X-ray Investigations and Uncovering Inscription on the
Iron Sword Inscribed “Ou-shi” (主赐)

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The inscription, “Regal Gift”, was found on an iron sword excavated from the Inari-dai Tumulus No. 1 in Ichihara City, Chiba Prefecture, by the X-ray transmission test conducted at the National Museum of Japanese History. The sword is a piece of lettered historical material, typical of 5th Century Japan. The characters are inlaid on the front and the back of the sword, near the hilt. At present, 5 characters remain on the front and 2 on the back. However, taking into consideration the large part missing around the hilt, it is supposed that there originally were 6 characters on each side, totaling 12 characters. Of the 7 extant characters, 5 have been confirmed; and judging from the simple sentence starting with “Ou-shi” (主赐), it is considered to be a typical example of a sword bestowed on an inferior.

Sometime after the discovery of the inscription, an overview of the investigation into this iron sword was published as a “survey report” on the responsibility of those concerned. However, there remained some facts to be added regarding the X-ray tests conducted by the author. Furthermore, since the author was later in charge of the clarification of the inlaid characters and the restoration of the form of the sword, he thought it necessary to publish the facts that were acquired through his work, without delay.

In this paper, the author reports on the original purpose of this work, which was the clarification of the characters and the restoration of the form of the sword, together with the results of X-ray investigation, and gives some discussion on these. No ground metal of the iron sword, which was broken at many points, remains. The sword at first glance looked wavy; however, it was made clear that it was originally straight. Therefore, after clarification of the inlay, it was hypothetically restored as a straight iron sword with the necessary strength for exhibition, by putting through an aluminum shaft, and by filling and reinforcing with epoxy resin.

From X-ray fluorescence analysis, a very small amount of copper and arsenic was detected from throughout almost the whole sword. This shows the characteristics of the original ground metal. The characters are inlaid with an alloy composed of three metals: silver, gold, and copper. The color of gold is pronounced in spite of the higher ratio of silver included, because of the presence of copper. The strokes of the inlaid characters are very rationally simplified. The author considers that there can be recognized some strong element of design in this.