

Palaeoclimate and Palaeoenvironment of the Xiachuan Site

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I. Introduction

The Fuyihegeliang 富益河圪梁 profile, about 2.6 meters in depth, is a typical profile of the Xiachuan 下川 Site. A total of 15 soil samples have been collected from the profile for the pollen study. A number of pollen grains and spores was found from the samples, which represent 64 plant taxa. According to ^{14}C dates, the profile belongs to the Last Glaciation. Climatic classification and pollen

zonation of the Glaciation can be operated by three steps, i.e., zones, subzones, and minizones. The minizones only have regional and temporary sense. Zone I, Zone II and Zone III are corresponding to the Early, Middle and Late sub-stages of the Last Glacial stage and the 4, 3 and 2 of the deep sea oxygen isotope stages. Zone II2, Zone II3, Zone IIIa, and Zone IIIb can be well correlated with the stadials (s) and interstadial (i) in North China, such as Ashihe 阿什河 (s), Shangentun 山根屯 (i),

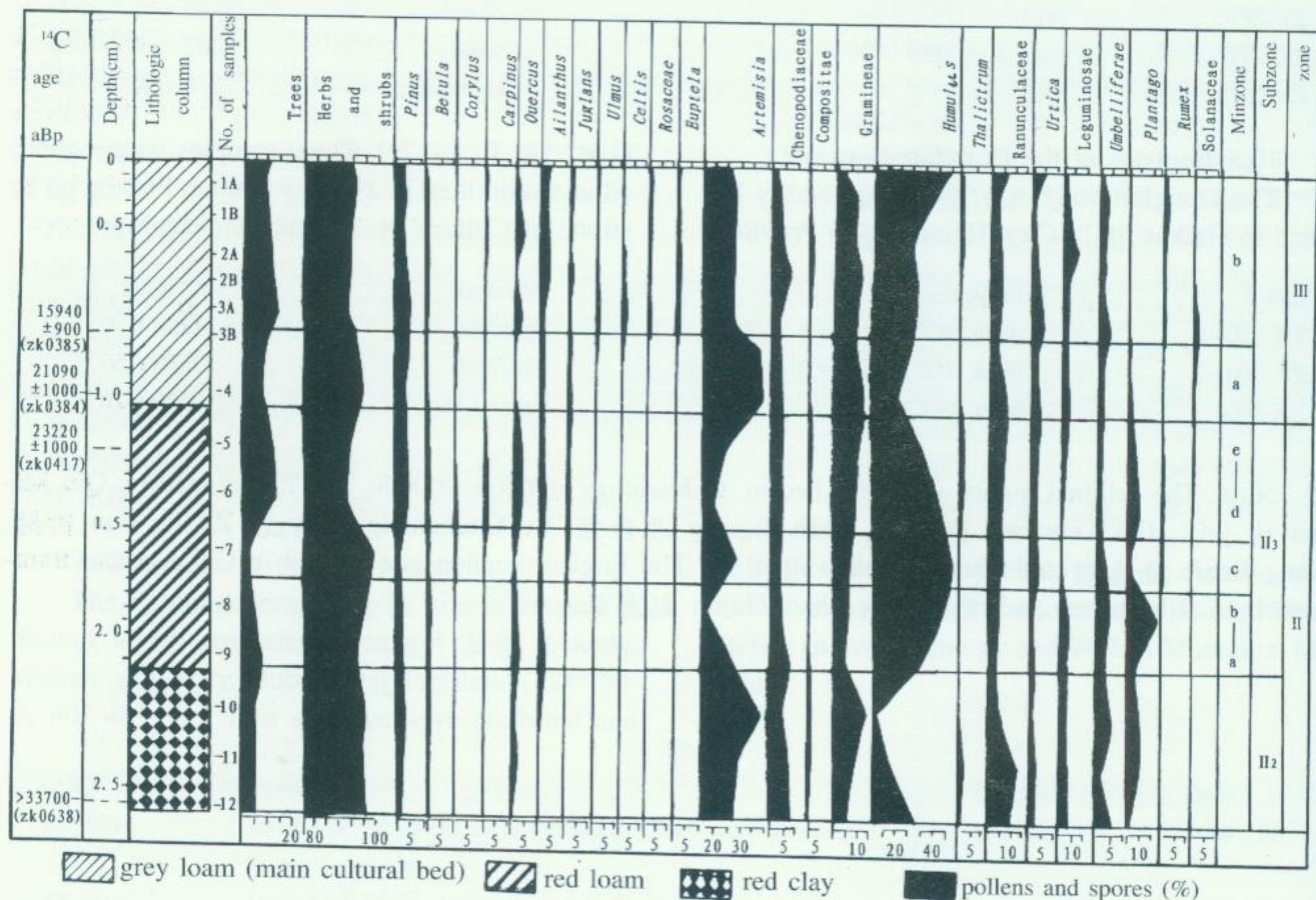


Figure 1. A pollen-spore diagram of Fuyihe-galiang profile of the Xiachuan site

Beizhuangcun 北庄村(s) and Fenzhuang 分庄(i), respectively. They are also correlated with the stadials and interstadials in North America, such as Cherry Tree (s), Plum (i), Missouri (s), and Erie (i). Zone I and subzone III are missing in the profile.

II. Pollen Analysis

The pollen assemblages found from the samples indicate that, the Coniferous trees, such as Pinus and Cupressaceae are not abundant, while the broadleaf trees of temperate zone are abundant, including Quercus, Ailanthus, Juglans, Celts, Carpinus, Corylus, Betula Ulmus, Castanea, Rhus, Tilia. There are a very few subtropical trees such as Platycarya. The assemblages also include some warm shrubs such as Euptelea, Rosaceae, Rhamnus, Morus, Viburnum, xerophilous herbs such as Artemisia, Compositae, Gramineae, Chenopodiaceae, and moderate herbs such as Humulus, Ranunculaceae, Urtica, Umbelliferae, Rumex, Leguminosae, etc. A few of aquatic herbs such as Typha has been found.

III. Concluding Remarks

The period of the Xiachuan site was in the middle and late stage of the Last Glaciation, the climate was cold and arid. Some moderate and humid fluctuations happened in this period.

Note: The original paper was published in *Archaeology* 《考古》 2000.10: 957-967, with 2 diagrams and 4 tables, signed by Sun Jianzhong 孙建中, Ke Manhong 柯曼红, Shi Xingbang 石兴邦, Zhang Ziming 张子明, Chen Zheyang 陈哲英, Wu Jia'an 吴家安 and Zhang Sulin 张素琳. The English version is abridged in Chinese and translated by Sun Jianzhong, revised by Zhao Zhijun 赵志军.

The Loess Plateau during the Last Glaciation was mainly of steppe and desert-steppe. But in the area where the Xiachuan site located the climate was more moderate and humid, because this area is situated in the southeastern part of the Plateau, and the site is in a basin which played as a buffet to the winter monsoon from the north, and resisted the moisture carried by the summer monsoon from the south. For this reason, the lakes and swamps were well developed in the area.

The elevation of the Xiachuan site is 1500m. The forest of birch is growing in the surrounding areas. In the vertical zonations of the mountain area, the forest of birch is higher than the temperate broadleaf trees. The appearance of many kinds of temperate broadleaf trees in the site indicates that there was a stronger tectonic uplift, maybe 600-1000m, during the postglacial time.

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