

SECTION 8

Geologic and sedimentary corring

8.1. Tools, procedures

Providing this chapter at the end of the Report is not an error, but a conjuncture. The initial budget of the phase was too small to include these operations. The budget changed yet, about 40 days before concluding the phase. As a consequence, this activity was added at the end of the list.

The aim of probing the ground was to get a first glimpse of the stratigraphy of some relevant structures (as the frontier embankment or roads), trying to avoid an archaeological digging, not only more expensive, but also more complicated, needing a permit from both authorities and landowners.



Figure 8.1. Soil probe used for coring.

In the image, the basic tool, without extension bars.

The National Museum has actually two different tools of the kind: a manual coring drill for a maximum depth of 3.5 m, and a mechanical percussion tool usable to a maximum depth of 10 m. For these initial tests we tried the first one, easier to transport in the middle of the field, in a late and wet fall.

The place selected for the action is located north of Mocanului Valley, about 3 km southwest of the city of Roşiori. The reasons are plenty: this is the only place on *limes* where we know an embankment and two roads, all three in a relatively tiny space; it is close to the city (thus short trips in and out) and near a (bad) road; it is also one of the locations elected for the drone experiment, thus better known; some geophysical works were previously done in the same area.

The place is located east of the county road (Roşiori-Balta Sărată) where it turns and descends to the Mocanului Valley (fig. 8.2). There have been established two axes for taking both topographic data and probes by coring.

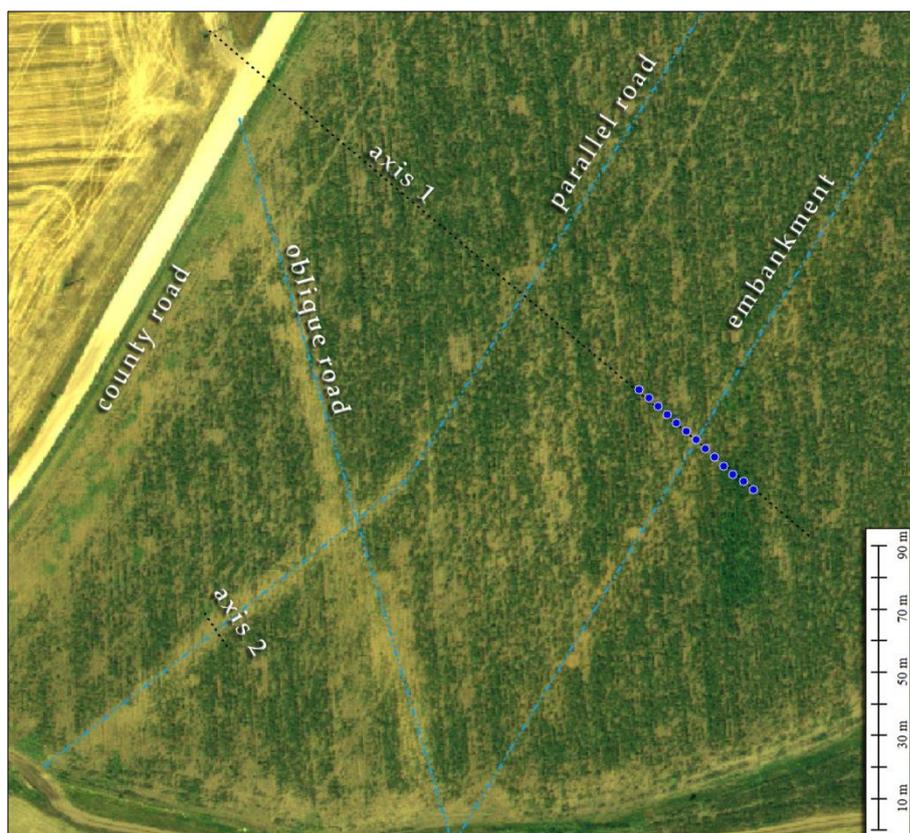


Figure 8.2. Axes for coring north of Valea Mocanului.

The blue dots represent 13 places where we have drilled and taken samples.

In order to intersect the embankment were done holes along the axis 1 at each four meters. The central hole was done in the apparent middle of the embankment, being noted C0. The holes made “outside” (in *barbaricum*) were numbered positively (C1, C2, etc.), and those made “inside” were numbered negatively (C-1, C-2).

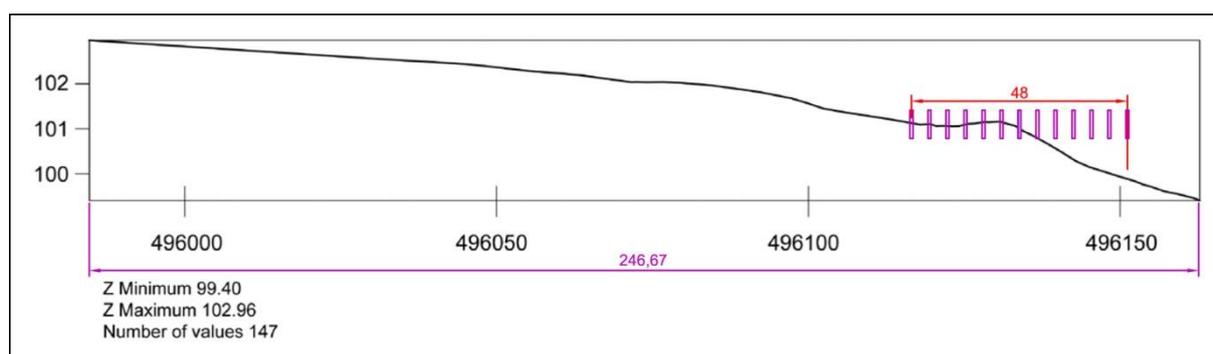


Figure 8.3. Altimetric profile for axis 1.

On X – coordinates for longitude (Stereo 70 projection); on Y – altimetric values (reference Black Sea), annotated Z, with vertical exaggeration (suggesting better the altimetric profile); location on the axis for 13 drilling holes (the middle one is C0); distances in meters; orientation NW-SE (130°).

The procedure supposes drilling with the spade, level by level, first two for 15 cm, the next 10 cm each, extracting the probe and sampling it (about 100 g), packing and labelling it. The resolution of the stratigraphy resulted is therefore of 10 cm. In practice, if in one probe have been noted obvious changes, notes where taken down, thus the control of the stratigraphy is better than 10 cm.

Regarding the controversy about the existence of a ditch, in front of the embankment (TEODOR 2013, 107-111), coring a section of it is of a special interest. The Romanian word used in archaeological literature, “val” (derived from the Lat. “vallum”), is not that clear as its English correlative (“wall”), its most obvious meaning being “a wave”, and only subsequently “an embankment”, an anthropic intervention having a “wavy” shape. Its internal building structure should be as are many antique fortifications, having two walled faces filled with materials at hand (pretty much adobe, in the flat field). Some Roman *valla* have stone facing, as Hadrian Wall does (BIDWELL, HILL, 2009), other paraments were made out only from turf (*caespiticius*) or other available raw materials. In some cases, they could have a sort of “foundation”, as a layer of stones (Antonine Wall 2007), meant to prevent adobe of sliding, when wet. Turned to ruins, any antique wall, no matter its inner structure, looks like a “wavy” profile, which is the way one can see them today.

First core (named Zero) was positioned in the middle of the red path of burned adobe, which was apparently made the “emplecton” – the filling between the faces. That one was also the deepest, reaching -3.5 m, in order to understand the geological basement. The detailed results are resumed in Table 1.

TABLE 1. Axis 1, core 1. Technical description

Depth (cm)	Main composition	Anthropic inclusions	Interpretation
0-15	Silty clay, average yellowish brown, aggregate structure, mostly homogenous	2-3% red burned clay, mm size, sparse; fine charcoal, very sparse	tilled soil
15-30	Silty clay, average reddish brown, aggregate structure, mostly homogenous	5-10% red burned clay, top size 3-4 mm.	tilled soil; burned level, degraded
30-40	Silty clay, light to average reddish brown, granular, mostly homogenous	60-70% granules of burned clay, mm size	construction (destruction?) level with burned adobe
40-50	Silty clay, reddish brown, granular, scratchy	70-80% granules of burned clay, tops 1 cm in size	level with burned adobe
50-60	Silty clay, reddish brown, fine, granular, scratchy	Ca. 80% fine granules of burned clay	level with burned adobe
60-70	Silty clay, reddish brown and brown, fine, granular, scratchy	50-60% fine granules of burned clay (tops 5 mm in size)	level with burned adobe
70-80	Silty clay, middle brown, granular, compact, mixed with burned clay, scratchy	areas with 20-30% fine granules of burned clay	bottom of the level with burned adobe
80-90	Silty clay, middle brown, aggregate, homogenous, very compact, mixed with burned clay	no anthropic inclusions	paleosol
90-100	Silty clay, middle brown, fine aggregate, homogenous, very compact	no anthropic inclusions	paleosol
100-110	Silty clay, light brown, fine aggregate, homogenous, very compact, sparse carbonates grains	no anthropic inclusions	paleosol
110-130	Silty clay, light brown, fine aggregate, homogenous, very compact, sparse carbonates grains or veins	no anthropic inclusions	paleosol

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130-160	Silty clay, light brown, fine aggregate, homogenous, very compact, mixed with 2-3% carbonates	no anthropic inclusions	paleosol bedrock
160-200	Silty clay, light reddish brown, fine granules, homogenous, very compact, mixed with 1-2% carbonates (1-2 mm in size)	no anthropic inclusions	silty clay bedrock
200-270	Silty clay, light brown, fine granules, homogenous, very compact, mixed with 2-3% carbonates (tops 1 cm in size)	no anthropic inclusions	silty clay bedrock
270-330	Silty clay, light brown, fine granules, homogenous, very compact, mixed with 10-15% carbonates (tops 1 cm in size)	no anthropic inclusions	silty clay with carbonates; bedrock
330-350	Silty clay, light brown, fine granules, homogenous, very compact, mixed with 30-40% carbonates (tops 2 cm in size)	no anthropic inclusions	silty clay with carbonates; bedrock

Resuming the table above as an explicit stratigraphy, one find a top 30 cm layer of the actual soil (tilled), with a low (in fact: dispersed) anthropic compound (burned adobe), although quite obvious on the ground, where one can find, without difficulties, lumps of the same material up to half a kg. Below tilled layer, between -30 and -80 cm, one gets the built level, containing – in various proportions – burned adobe in large quantities, denser between -40 and -70 cm, where the proportion of burned matters could reach 80% of the probe mass. Below -0,8 m begins the paleosol, which is an undisturbed layer (at least by the builders of the embankment), being made of light brown clayish silt, very compact and quite hard. Below -1.6 m, the same tough clay is mixed with fine carbonates, as a part of the bedrock. The density and size of the carbonate granules is increasing progressively within the supplementary depth, reaching 35% of the mass and 2 cm in size at the bottom of the probe hole, at -3.5 m.

This stratigraphic and sedimentary sequence is repeated in each of the other 12 cores analysed, with variation revealing the extension of the studied building (Table 2).

TABLE 2. Axis 1, cores west and east of the central one (C0), distanced 4 m each

Core	C-6	C-5	C-4	C-3	C-2	C-1	C0	C1	C2	C3	C4	C5	C6
Lower limit (cm)													
Tilled soil	30	30	30	30	30	30	30	30	30	30	30	30	30
Building level	---	---	---	---	---	40	75	75	65	---	---	---	---
Paleosol	80	80	80	80	75	110	130	120	100	90	80	70	60
Bedrock (lower limit of coring)	140	140	140	120	120	140	350	140	140	140	140	120	100
Upper limit of carbonates	110	110	110	110	110	110	110	120	130	120	100	100	100

Table 2 is illustrated (fig. 8.4) in order to make things more intuitive.

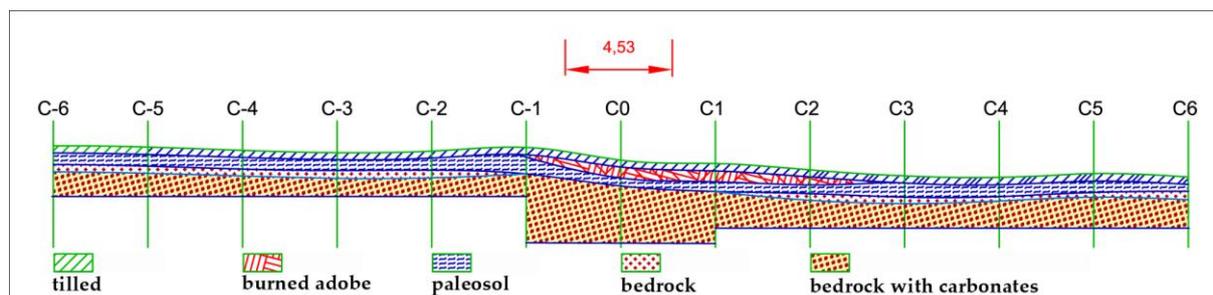


Figure 8.4. Graphic depiction of data from Table 2, on altimetric section (total station), orientation northwest-southeast (see fig. 8.2).

The central interval, about 4.5 m wide, is the place where the burned adobe is more obvious on the ground.

The most surprising outcome of coring is the absence of the ditch (fig. 8.4), which finally proves what Ioana Bogdan Cătănciu stated and contradicts our own expectation. For this particular case, we cannot see what Pamfil Polonic has said, that the wall was built with soil gathered on the both sides of the embankment,¹ because an alveole is obvious only in the “external” side, facing southeast. The remains of the building are laying, beneath the tilled layer, on a length of 13 m, from the core C-1, heading east, a fact which cannot be connected with the width of the original building (very likely not wider than 4 m), but with the decay of the remains.

Another surprising issue is that the apparent middle of the construction is not laying on the highest part of the field (where C-1 is). The embankment was built here at the contact zone between the higher plain from west with a lower area made by a torrent, eastward. The builders’ intervention is obvious only between C0 and C2, but it is quite shallow. There are no obvious traces of a wooden structure, but it couldn’t miss, a fact which only a digging could prove.

Note June 2017:

Coring was done also along the Axis 2 (see again fig. 8.2), but the results were rather confusing. The “mystery” was solved one year and half later, when we found out what that trail in the field is: a ditch for a water pipe of the irrigation system (out of use), which does not appear on any map or available documentation. A Roman road in the area surely exists (as suggested by some aerial view), with different route as the irrigation line, but it was not investigated further.

As about the embankment, it was cut in two different test sections, not far from this place (May-June 2016). The results of those diggings suggest a palisade, not a “wall”, and really there is no ditch in front of it.

¹ He was referring, in fact, the embankment from Scrioaștea Hill (several km northward). There are reasons to think that at least in some cases he was right, as crossing Valea Adâncă (Deep Valley) or west of Roșiori city.