

RESEARCH AND RESTORATION OF LEAD / TIN DISK BROOCHES

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RESEARCH AND RESTORATION

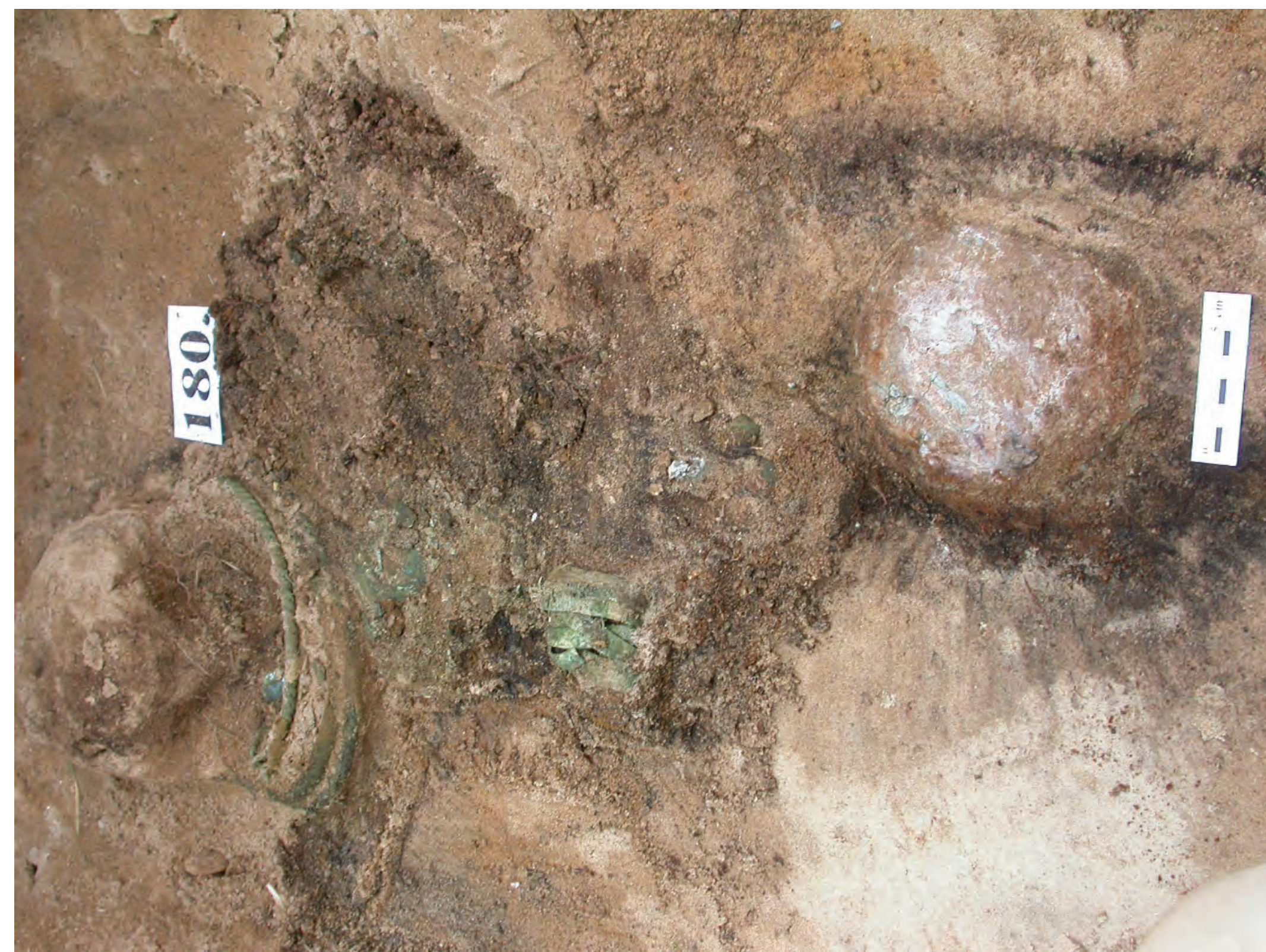
Disk brooches are unique not only with their size (Ø ~ 15 cm) but also with producing material: lead; tin (and other impurities). In 2005, the brooches were found in the course of excavation in the cemetery of Puzes Lejaskrogs, in two graves: in grave 180 and in grave 183. Brooches date back to the 15th century.

The cemetery of Lejaskrogs is located in Puze parish of Ventspils region 200 m to the south-west from the Evangelical Lutheran Church of Puze (built in 1692), between the house of Bērkalni and the highway. In 2005, more than 450 artefacts were found during the excavation.

After the graves were uncovered, prior to the removal of the artefacts, the disk brooches were partially dried and the surface repeatedly impregnated with 5% Paraloid B72 lacquer. On the surface, cracks are visible. The disk brooches were removed in one block with a piece of a soil layer.

Bronze pins have remained on the other side of both disk brooches. The brooch from grave 180 is also decorated with a pin fastener. A bronze fragment of the brooch fastener from grave 183 was found separately. By analysing the preservation of lead / tin brooches, it can be concluded that the composition of the soil was favourable for the brooches. The brooch of grave 180 has been better preserved, its weight-loss being lower than that of the brooch from grave 183. A piece of fabric with a bronze horseshoe fibula with rolled-up ends has corroded under the brooch from grave 183. The brooch is broken in halves. A thin layer of the brooch metal core has remained, here and there, it has possibly not preserved.

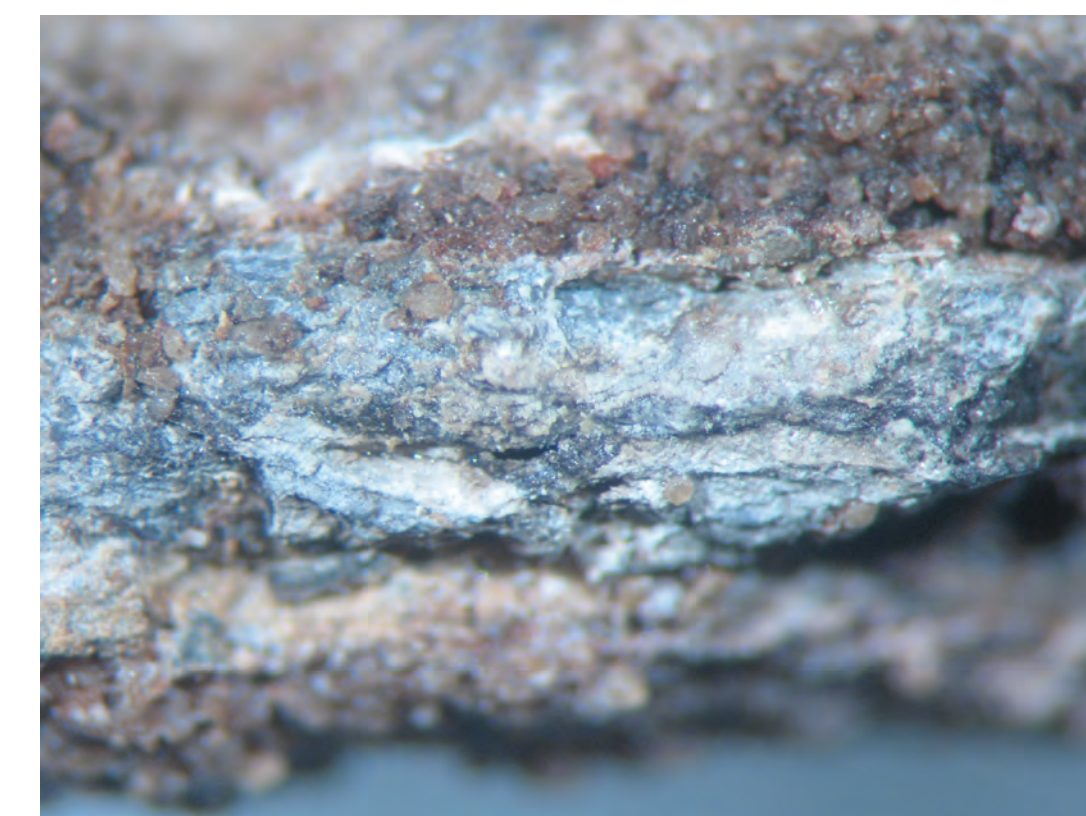
In the restoration laboratory, the fragments of the brooch have been gradually dried by being kept both in a refrigerator and for some hours in the workroom. The brooch fragments are repeatedly covered with 7% Paraloid B72 lacquer. The pieces of the brooch from grave 180 are glued together with 15% Paraloid B72 lacquer/glue.



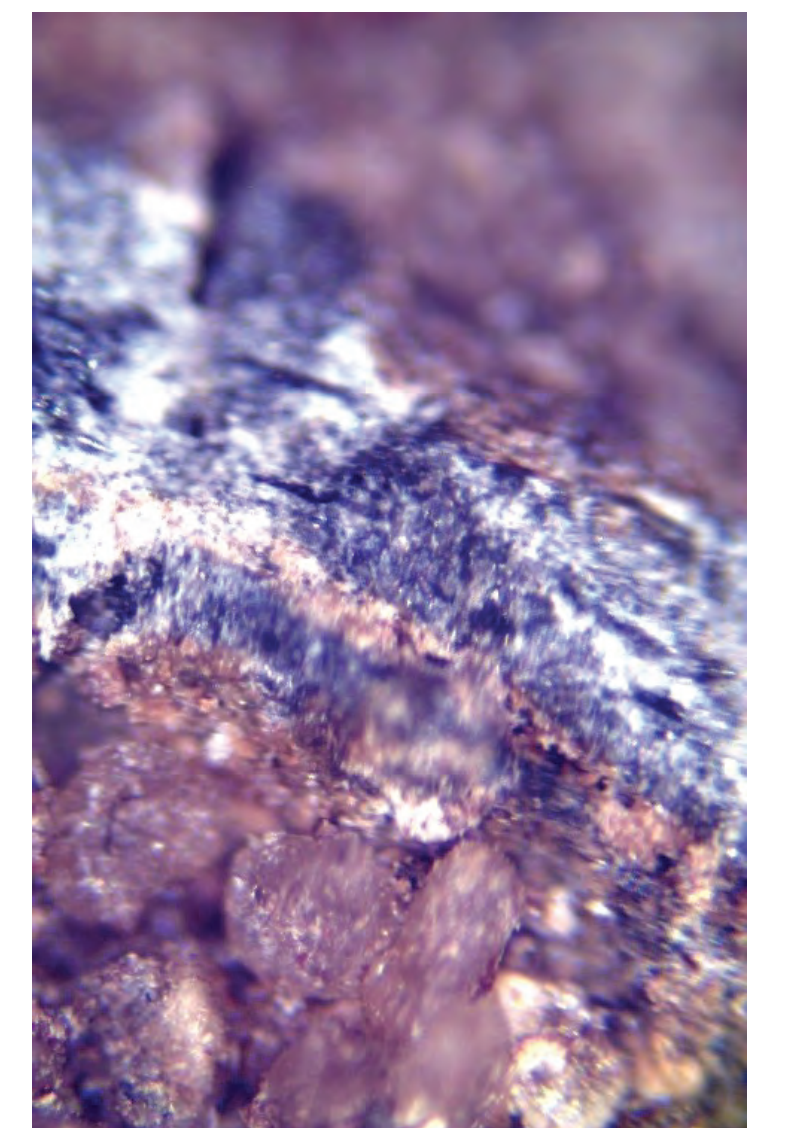
Grave 180, a disk brooch on the left side of the pelvis.



Grave 180. Disk brooch in the process of restoration.



A piece of metal among grains of sand.
Enlargement ~40x

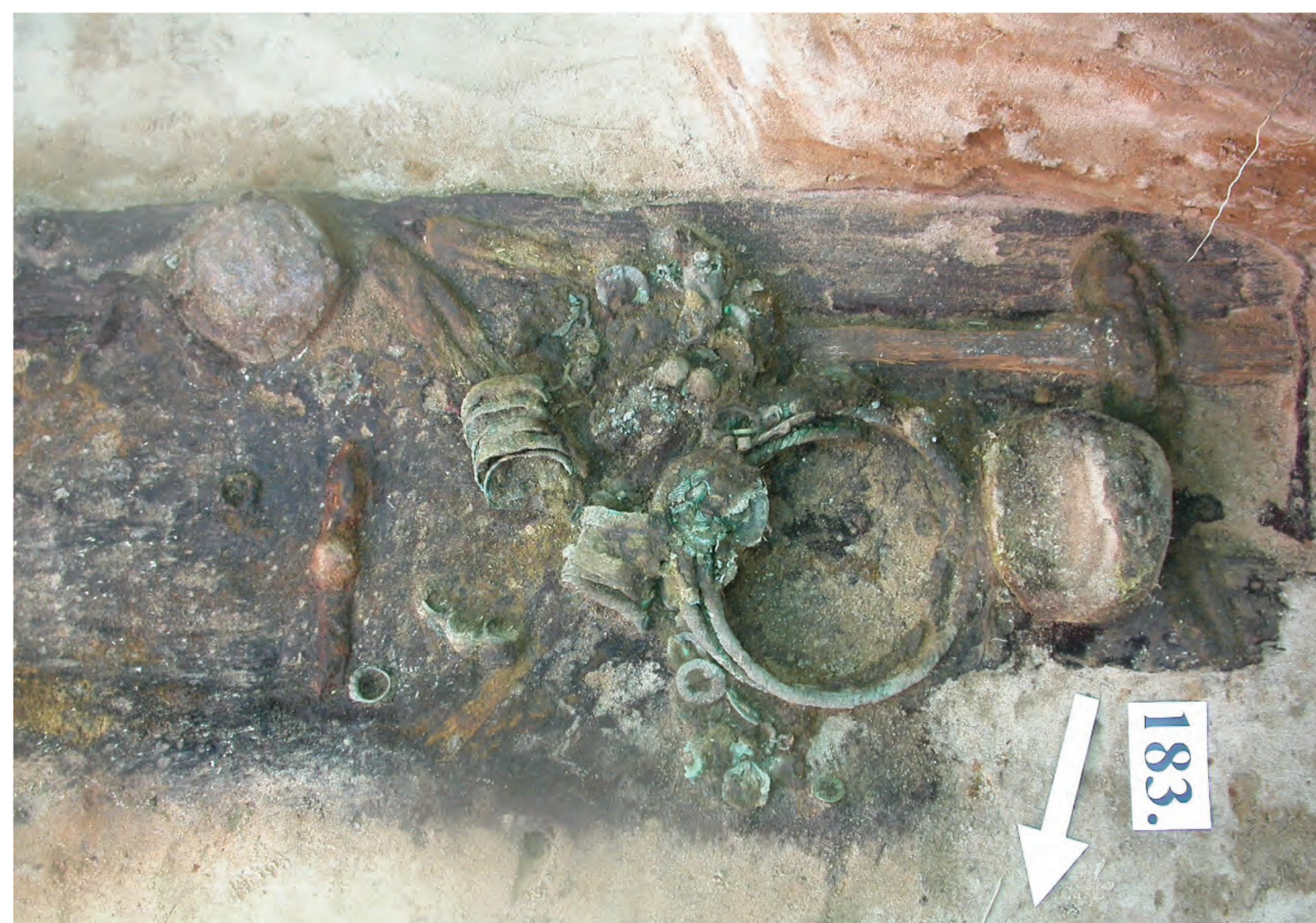


A piece of metal in grains of sand.
Enlargement ~100x

A fragment of the disk brooch, grave 180

The sample contains grains of sand glued (fixed) together in one piece. Small pieces of metal are found among grains of sand. The metal basically contains lead and a small amount of tin.

Around the rim of the brooch from grave 180, there was a decorative rib. Now only some fragments of it are remaining.



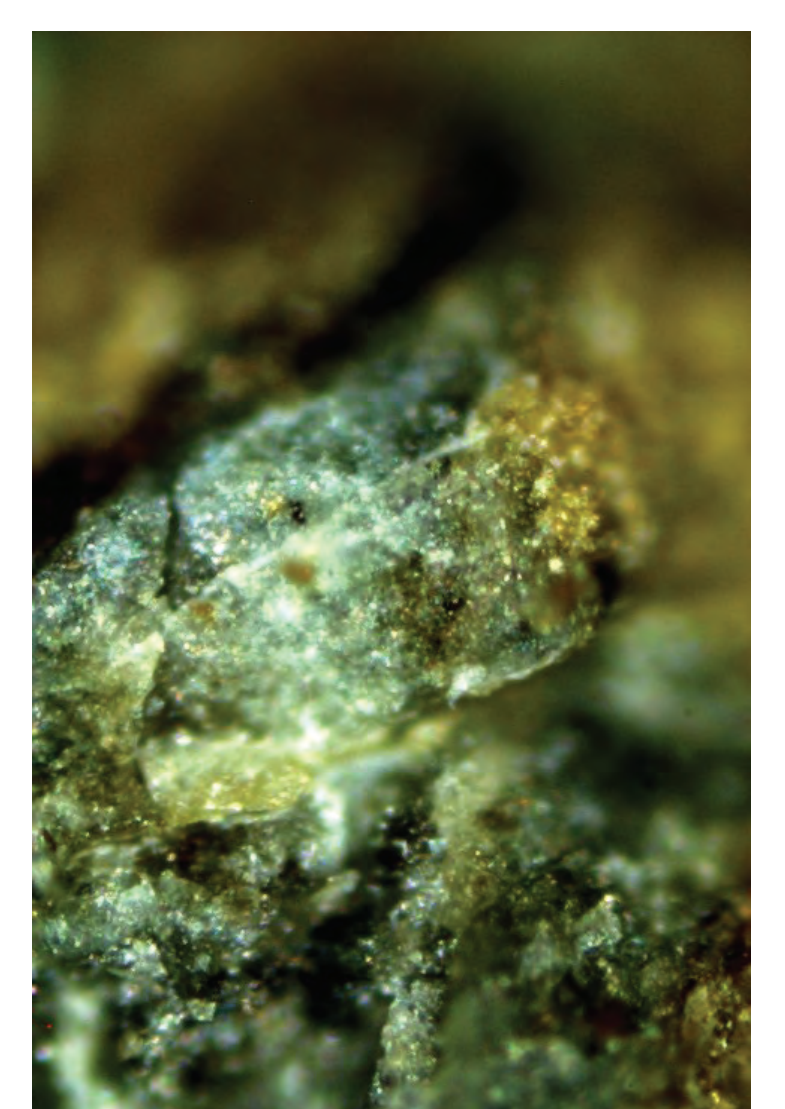
Grave 183. Disk brooch on the right side, in the middle.



Grave 183. Fragments of the disk brooch.



A metal sample.
Enlargement ~20x



Metal corrosion products.
Enlargement ~200x

A fragment of the disk brooch, grave 183

The sample contains splitted metal fragments, their corrosion products.

Material is crumbly, grainy and heterogeneous. Basic material – tin, small amounts of zinc, iron compounds. Possibly from the surrounding environment.

It is not possible to glue together the fragments from grave 183. In the result of drying, a slight deformation of the brooch fragments has occurred and weight-loss of the brooch has arisen under the influence of the soil composition of the graves. In fragments, a metal core is preserved much better than that of the brooch from grave 180. Around the rim of the brooch from grave 183, there was a decorative rib too.

The fragments of the brooches were examined by applying microscopic and micro chemical research.

Information obtained in the course of the study indicates that such brooches can neither be found in the archaeological fund of the National History Museum of Latvia nor the Museum of the History of Riga and Navigation and Cēsis History and Art Museum. In these museums, one of the largest collections of antiquities in Latvia are kept.