

Paleoradiology and N.D.T. by X-rays - Visual abstracts about Radiology and the past: secrets unveiled /
Paleorradiologia e A.N.D. por Raios-X — Abstractos Visuais sobre Radiologia e o Passado

“Cutting-Edge CT Reveals a Lost Cutting Edge”

“Avanços da TAC Revelam Declínios em Espada Medieval”

Carlos Prates^{1,2}

¹Secção de Paleorradiologia e A.N.D por Raios X da SPRMN, Lisboa, Portugal

²IMI/Affidea, Portugal

Estudo colaborativo com o Laboratório José Figueiredo / Museus e Monumentos de Portugal
Especialistas, Metais: Dra. Belmira Maduro; Textéis: Dra. Paula Monteiro; Director: Dr. Rui Câmara Borges.
Contributos de Apoio Técnico Radiológico: Rita Vidigal, Beatriz Barros / Affidea Portugal, Affidea Heritage

Received: 20/03/2026

Accepted: 20/03/2026

Published: 01/04/2026



“Cutting-Edge CT Reveals a Lost Cutting Edge”



The wood-and-leather scabbard (sheath) was severely damaged, so it was wrapped completely in protective fabric (above) before being extracted from the tomb.

CT scans are modern, non-destructive tools, that are very useful in the conservation of medieval swords. They enable us to inspect its internal structure, and without damage, uncover hidden details, and plan effective conservation strategies.

Here (right), the outcome is well seen between the first tomb view (above right) and this final sword image, with beautiful, gleaming golden silver and enamel carved apliqués, asserting the exceptional work accomplished.



Partial highlights about the evaluation, conservation, and restoration by Laboratório José de Figueiredo on a 14th-century ceremonial sword in the tomb of **King D. Dinis of Portugal** (1279-1325). In October 2022 (left), it was removed from its tomb in the Monastery of Odivelas, near Lisbon, where it had remained for over 700 years.

A 3D CT view of the blade, inside the scabbard, reveals the substantial iron degradation, seen mainly as an irregular middle cleavage along the fuller, almost duplicating the blade.

The blade type was identified as “diamond with fuller” (below).

In an axial CT view (above), we can see several slabs of the scabbard wood, housing the fissured blade, which are much denser due to iron impregnation.

