

# 主 論 文 要 旨

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論文題名 **Study on Historical Diffusion and  
Characteristics of Earth Remains**

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## 主論文要旨

The earth remains are placed as a keystone of this study in the history of civil engineering. The literatures on the earth remains in China, Korean Peninsula and Japan have been examined. The common concerns about the earth remains are found in the area of East Asia, namely (1) unconstrained and compacted embankment, (2) constrained and compacted embankment, (3) manmade tools for soil compaction, and (4) reinforced embankment by plant.

Most of construction techniques for earth remains have the birthplace in China. For example, the oldest ring-bank around village, the oldest constrained & compacted earth-wall and the oldest reinforced embankment by plant were found from the Chinese ancient earth remains. Those construction techniques came down to Korean Peninsula and further to Japan.

As for the engineering aspect, two old embankments, which exist along the old ridge road in Aichi Prefecture, have been examined. As the results of the examination, it was found that both of the old embankments are well compacted and also sufficiently stable to stand safely for long period.

There are two old compaction stones in Osawa of Higashioumi City, which stones have been utilized to the maintenance earthwork for the bank of irrigation pond. The test results of ground compaction with this stone indicate that the compaction degree is high enough against the modern engineering standard. The production rate of labor intensive earthwork is also taken from this compaction test. As a result, it is presumed that the manpower for the construction of Satsuma Bank in Shizuoka City would be about 0.6 million man-days.

The study on history of civil engineering will reflect the present and the future engineering aspect.