

Technical Report

Micromorphological study

Menen Bruggestraat

(prov. West-Vlaanderen)

Author: Pierre Legrand

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Actors:	Bart Bartholomieux (projectleader), Pierre Legrand (geologist, micromorphologist)
Contact:	info@monument.be; T: +32 51 31 60 80

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1. Introduction

This reports consists of the observation and interpretation of one thin section by the hand of a micromorphological study. During the archaeological excavation of Menen Bruggestraat 4-6 in 2021, one profile was made, registered and sampled for further research. The studied sample is coming from profile 6. The thin section consists of Inr. 21L, layers 305-306.

2. Material en methods

During fieldwork a block sample was taken according to the methodology developed by Devos (Devos, in press). The sampled block was then hold in a stable environment and prepared for shipping. After air-drying, the sampled block was impregnated and shaped to a 60 mm by 90 mm, 30 µm thick thin section in the laboratory for Mineralogy and Petrography of Ghent University. The preparation of the sample in thin section followed the principles and methodology developed by Murphy (Murphy, 1986).

The following observations were made under plain polarised light (PPL) and under crossed polarised light (XPL) with oblique incident light with a petrological microscope. The magnifications used for this study were 4x, 40x and 400x.

The description and interpretation of the thin section is based on the publications of Stoops in 2003 and Nicosia & Stoops 2017.

3. Localisation of the thin section

The observed thin section comes from the cross-section of S264 through the layers 305 and 306. Layer 305 consists of the probable filling up of a ditch with 306 as a base layer. Layer 305 shows a high amount of organic material within a loamy matrix. Layer 306 shows a bleaker color with less amount of organic material within a coarser matrix. The form of S264 suggests that this feature can be interpreted as a possible draining trench.



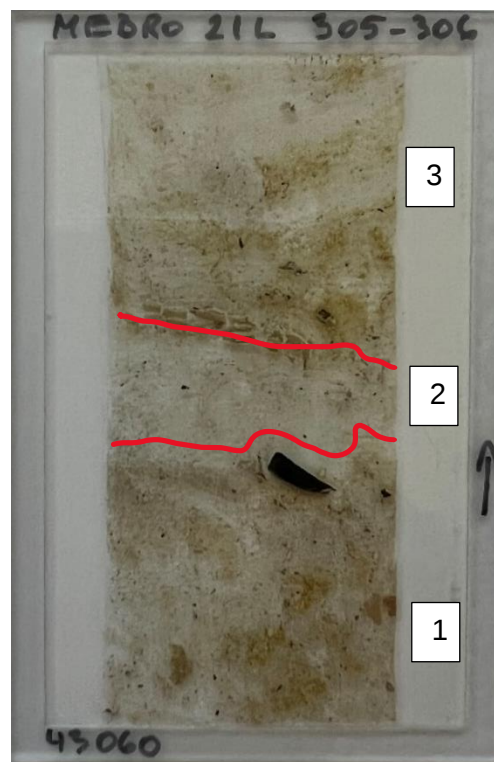
Figure 1: S264 with samples localisation (© Rosalie Vincent, 2021).

4. Results

4.1. Observations

4.1.1. Macroscopy

The sample shows 3 layers of different macroscopic aspect. From bottom to top the first layer (L1) shows an coarser matrix with a darker greenish brown colour. It shows a light convex layering and some flux patterns on the lower right side. Within the matrix are millimetric black, probably organic rests, and reddish nodules on the middle right side. This layer can be linked with layer 306. The second layer (L2) shows a finer light greyish brown matrix with almost no coarser exogen elements. The third layer (L3) shows the same coarser matrix as the first layer with a greenish brown colour with almost no exogen millimetric elements with the exception of millimetric organic material on the lower part of the layer. This last layer corresponds with the observed layer 305.



Figuur 1: Thin section with layers

4.1.1.1. Microscopy

Layer 1 - 306				Relative occurrence
1	Structures and patterns	Voids	Simple to complex packing voids	
		Microstructures	Granular	
		Distribution pattern	Random with clusters	

		Basic orientation pattern	-	
		Referred distribution pattern	Random	
		Related distribution	Gefuric	
2	Optical Soil mineralogy	Minerals	Quartz	++++
			Feldspath	++
			Muscovite	+
			Glaucanite	+
			Fe-oxyde	+
3	Organic residue	-		-
4	Anthropogenic element	Burned daub		+
		Charred organic material		++
5	Fine minerals	Dusty clay coating around the grains		+
6	Components	Inorganic residues of biological origins	Weathered bone fragment	+
		Organic residues of biological origins	Excremental aggregate	+
7	Pedofeatures	PO4-crust and nodules		+++
		Fe-oxyde nodules		++

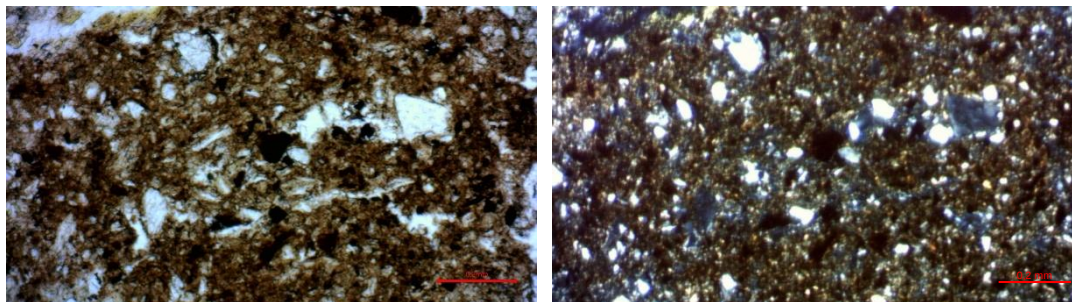


Figure 2: Amorphous organic material in PPL (left) and XPL (right).

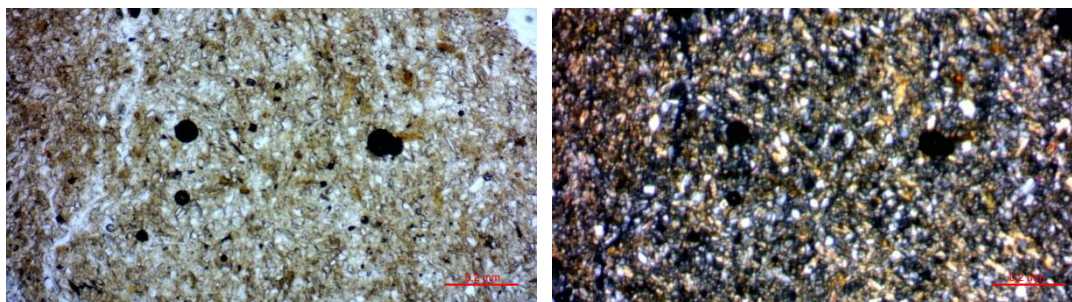


Figure 3: Daub fragment in PPL (left) and XPL (right).

Layer 2 – 305/306				Relative occurrence
1	Structures and patterns	Voids	Simple to complex packing voids	
		Microstructures	Granular	
		Distribution pattern	Random	

		Basic orientation pattern	-	
		Referred distribution pattern	Random	
		Related distribution	Fine monic	
2	Optical Soil mineralogy	Minerals	Quartz	++++
			Feldspath	+
			Muscovite	+
			Glaucanite	++
			Fe-oxyde	+
3	Organic residue	-		-
4	Anthropogenic element	Burned daub		+
		Charred organic material		+
5	Fine minerals	Dusty clay coating around the grains		+
6	Components	Inorganic residues of biological origins	Weathered bone fragment	+
7	Pedofeatures	PO4-nodules		+
		Fe-oxyde nodules		+

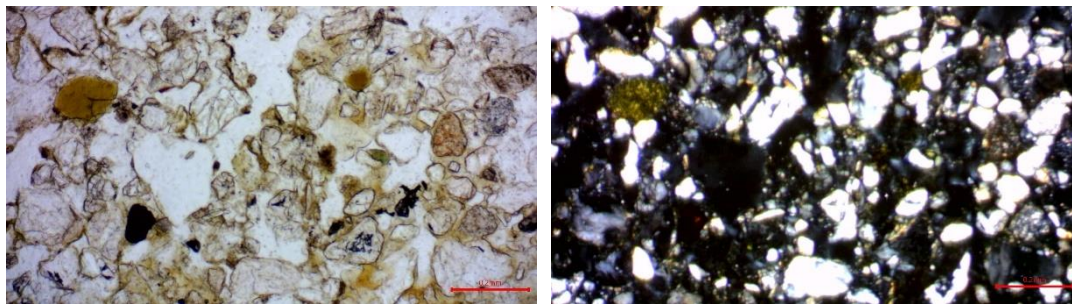


Figure 4: Sediment matrix of the interlayer 305/306 in PPL (left) and XPL (right)

Layer 3 - 305				Relative occurrence
1	Structures and patterns	Voids	Simple to complex packing voids	
		Microstructures	Granular	
		Distribution pattern	Random with clusters	
		Basic orientation pattern	-	
		Referred distribution pattern	Random	
		Related distribution	Gefuric	
2	Optical Soil mineralogy	Minerals	Quartz	++++
			Feldspath	+
			Glaucanite	++
			Fe-oxyde	+
3	Organic residue	-		-
4	Anthropogenic element	Charred organic material		++
5	Fine minerals	Dusty clay coating around the grains		++

6	Components	Inorganic residues of biological origins	Weathered bone fragment	++
7	Pedofeatures	PO ₄ -crust and nodules		++
		Fe-oxide nodules		+

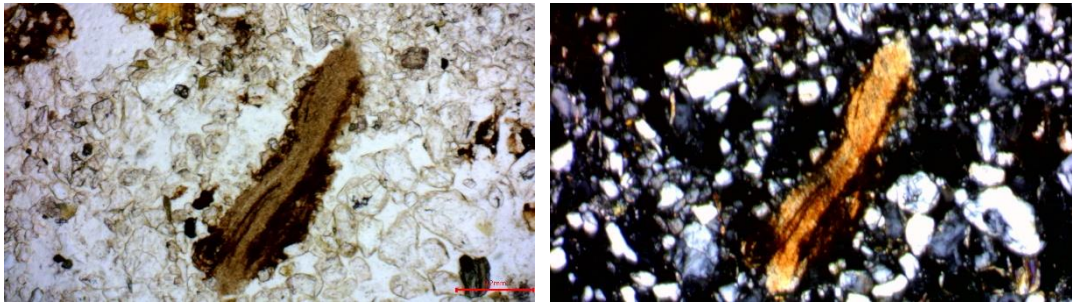


Figure 5: Weathered (burned) bone fragment in PPL (left) and XPL (right).

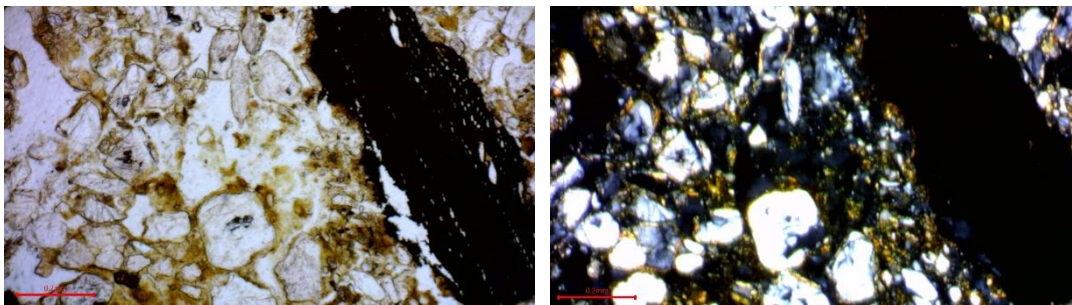


Figure 6: Charcoal and dusty clay coating with PO₄- crust in PPL (left) XPL (right).

The sediment is showing three different accumulation fasses within the sedimentation context of a wet ditch. The first layer (L1 - 306) shows traces of anthropogenic activity such as primitive construction type material (daub) and the presence of animals with rests of amorphous organic matter that can possibly relate to excrements. The second layer (L2) shows only fine sediments with less anthropogenic features. This suggest a lower grade of erosion and sediment accumulation within the ditch. The lower erosion suggest a stable landscape in the vicinity of the sedimentation context. The thid layer (L3 - 305) suggests a reset of the accumulation with an higher amount of anthropogenic material such as charcoal and burned bonefragments. This suggests the presence of anthropogenic enriched ground for agricultural purpose in the vicinty of the ditch.

5. Bibliography

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