

Excavations at the Medieval Fortress in Feldioara/Marienburg, 2007

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Key Words: Middle Age, fortress, walls, ceramics, animal bones, coin, prehistoric materials

Abstract: The report presents the results of the excavation that took place in 2007 at the medieval fortress of Feldioara/Marienburg. The primary objective was to obtain samples of environmental data – animal and plant remains – from identifiable, transitional contexts, assessing the ecological impact of the castle's construction. Five trenches were opened at the fortress site, yielding prehistoric (Neolithic, Bronze Age, Hallstatt, La Tène) and medieval pottery, a few metal objects, animal bones and a coin issued during the reign of Carol Robert. In one of the trenches was re-identified the wall dating from the first phase assigned to the Teutonic Knights.

Cuvinte-cheie: evul mediu, fortificație, ziduri, ceramica, oase de animale, monedă, materiale preistorice

Rezumat: Raportul prezintă rezultatele sondajelor efectuate în 2007 la cetatea Feldioara/Marienburg cu scopul obținerii de date privind mediul înconjurător (oase de animale, resturi de plante) și impactul ecologic al construirii fortificației, în special a primei faze, considerate a aparține cavalerilor teutoni. Au fost efectuate cinci scurte secțiuni din care s-au recoltat fragmente ceramice preistorice (Neolitic, Epoca Bronzului, Hallstatt, La Tène) și medievale, mici obiecte metalice, oase de animale și o monedă emisă de Carol Robert. Într-una dintre secțiuni a fost reidentificat zidul fazei I atribuit teutonilor.

Introduction

Excavations from 1990–1995 within and around the fortress of Feldioara (southern Transylvania, Romania) uncovered a wall of probable 13th century date, a church and secondary buildings probably dating to the 15th century and identified prehistoric (Neolithic, Bronze Age, Hallstatt, La Tène) phases, as well as standing fabric and occupation levels from the 14th–16th centuries (medieval) and 17th–19th

centuries (the period of modern reconstruction)². Whilst the earliest structure is most likely to have been constructed by the Teutonic Order following their arrival in Transylvania in 1211, there was no clear evidence of their presence aside from the early foundation wall. This had been destroyed when the fortress was re-built in the 14th century. During these excavations no environmental data was recorded. In June 2007, five trenches were opened at the site of the fortress. The primary objective was to obtain samples of environmental data – animal and plant remains – from identifiable, transitional contexts, assessing the ecological impact of the castle's construction.

Methodologies and Objectives

The method of excavation was spit-digging due to the unclear and mixed stratigraphy at the site. Trenches were numbered 1–5 (Fig. 1) and context numbers assigned within each one. For the sake of clarity these have been incorporated into the key numbers for each profile (see below). Identifiable ceramic fragment counts were provided for each context, sub-divided according to prehistoric (Neolithic, Hallstatt, Bronze Age, La Tène) and medieval

² A. Ioniță, D. Căpățână, N. Boroffka, R. Boroffka, A. Popescu, *Feldioara / Marienburg – Contribuții arheologice la istoria Țării Bârsei / Archäologische Beiträge zur Geschichte des Burzenlandes*, București, 2004 (from now on Ioniță et al. 2004).

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¹ This research is part of the grant: *The Ecological Profile of Marienburg Castle in Transylvania*.

(14th–15th century) ceramics. No material could be confidently assigned to the 13th century. Single pieces which were fragmented were counted as one.

Inside the Fortress

Two trenches were opened within the area enclosed by the walls of the fortress, and one just outside the northern wall next to a 14th century buttress (Figure 1).

Contexts. The re-building of the castle from the 14th century resulted in significant disturbance of all associated contexts. These are indicated below as broad chronological horizons, hence the use of „medieval”, refers to a layer containing predo-

minantly 14th–17th century ceramics and fragments of prehistoric material. Pristine contexts with no evidence of residual material or mixing were extremely limited. 834 animal bone fragments were collected during the excavation, of which only 246 (29%) were identifiable to species. Of these, a range of mammals were represented (Tab. 1). Although the range of represented species is typical of a medieval European aristocratic site, especially the prevalence of pig and the presence of horse and cervids, the poor chronological resolution where prehistoric layers mixed with medieval occupation phases prevents us from confirming this biological profile.

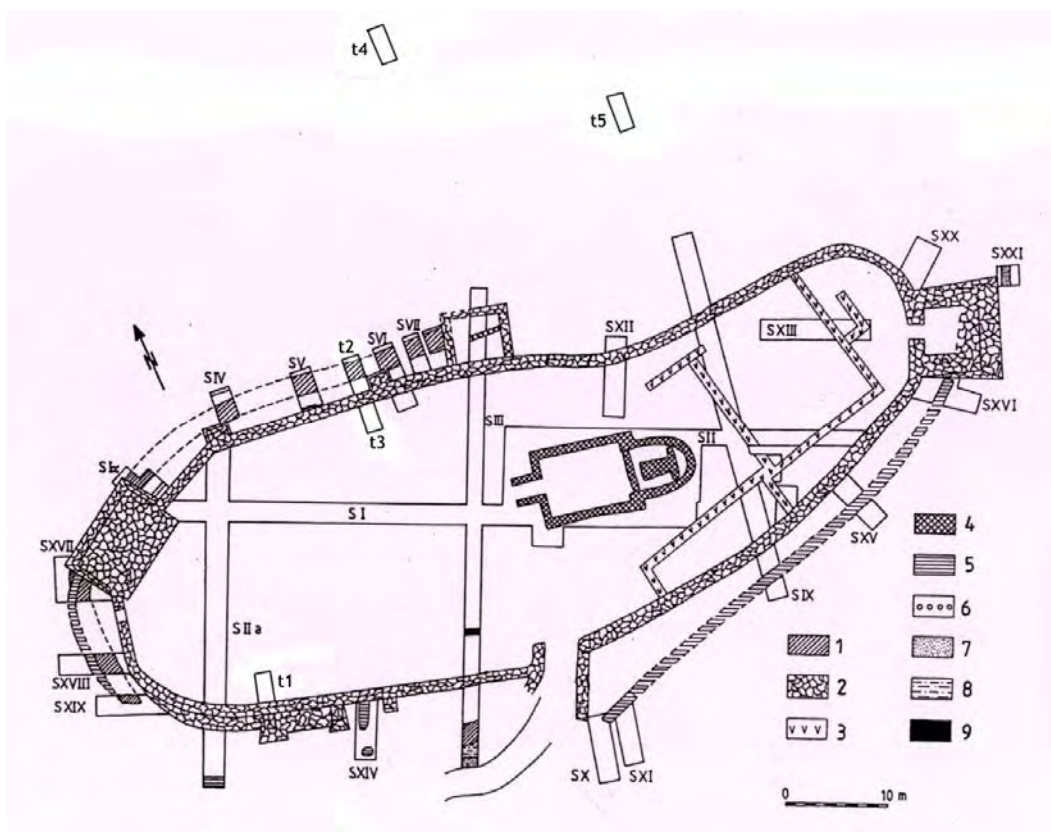


Fig. 1. Map of Feldioara fortress showing identified phases, previous excavation trenches and 2007 trenches (t 1–5) (aft. Ioniță *et al.*, 2004).

Tab. 1

Species representation at the fortress in Feldioara; number of identifiable specimens present (NISP) in trenches (T) 2–5

Species	T2	T3	T4	T5	Σ
Cow (<i>Bos Taurus</i>)	17	42	20	10	89
Sheep/goat (<i>Ovis aries</i>)	9	11	7	2	29
Pig (<i>Sus scrofa</i>)	34	28	6	5	73
Horse (<i>Equus callabus</i>)		9	5	1	15
Red deer (<i>Cervus elaphus</i>)			1		1
Roe deer (<i>Capreolus capreolus</i>)	1				1
Cervid sp. (<i>Cervus</i>)		5		2	7
Domestic fowl (<i>Gallus gallus</i>)	1	1			2
Oyster (<i>Ostrea edulis</i>)	24	3		2	29
Σ per trench	86	99	39	22	246

Trench 1

The first trench (3 m long and 1,5 m wide) was positioned on a north-south axis parallel to the fortress wall. The aim of this excavation was to establish whether the later medieval wall had used the earlier 13th century wall as a foundation, and if this was the case, to obtain samples from both earlier and later medieval contexts. Four distinct contexts were identified, but all consisted of heavily mixed material relating to the reconstruction of the fortress wall; underneath the topsoil was a level of mixed material consisting of refill from earlier excavations, including small fragments of brick and stone (Fig. 2–3).

Underneath was a thick reconstruction level dating to the most recent phase of restoration (18th century), with larger fragments of bricks, stones and numerous ceramic roof tiles. There were thick seams of white mortar, which were found on the corresponding part of the fortress wall uncovered in the trench. A 1 × 1 m step was taken by the wall revealing a construction level of fragmentary bricks and stones, as well as grey mortar. The construction level dipped into a narrow foundation trench, which cut into the natural yellow/grey clay.

196 fragments of animal bone and ceramics were recovered from this trench. Unfortunately there were no distinct or discrete contexts which had been unaffected by the later medieval and modern reconstruction.

Trench 2

The first trench suggested that locating undisturbed phases – particularly 13th century contexts – inside the fortress would be extremely difficult. Previous excavations on the northern side of the fortress had revealed parts of an earlier wall which had been linked to the occupation of the Teutonic Order. We supposed that a trench cutting across this earlier wall would uncover both earlier and later contexts more suitable for sampling. However, whilst a section of the “Teutonic” wall was located and completely uncovered (Fig. 4–5), its associated contexts were heavily disturbed. In total, 8 distinct contexts were identified.

Underneath the top soil, a late medieval demolition/reconstruction level contained fragments of mortar, stone and brick. It touched the top of the demolished remains of the “Teutonic” wall on its southern side, 36 cm below the topsoil. The wall was almost entirely covered by a grey earth layer flecked with fragments of mortar and small stones, which appears to have been linked to the construction level of the 14th century fortress wall.

60 cm from the later medieval wall, this layer appears to have cut a small gully into an earlier ditch refill, where white mortar collected and compacted. Underneath this, the refill contained flecks of burnt earth and white mortar – its context was unclear because it contained a mixture of ceramics, and it appears to represent a phase between the construction of the 13th century wall and the later medieval fortification.

The layers on either side of the “Teutonic” wall had been significantly disturbed by the various phases of demolition and reconstruction. When the fortress was reconstructed in the 14th century, the “Teutonic” wall appears to have been largely demolished, and the new wall constructed at least 1 m back, perhaps because the slope was becoming unstable. During this process the area between the two walls was heavily disturbed. There was also evidence for animal disturbance. Two distinct, thick cylinders of dark soil cutting vertically through the layers on the west side of the trench appear to have been made by burrowing animals, rather than tree roots.

Ceramics, lithics and metal. (Fig. 7) Context 3 contained 32 fragments of La Tène and Neolithic ceramics, a single fragment of bronze age pottery, a fragment of iron possibly deriving from a knife (but this could be from La Tène or possibly medieval) and four small fragments of Neolithic worked flint. Later medieval ceramics numbered 9 fragments. Context 4 contained 56 fragments of mixed prehistoric material (Bronze Age, Hallstatt, Neolithic), and four fragments of later medieval ceramic. Context 6 contained 59 fragments of predominantly La Tène pottery, with a couple of Neolithic ceramic fragments (and some fragments of worked flint), two dated to the later medieval period and one potentially earlier medieval fragment. Context 7, resting just above the natural clay, contained 87 fragments of prehistoric pottery, two of which were dated to the Hallstatt; the rest being Neolithic. A small fragment of worked flint was also recovered. Context 10 contained 177 prehistoric ceramic fragments, mostly La Tène but also some Neolithic. Later medieval ceramics numbered 6 and there was also a fragment of iron which could not be assigned a date. Despite being able to identify (re-) construction layers, the ceramic content of the contexts in trench 2 indicated that all had been mixed, largely as a result of the medieval phases of building and re-building.

Animal bones. 307 fragments of animal bone were recovered from this trench, of which 86 were identified to species and elements.



Fig. 2. Trench 1; flecks of rubble are clearly visible in the west profile.

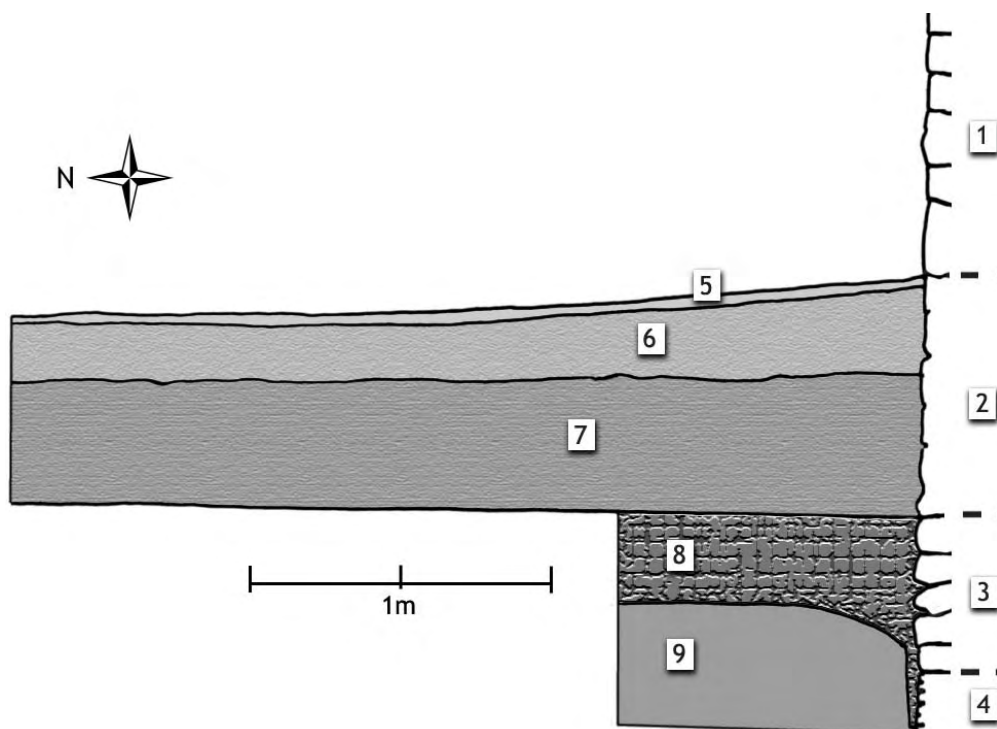


Fig. 3. Trench 1 east profile. Key: 1: Wall consisting of brick, stone, mortar and crepe; 2: wall consisting of white mortar, brick, river stones and volcanic tuff (re-used from other parts of the castle); 3: wall consisting of arranged river stones; 4: wall of unarranged stones set in high quantities of mortar; 5: top soil; 6: mixed grey soil from earlier excavations, including fragments of brick and stone; 7: reconstruction level consisting of fragments of white mortar, stones, bricks, tiles and grey soil; 8: construction level of adjacent wall (3) consisting of grey mortar, fragmentary bricks and stones; 9: natural clay.

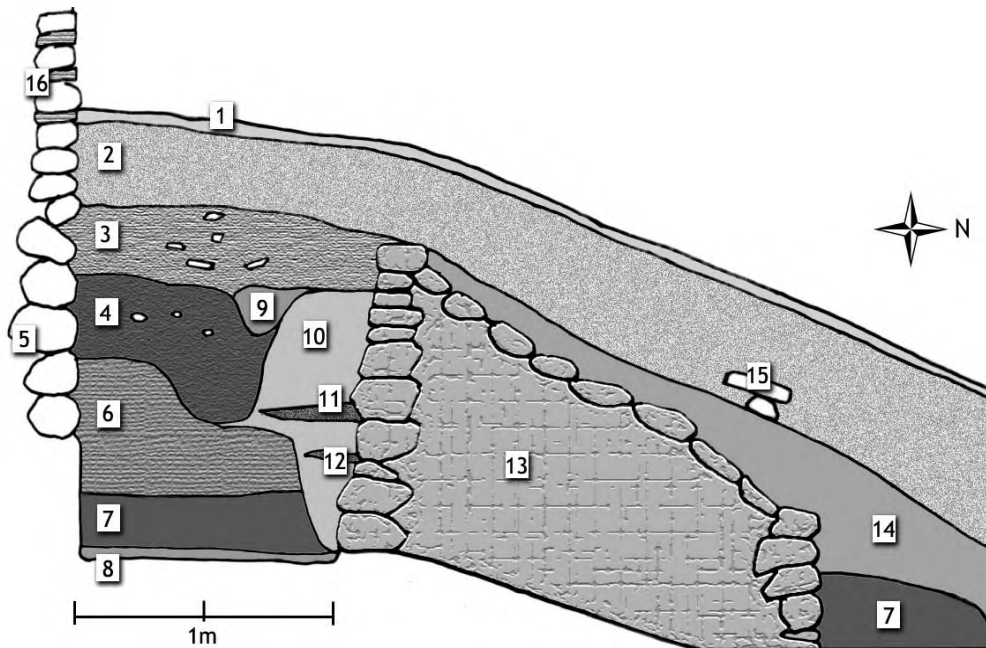


Fig. 4. Trench 2 west profile. Key: 1: top soil; 2: demolition and reconstruction level (late medieval); 3: construction level consisting of mortar, small stones and grey earth (14th century); 4: ditch refill with flecks of burned earth and flecks of white mortar (dated between 13th century and first phase of reconstruction, but material is mixed); 5: wall foundation consisting of irregular stones with heavy mortar, few brick fragments (14th century); 6: brown soil with flecks of burned earth (La Tène); 7: yellow/brown soil (Neolithic) [2]; 8: natural clay; 9: white mortar fill; 10: brown soil, softer than (6) with small fragments of burned earth (mixed material); 11: construction level consisting of mortar, related to „Teutonic” wall (13); 12: white mortar fill; 13: „Teutonic” wall, consisting of a foundation of 5 rows of large, irregular stones and 5 rows of smaller, more regular-shaped stones; 14: grey soil with fragments of mortar; 15: brick from late-medieval demolition level; 16: alternate rows of brick and stone (late medieval or early modern reconstruction).



Fig. 5. The view of the “Teutonic” wall, looking down from the east side of trench 2.

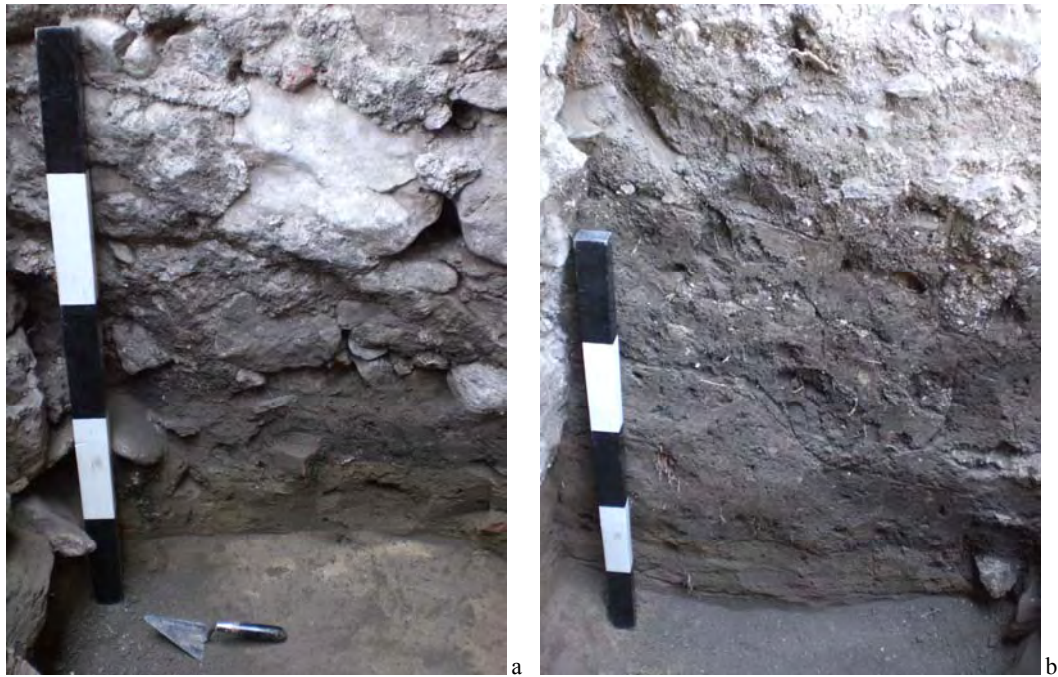


Fig. 6. The east (a) and west (b) section profiles of trench 2 on the south side of the “Teutonic” wall.

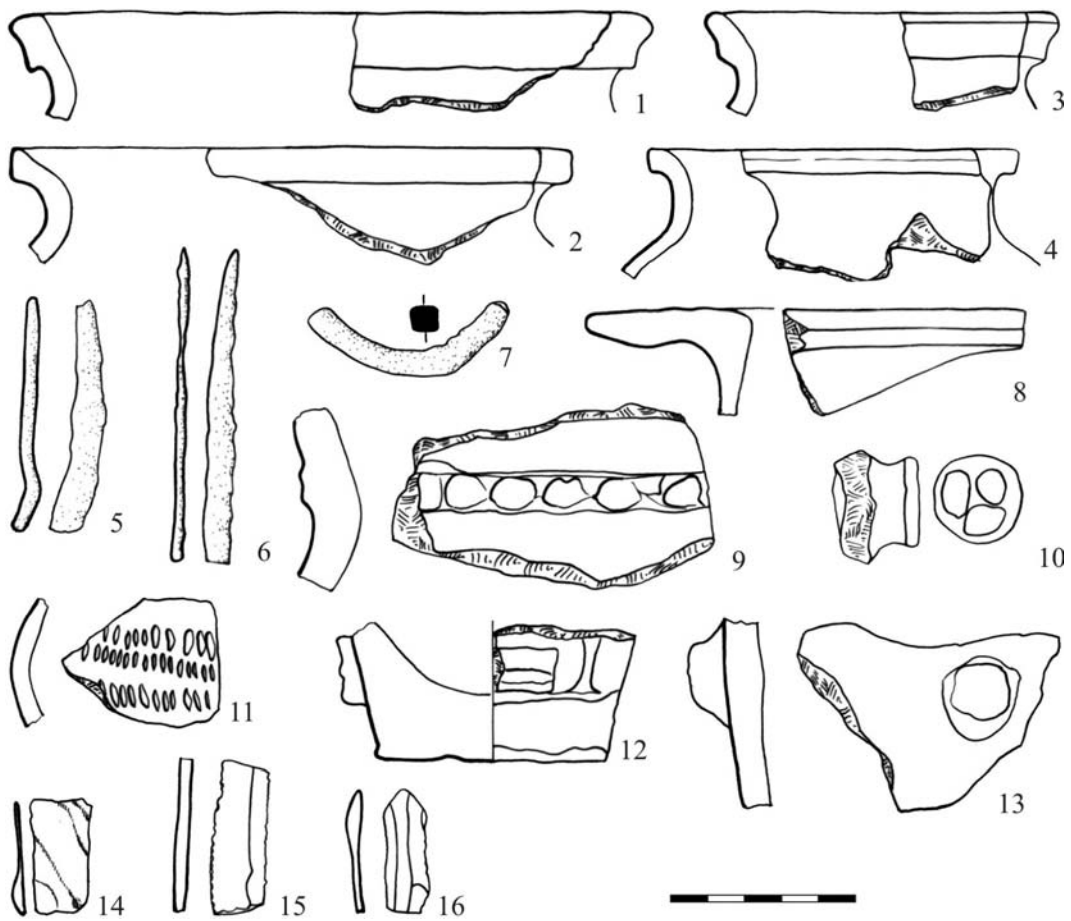


Fig. 7. Trench 2; 1: Ceramic from 13th century; 2–3: Ceramic from 14th century; 4: Ceramic from 15th century; 5–7: Metal from Medieval Period (?); 8–10: Ceramic from La Tène; 11–12: Ceramic from Bronze Age; 13: Ceramic from Neolithic; 14–16: Flints from Neolithic.

Trench 3

After the Teutonic wall had been revealed in trench 2, we decided to open another trench inside the fortress running parallel to this with the aim of locating contexts associated with the earlier occupation. However, this trench confirmed that the area within the fortress wall had been significantly disturbed by the multiple phases of restoration and occupation.

Underneath the top soil, a thick layer of earth revealed no material, and gradually transformed into a grey earth with small fragments of late-medieval ceramics, mortar, brick and stone. Close to the wall, was the most recent reconstruction level, consisting of mortar, stone and bricks. This had been cut by a ditch with a brown/grey fill and a concentration of late-medieval ceramic tiles, as well as burned earth and fragments of mortar. This ditch cut through a discrete construction level of white mortar and small stones, which continued into the wall. Below this was a thick level containing the majority of the ceramic fragments recovered from the trench, and datable to the La Tène period.

On the northern side of the trench, this layer contained a small lens of yellow clay with pellets of burnt earth. It lay on top of a 20 cm thick Neolithic layer, below which was natural yellow/green clay. The later medieval reconstruction of the

fortress wall had created a foundation ditch with mixed fragments of tiles, mortar, clay and small stones, as well as a mortar and brick layer overlain by a deposit of tiles.

Although the individual layers could in some cases be linked to the phase of construction and re-construction, their fills contained a mixture of ceramics, the result of digging and re-filling from the same deposits. As such, there were no pristine layers – the lowest part of the late-medieval wall foundation penetrated the Neolithic level (Fig. 8–9).

Ceramics. (Figure 10) 810 fragments of pre-historic pottery were predominantly dated to the Neolithic, but also included examples from the Hallstatt, Bronze Age and La Tène periods. One example dated to the 4th century, 63 fragments of ceramic could be dated to the late-medieval period (14th–17th century). There were also tiles scattered throughout the profile, dating to the 18th century as well as four fragments of modern ceramics. 18 were unidentifiable. In the medieval trench away from the fortress wall (5, south of feature 4), four late medieval fragments of ceramic were identified, and one fragment was unidentifiable.

Animal bones. 302 fragments of animal bone were recovered from trench 3, of which 99 were identifiable to species.



Fig. 8. The north profile of trench 3.

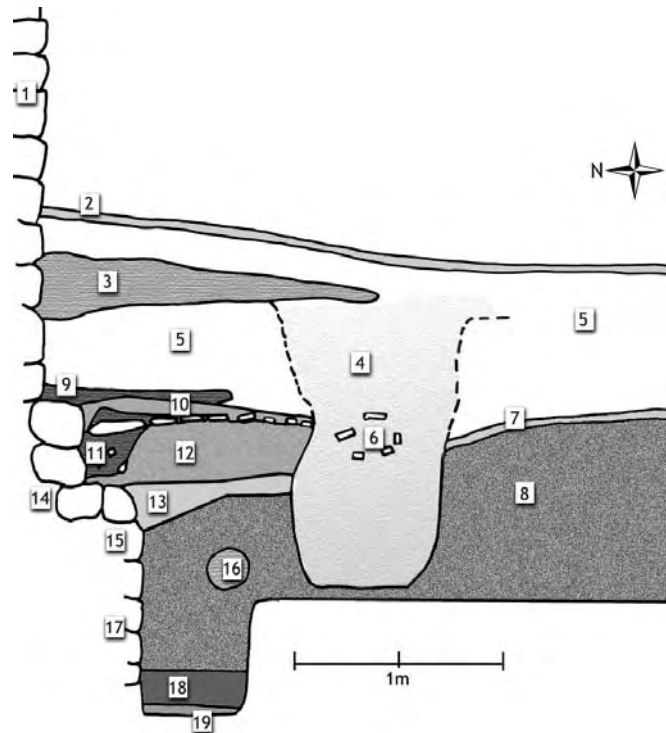


Fig. 9. Trench 3 east profile. Key: 1: wall consisting of brick, stone and volcanic tuff (modern reconstruction); 2: top soil; 3: fragments of mortar, stone and brick (modern reconstruction level); 4: brown/grey soil with flecks of burned earth, fragments of tile, brick and mortar; 5: grey soil with small fragments of mortar, brick and stones (medieval); 6: concentration of tiles, bricks and mortar; 7: construction level consisting of white mortar and small stones; 8: brown soil with burned flecks (La Tène); 9: mortar and small stones; 10: demolition and construction level consisting of mortar and tile fragments; 11: ditch with tiles, clay, mortar and small stones (mixed material); 12: stones, mortar and brick fragments (late medieval); 13: construction level consisting of mortar, small stones and grey soil; 14: foundation for (1), consisting of rows of brick, large irregular stones and mortar; 15: possible steps consisting of large, angular stones protruding 30 cm from wall; 16: lens of yellow clay with flecks of burned earth; 17: foundation for (15) consisting of mortar, stones and brick; 18: yellow/brown soil (Neolithic); 19: natural clay.

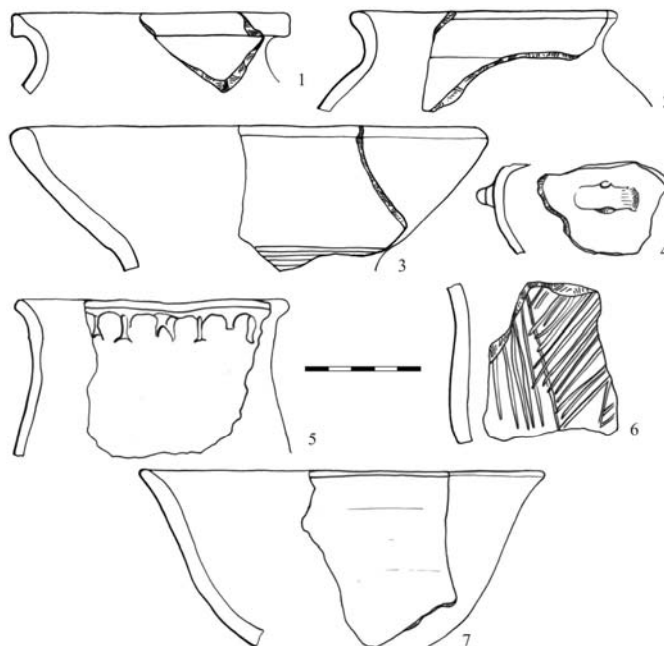


Fig. 10. Trench 3; 1: Ceramic from 14th-15th centuries; 2-3: Ceramic from La Tène; 5-6: Ceramic from Bronze Age; 4, 7: Ceramic from Neolithic.

At the base of the Fortress

Two trenches were opened on the north-west side of the base of the fortress mound (or *motte*). Their location was effectively predetermined, since the area which could be excavated was limited; on the eastern side by a road and on the western side by landfill. The decision to open these trenches was aimed at testing whether material had accumulated at the base of the mound incrementally, free from the disturbance resulting from the reconstruction of the castle, and forming clearer stratified sequences. Where *motte* and bailey castles have been excavated, the base of the *motte* has often been a rich source of archaeological information. However, the contextual integrity of archaeological stratigraphy which has built up over the period of occupation varies. In the case of Feldioara, material had moved down slope *already mixed* as a result of disturbance at the top of the mound. The clearest archaeological horizon represented a thin layer of white mortar and small stone fragments. This matched the late-medieval reconstruction phase on top of the mound.

Trench 4

This trench was located in the north-western side of the fortress, with its southernmost end touching the current base of the mound. The topsoil was uncovered to reveal a 30–40 cm layer of debris from the most recent phase of reconstruction, consisting of large fragments of brick, tile, stone and thick roots. This lay on top of grey earth level with flecks of burned earth, with late-medieval ceramics. This level appears to have reached the base of the trench where it lay on top of a thin prehistoric context, but it was dissected by a clear layer of white mortar and stones, presumably relating to one of the phase of reconstruction. In the northern most side of the trench this mortar layer had been cut by a ditch containing burnt earth and fragments of mortar (Fig. 11). All of these layers contained late-medieval ceramics, and the lowest layer contained prehistoric fragments. It is likely these were derived from the demolition and construction debris at the top of the fortress, which had mixed and unearthened material from multiple occupation phases. The chronological relationship of the earliest phase identified in this trench was confirmed by the find of a silver coin of King Carol Robert, recovered at a depth of 1,20 m. This was a fragmentary example of the „*parvus type*” (bearing a „*fleur de Lis*” design, and the letters KARULI on its avers side) dated to c. 1330³ (Fig. 12/11). The

³ L. Huszar, *Münzkatalog Ungarn von 1000 bis heute*. Battenberg, 1979, no. 472; identified by Aurel Vilcu from Institute of Archaeology, Bucharest.

mixed levels effectively replicated the archaeological matrix of the fortress, and as a result there were no suitable contexts which could be sampled for environmental data. A small number of animal bone fragments were recovered from the late-medieval contexts of the trench, but whilst their likely provenance can be classified as „medieval”, the mixing of material at the top of the fortress casts doubt on their chronological resolution.

Ceramics and metal. (Fig. 12) 190 fragments of prehistoric pottery were recovered from contexts 1, 2 and 3 – mixed in with other material in 2 and the base of 3. Later medieval ceramics numbered 215, and there were also two fragments of potentially earlier medieval pottery (12th–13th century), but their dating could be confirmed. Fragments of 18th century red tiles from the roof of fortress were present in context 2. 20 ceramic fragments were unidentifiable. In addition to the early-14th century coin (see above), a few iron objects were recovered from this trench and tentatively dated stylistically; nail (late medieval), the end of a spear (medieval) and a fragment of horseshoe (late medieval-early modern).

Animal bones. 131 fragments of animal bone were recovered from trench 4, of which 39 were identifiable to species. In addition 1 small fragment of (potential) human pelvis was also recovered.

Trench 5

The last trench was opened on the north eastern side of the base of the fortress mound, located higher up the mound than trench 4. Underneath the top soil, was a 20 cm thick layer of fragmentary brick, tile, stone, mortar and roots, representing the rubble from the most recent phase of reconstruction in the fortress. This covered a thicker layer of grey earth with small particles of mortar and late-medieval ceramic fragments. This layer was thickest at the northernmost side of the trench where it covered a prehistoric level (Fig. 13).

Ceramics. 40 fragments of prehistoric ceramics were recovered from context 6, and 39 late medieval fragments were recovered from context 3. A single ceramic spindle whorl was recovered from trench 5. Its dating was difficult to verify due to the similarities between La Tène and medieval forms, more over the context contained both prehistoric and medieval pottery. The object was recovered from a transitional horizon between the lowest medieval level (context 4; 15th/16th century) and the prehistoric level (context 6). 10 ceramic fragments were unidentifiable (Fig. 14).

Animal bones. 86 fragments of animal bone were recovered from trench 5, of which 22 were identifiable to species.

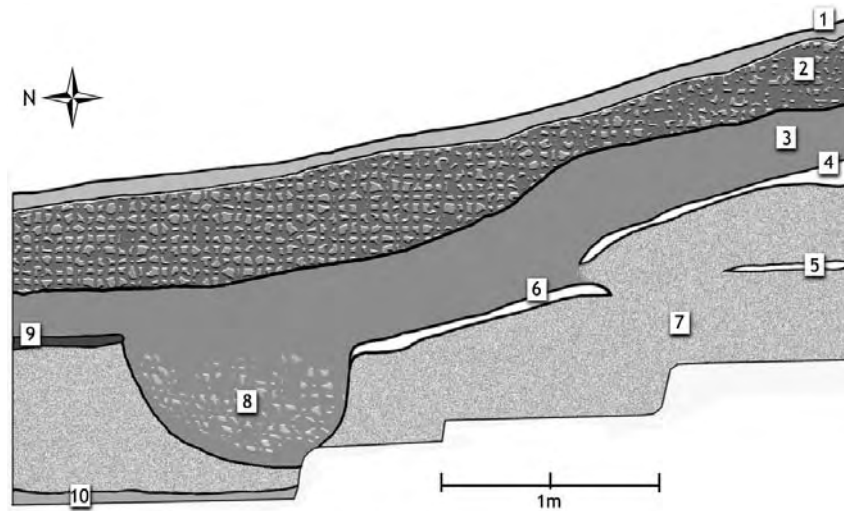


Fig. 11. Trench 4 east profile. Key: 1: top soil; 2: fragments of brick, tile, stone, mortar and thick roots (interpreted as recent degradation from top of mound); 3: grey soil with small stones and flecks of burned earth (late medieval); 4: demolition/reconstruction layer consisting of packed mortar and stones; 5: small fragments of mortar; 6: mortar level, possibly a continuation of (5); 7: grey soil with small particles of mortar (14th–15th centuries); 8: ditch cutting into (7), grey soil with concentration of mortar fragments; 9: small stones, orange/grey soil; 10: brown soil with mixed prehistoric ceramics.

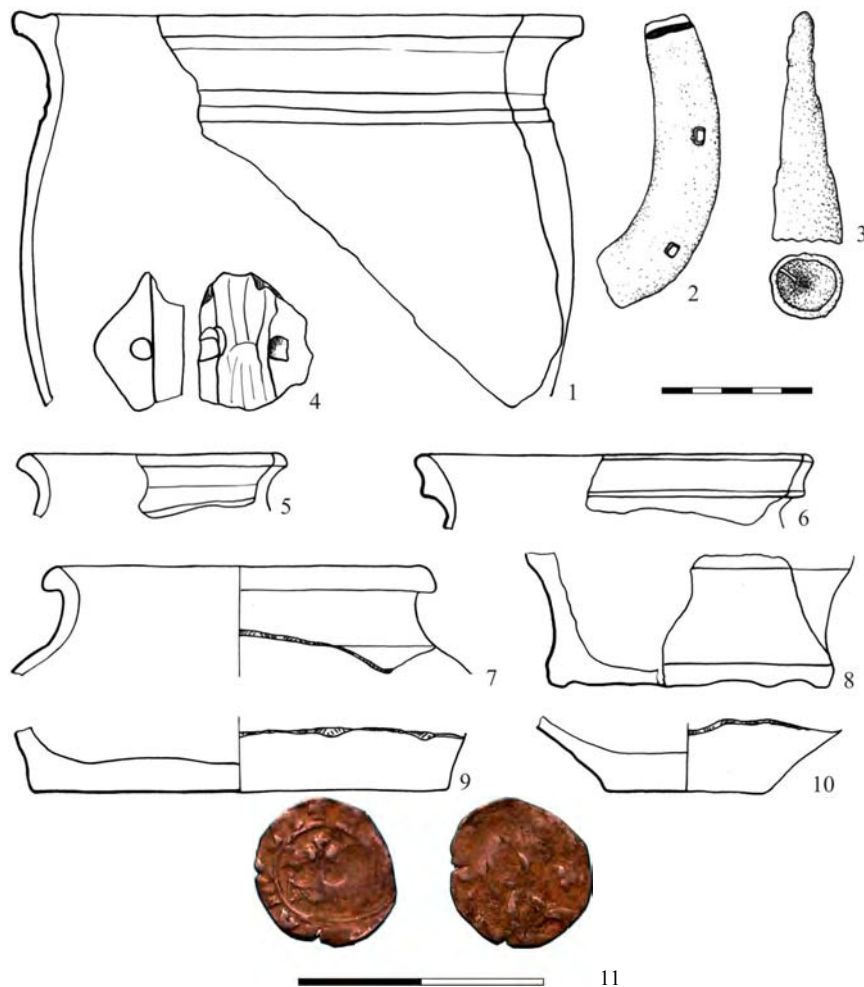


Fig. 12. Trench 4; 1, 8: Ceramic from 16th century; 2–3: Metal from Medieval Period; 5–7: Ceramic from 15th–16th centuries; 9: Ceramic from 14th–15th centuries; 4, 10: Ceramic from Neolithic; 11: Coin of King Carol Robert.

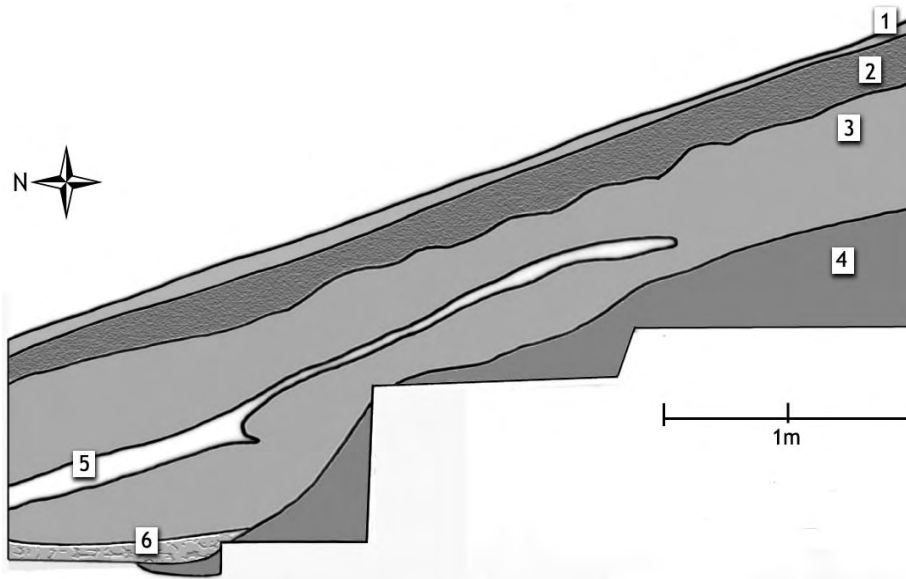


Fig. 13. Trench 5 east profile. Key: 1: top soil; 2: fragments of brick, tile, stone, mortar and thick roots (interpreted as recent degradation from top of mound); 3: grey soil with small particles of mortar (late medieval, possibly 15th century); 4: yellow sand with small stones; 5: demolition/reconstruction level from significant re-building of fortress (possibly 15th–18th century); 6: brown soil with mixed prehistoric ceramics.

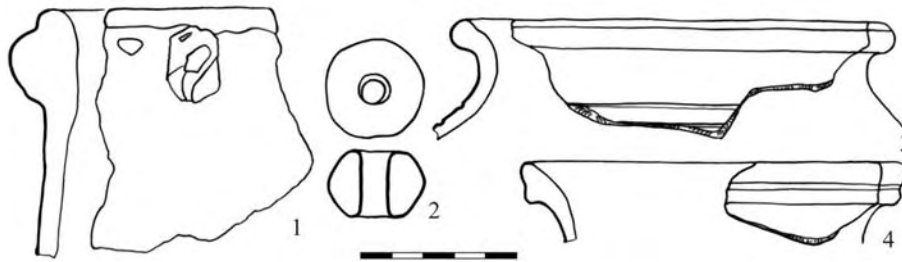


Fig. 14. Trench 5; 1: Ceramic from Bronze Age; 2: Spindle whorl from Medieval Period; 3: Ceramic from 15th century; 4: Ceramic from 14th–15th centuries.

Discussion

The multiple phases of occupation at the fortress in Feldioara which included the demolition of the 13th century wall, the re-location of the later-medieval wall, and subsequent phases of reconstruction have resulted in a complex archaeological matrix where modern, medieval and prehistoric material have been continuously mixed. It had been thought that a clearer 13th century level would be located at the base of the mound, but the situation within the fortress was also inevitably replicated outside. Given the mixing of soil and the broad chronological horizons, it was impossible to obtain suitable environmental samples from the site itself. On the other hand, the zoo archaeological analysis of recovered remains offered a general impression of animal exploitation at the site.

The range of species in the mixed medieval contexts is perhaps typical of an aristocratic site or military garrison which practised hunting alongside conventional livestock husbandry; all three major

domesticates are represented. The unusually large size of a fragmentary pig fibula, tibia, astragals and maxilla may have come from wild boar, and the presence of this species in the immediate landscape is confirmed by tusks recovered from the 12th century cemetery in Feldioara⁴. Butchery marks were identified on 16 bone fragments (9 from identifiable species: 6 cow, 2 pig and 1 sheep/goat). There were also examples of worked bone; one shaft fragment from an unidentifiable large mammal displayed saw marks, another, identifiable as cervid had rudimentary holes cut into it, possibly representing the first stage of manufacturing a flute. Two fragments of horn cores from cows, and one from a sheep/goat may hint at horn processing, whilst the sole example of antler was represented by a small fragment identified as roe deer. Unfortunately, all of the remains were associated with mixed ceramics, making it impossible to tie the biological data to any specific phase of occupation.

⁴ Ioniță *et al* 2004, p. 29–58, 93–123.

It is useful at this stage to re-iterate the value of the site of Feldioara as a whole. Previous and ongoing excavations in the village, particularly around the church, have demonstrated the presence of a Saxon community from the 12th century. The Teutonic Knights arrived in Transylvania in 1211, and Feldioara represents the best candidate for one of the five castles constructed by the Order in this region, most probably Marienburg. If this supposition is correct, the Order sought out an existing German-speaking community which had already established a colony focused on a church, with associated infrastructure. But the choice of site was also strategic. The location of the fortress took advantage of an existing outcrop of high ground which provided excellent views across the Burzenland/Țara Bârsei, stretching as far as the Carpathian Mountains. The castle was constructed very quickly – within a few years – from locally quarried stone. The structure owes its survival to the subsequent decision to shrink the fortified area on top of the mound. Archaeological resolution associated with such brief periods of occupation is typically extremely poor, although sometimes detectable. For example, the incomplete Templar castle at Vadum Iacob (north Israel) was built and destroyed within eleven months, but resulted in a distinct phase of occupation, represented by a range of material culture including environmental data⁵. Similar brief phases of occupation have been detected at other crusader-period castles, such as Belmont⁶. In the case of Feldioara, it was not possible to identify any pristine contexts

which could be linked to specific phases of occupation, other than episodes of construction and reconstruction.

Conclusion and future research

Although the fortress itself has yielded little in the way of useful environmental data, pollen coring from appropriate contexts in the surrounding landscape offers the most reliable index of environmental transformation. This may, potentially, be linked to activity at the site of the fortress and its associated village. Indeed, rather than focusing on the impact of the castle building itself, the process of landscape transformation should be linked to the village as a whole, and contextualised within the settlement of the Burzenland. As a result of this excavation, the following sampling strategy is suggested for future “colonising” castle sites:

1. To sample a site which has not been significantly rebuilt or restored.
2. To sample a site which was completely abandoned after its initial phase of occupation (e.g. a short-term frontier fortress such as at Vadum Iacob).
3. To focus more (if not exclusively) on the hinterland for castles with multiple phases of occupation, to counter the limitations of mixed contexts. A comparably complicated matrix is also evident from the excavations in the outer bailey of Malbork (Poland) castle⁷.
4. To situate castles within broader landscapes, encompassing any associated or contemporary settlements and structures.

⁵ R. Ellenblum, *Frontier Activities: the Transformation of a Muslim Sacred Site into the Frankish Castle of Vadum Iacob*, *Crusades*, 2003, 3, p. 83–98.

⁶ R. P. Harper, D. Pringle (eds.), *Belmont Castle: The Excavation of a Crusader Stronghold in the Kingdom of Jerusalem*. Oxford, 2000.

⁷ M. Dąbrowska, *Malbork – zamek, woj. Pomorskie. Opracowanie wyników badań archeologiczno-architektonicznych prowadzonych na Przedzamczu Północnym w V–VIII 2001 roku*. Unpublished report. Eadem, *Malbork – zamek. Sprawozdanie z badań archeologiczno-architektonicznych przeprowadzonych na terenie Przedzamcza Północnym w lipcu i sierpniu 2003 roku*. Unpublished report.