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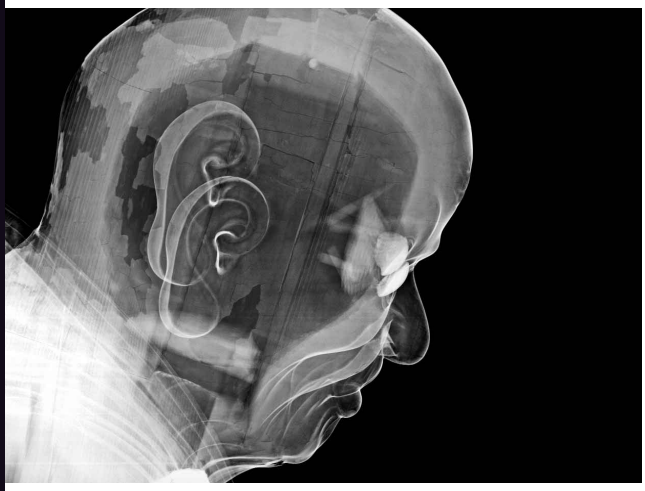
Inspection task: Restoration

Inspection item: Buddhist sculpture

Material: Wood

"Hakuin Zenji" sculpted in 1768 during the mid-Edo era



X-ray image of "Hakuin Zenji" before restoration

Inspection task

The inspection and restoration of art and cultural objects calls for non-destructive testing (NDT). X-rays enable the operator to look into the objects without destroying them or penetrating their surfaces with tools. Radioscopy shows the varying degree of X-ray absorption exhibited by the object being investigated and reveals its inner structure without harming the material.

One example of this technique is the investigation of wooden Buddhist statues prior to restoration. Radioscopic technology is very well suited for inspecting wood: Different species of wood and its age in the form of annual rings lead to a spatial density distribution. That distribution is shown in the X-ray image due to the differences in X-ray absorption.

The Buddhist sculpture "Hakuin Zenji" (1768) dates back to the Edo era and is located at the Shuin-Ji Temple in Numazu, Japan.

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Radioscopic image of the inner structure. Pins, nails and the wooden construction are clearly visible.

Analysis

The X-ray images show that the inner structure of the Buddhist statue is, in fact, a mosaic of wood. Information about the pieces of the mosaic and how they have been fitted together is essential for the restoration process.

The X-ray image reveals where previous repairs had been carried out and the kinds of techniques applied.

The X-ray image thus not only provides necessary information for disassembly and restoration, it also provides a valuable insight into the statue's history.

We would like to thank Enmyo Miyamoto, Shuin-Ji Temple in Numazu, Japan and Prof. Ichiro Nagasawa, Minobusan University, Japan for the pictures and X-ray images.

Y.MG226/2.25

Parameters

High voltage:	10 - 225 kV
Tube current:	0 - 15 mA

Y.TU225-D04

Focal spot (EN 12543)**:**	0.4 / 1.0 mm
Max. output:	0.8 / 1.8 kW

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