UNDETERMINED - FE ALLOY - EARLY MEDIEVAL TIMES

Artefact name Undetermined

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Url /artefacts/1443/

The object



Credit Materia Viva, C.Moreau.

Fig. 1: Iron artefact (component of a furniture?) with soil and corrosion products (side view),



Credit Materia Viva, C.Moreau.

Fig. 2: Lateral view of the object,

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Fig. 3: Artefact after restoration, the blue square indicates the detail of Fig.4,

Credit Materia Viva, C.Moreau.



Fig. 4: Detail of the cleaned surface showing shiny grey/blue surface and red/brown spots,

Credit Materia Viva, C.Moreau.

Description and visual observation

Description of the artefact	Metal piece probably coming from a wooden box forming a "L" shape, coverered with iron corrosion products. Dimensions: L around 10cm and W around 5cm.
Type of artefact	Furniture element
Origin	Las Cravieros, Fanjeaux, France
Recovering date	2022
Chronology category	Early medieval times
chronology tpq	400 A.D.
chronology taq	525 A.D.
Chronology comment	

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Burial conditions / environment	Soil
Artefact location	Las Cravieros, Fanjeaux (Favennec Benoît), Languedoc-Roussillon
Owner	None
Inv. number	FS665 US10011
Recorded conservation data	Mechanical removal of the corrosion products and protection with resin paraloid B72 in acetone.

Complementary information

The artefact might have been exposed to high temperatures because it was found around a forging work area.

Study area(s)



Credit Materia Viva, C.Moreau.

Fig. 5: The blue square indicates the location of the analysed area by binocular observation,

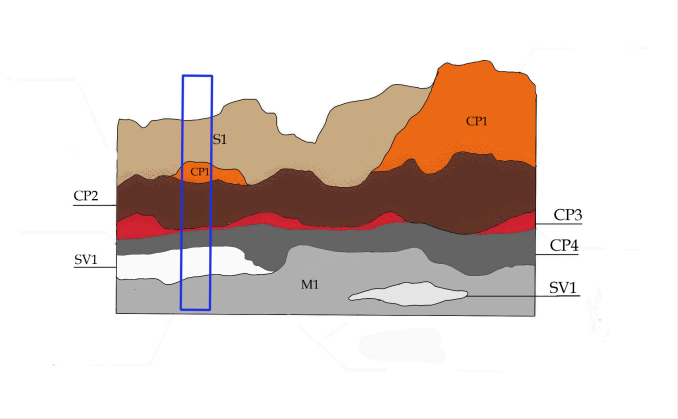
Binocular observation and representation of the corrosion structure

The schematic representation below gives an overview of the corrosion structure(s) encountered on the object from a first visual macroscopic observation.

S1	Sediment	powdery and non adherent
CP1	Corrosion product	bright orange corrosion product or soil orange-coloured by corrosion products
CP2	Corrosion product	brown layer of corrosion products with silica grains
CP3	Corrosion product	very thin discontinuous layer of a red corrosion product without silica grains
CP4	Corrosion product	grey/blue continuous layer
SV1	Structural void	
M1	Metal	compact metal. Observation of stretched metal around the structural voids

Table 1: Description of the principal characteristics of the strata as observed under binocular and described according to Bertholon's method.

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Credit Materia Viva, C.Moreau.

Fig. 6: Stratigraphic representation of the corrosion structure of the object by macroscopic and binocular observation with indication of the corrosion structure used to build the MiCorr stratigraphy of Fig. 7 (blue rectangle),

MiCorr stratigraphy(ies) – Bi

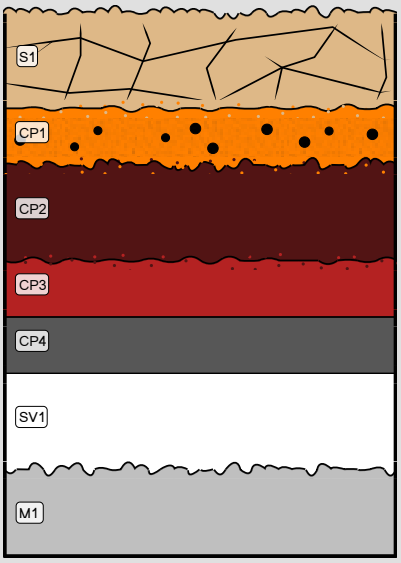


Fig. 7: Stratigraphic representation of the corrosion structure of the object observed macroscopically under binocular microscope using the MiCorr application with reference to Fig. 6. The characteristics of the strata are only accessible by clicking on the drawing that redirects you to the search tool by stratigraphy representation, credit Materia Viva, C.Moreau.

Sample(s)

Description of sample	None.
Alloy	Fe Alloy
Technology	None
Lab number of sample	
Sample location	None
Responsible institution	None
Date and aim of sampling	none

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Complementary information

None.

Analyses and results

None.

Non invasive analysis

None.

Metal

The presence of only iron corrosion products allows us to propose an iron base metal.

Microstructure	None
First metal element	None
Other metal elements	

Complementary information

None.

Corrosion layers

Corrosion products are typical of those of iron-based alloys.

Corrosion form	None
Corrosion type	None

Complementary information

None.

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MiCorr stratigraphy(ies) – CS

Synthesis of the binocular / cross-section examination of the corrosion structure

None.

Conclusion

This ferrous alloy object that may have belonged to a wooden box was found near a forge area. Among the observed corrosion strata and characteristic of the corrosion process of ferrous metals, two corrosion layers CP3 and CP4 appear atypical compared to other corrosion profiles of similar metals (cf MiCorr | Knife with a groove on both sides DEV 995/814 PR - Fe Alloy - Early medieval times - Switzerland). They could be related to high temperature exposure due to the proximity of a forging zone.

The limit of the original surface is probably between CP2/CP3 and CP3/CP4. Layer CP3 (in red) shows no more silica grain coming from the burial environnement. CP3 can be removed, but this will eliminate certain elements relating to the history of the artefact.

References

References on object and sample

1. Raffel, P., (2004) Etudes sur la corrosion-conservation de fers archéologiques incinérés, sous la dir. de Monique Drieux et Francis Dabosi, internship report DESS, Toulouse, Université Paul Sabatier.
2. Knife with a groove on both sides DEV 995/814 PR

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