

A STUDY OF THE SURFACE-EMERGING PALAEOCHANNELS ON THE SOUTH COAST PLAIN OF LAIZHOU BAY

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ABSTRACT: By employing many methods including distinguishing the land-maps, interpreting the aerophotoes and Satellite-photographes, consulting historical documents, investigating ancient cultural relics, making investigations in the field, analysing the names and features of the place, and analysing the characteristics of the deposit, etc., a systematic study of the surface-emerging palaeochannels on the South Coast Plain of Laizhou Bay has been made. Twenty-five surface-emerging palaeochannels were discovered and verified. According to the formation age, these palaeochannels were divided into two stages: six palaeochannels were formed in the Early and Middle Holocene, and nineteen palaeochannels were formed in the Late Holocene(the historical period). According to the landform features, the palaeochannels are divided into four categories: upland palaeochannel belts, strip-shaped upland palaeochannels, trough-shaped depression palaeochannels and ancient riverbeds. Among the four categories, the strip-shaped upland palaeochannels are the main types. The swinging and movement of the channels helped the alluvial plains expand and cause the coastal ancient lakes to vanish in succession.

KEY WORDS: the South Coast Plain of Laizhou Bay; surface-emerging palaeochannels; Holocene

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The South Coast Plain of Laizhou Bay adjoins southward the mountains and hills of the Central Shandong Province, extends eastward to the Jiaolai Plain, reaches northward to Laizhou Bay of the Bohai Sea and westward to the Yellow River Delta. All the lower reaches of the Mihe River, the Weihe River and the White-wave River are so apt to deposit, burst and move that widespread palaeochannels have taken form, which have rarely been studied(JIA, 1985). It is the purpose of this paper to probe for the first time the distribution, age, and categories of these surface-emerging palaeochannels and the impact that the

channels' evolution has on the formation and development of the plain. This study is of great significance in order to enrich the theories of palaeochannels and to direct the development of palaeochannels' resources.

1 DISTRIBUTION AND AGE OF THE SURFACE-EMERGING PALAEOCHANNELS

Twenty-five surface-emerging palaeochanne(including eleven of the Mihe River, one of the Danhe River, three of the White-wave River, and ten of the Weihe Rive) have been discovered and verified by synthetical

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north in the order of Song Village, Weizi Village and Xiadian Village. Between the Tang Dynasty and the Song Dynasty, the Mihe River went northward into the Judian Lake through the north of Shouguang County Town. After moving eastward several times, at the present lower reaches of the Mihe River course, a ninety-degree turn was formed, namely, the river turned eastward suddenly from its former south-north direction and joined the White Wave River, pouring with it into the Laizhou Bay. The five surface-emerging palaeochannels formed when the Mihe River moved and changed its course arranged themselves in chronological sequence like a fan from west to east at its lower reaches (Fig. 1). When the palaeochannels in the Late Holocene (the historical period) moved eastward, the forward margin of the alluvial fan constantly expanded ahead and the palaeolagoons at the forward margin of the alluvial fan gradually silted up and vanished. For example, the Heizhong Lake originally located in the depression at the forward margin of the Mihe River's alluvial fan to the southwest of Dajiawa Saltworks, Shouguang County silted up and vanished in 1567 when the Mihe River moved eastward. For the same reason, the Another-Picture Lake (also named the Emperor's Bosom Lake) originally located in the depression at the forward margin of the White-Wave River's alluvial fan began to silt up in the Ming Dynasty and vanished on the whole in the early Qing Dynasty, which later became river mouths, river branches or reed sands (GUO, 1990).

To sum up, it is because the channels at the lower reaches of all the rivers on the south coast of Laizhou Bay constantly swung and extended toward the sea that not only helped the alluvial plains expand, but also caused the coastal ancient lakes to vanish and all the alluvial fans to expand and be integrated. As a result, the alluvial plains have gradually expanded northward to create the present geomorphological plain landscapes on the south coast of Laizhou Bay.

5 CONCLUSION

(1) By this study, we have discovered and tested twenty-five surface-emerging palaeochannels on the South Coast Plain of Laizhou Bay, among which

eleven belong to the Mihe River, ten to the Weihe River, three to the White-Wave River and one to the Danhe River.

(2) According to the formation age, these palaeochannels can be classified into two stages:

① It is preliminarily concluded that six palaeochannels were formed in the Early and Middle Holocene, which are distributed at the lower reaches of the Mihe River, with tree trunks buried in the middle-and-lower part of the sand bed. The ^{14}C age is $7086 \pm 96\text{a B. P.}$ ② According to historically textual research, nineteen palaeochannels were formed in the Late Holocene (the historical period).

(3) The palaeochannels in this region are classified into four categories: upland palaeochannel belts, strip-shaped upland palaeochannels, trough-shaped depression palaeochannels and ancient riverbeds, which stand for the different stages and periods of palaeochannel development.

(4) The river channel evolution helps the plain expansion which causes the ancient lakes located on the plains gradually to silt up and vanish.

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