the north was still the political center, population in the south began to exceed the north. Households in the south were 64.4 per cent of the total in the second year of Yuan Feng, the Song Dynasty (1080 A.D.). At that time, soil erosion in the north was very serious, the concentration of silt in the Huanghe River was increased, and the flood frequently occurred in the lower reaches of the Huanghe River. As a result, riverbed of the Huanghe River exceeded the earth's surface and the river banks were often breached. So the Huanghe River seriously imperilled the cropland, lakes, cities and human life. On the other hand, the south that had been developed for a long time was very prosperous. The Northern Song Dynasty made Bianliang as its capital because Changan and Luoyang were miserable while Bianliang was near the rich area of the southeast. Grain of about 5 million to 7 million hectolitres was transported from south to north by the Bian Canal and the Grand Canal at the beginning of the Northern Song Dynasty, and the transport had continued until the middle stage of the Northern Song Dynasty. Later, it was difficult to transport grains by the Bian Canal because it was blocked up by silt of the Huanghe River. Perhaps it was the reason why the Northern Song Dynasty was destroyed. The culture in the south was more prosperous than in the north in the Northern Song Dynasty, and a lot of excellent scholars were southerner. Thus the situation that the north scholars dominated the literary world ended.

Though the climate was getting warm in the Southern Song Dynasty it was also difficult to renew the destroyed vegetation in the north. And the soil erosion was still serious, the concentration of silt in the Huanghe River didn't reduce and the flood in the lower reaches of the Huanghe River was still critical. The civilization center of China continued to move southward in virtue of the destruction by the war of Jun Kan Rebel and southward migration of the north nomadic tribes once again. It was the combination of the economic center and political center that the Southern Song Dynasty made Linan (now Hangzhou) situated Zhejiang its capital, this was very advantageous to developing the south. It was the reason why the decadent and moribund Southern Song Dynasty that had faced the strong enemies had been safe for about 100 years. The culture in the south continued to develop in the Southern Song Dynasty, and exceeded the north obviously. Excellent scholars were southerner basically. In a word, the movement of the civilization center of China to the south had been finished in the Song Dynasty.

Though the political centers of the Yuan, Ming and Qing dynasties were all in the north, the economic centers were still in the south. The climate was getting cold and dry, and the ecological environment was still destroyed seriously in the north. But the south continued to develop. The rule of the Yuan, Ming and Qing dynasties all depended on the south riches. The Grand Canal from Beijing to Hangzhou was a major transport line. The culture in the south was also prosperous in the Yuan, Ming and Qing dynasties, and a lot of excellent scholars were southerner mainly.

V. THE EXPERIENCES AND LESSONS

There is a great practical significance to summarize its experiences and lessons about the movement of civilization center as a result of the destruction of ancient ecological environment of China. The history proved that blind reclamation and over-grazing were harmful to ecological environment, vegetation, agriculture and the whole social foundation. Though some of the ancient civilization centers in the world had been doomed, Chinese ancient civilization center had been lasting because of the great circling area in China's vast territory. However, the circling area is not boundless, and the population has reached 1.1 billion in China. The soil erosion and desertification are rather serious today. The area of soil erosion had reached 1.5 million square kilometers by 1980, and the lost soil totals 5 billion tons each year. Now, about 1.5 billion tons of silt are transported by the Huanghe River every year. However, soil erosion is also very serious in the Changjiang River valley, consequently forming the "Purple Wilderness" and "Red Wilderness". At present, about 1.2 billion tons of silt are transported by the Changjiang River. It is possible for the Changjiang River to become the second "Yellow River". It is a hidden trouble to the Chinese modernization. One must pay attention to it. The protection of ecological environment is a important mission of Chinese development strategy.

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