

# Visible workshops for invisible commodities. Leatherworking in the Late Bronze Age Noua culture's ‚ashmounds’<sup>1</sup>

Laura Dietrich\*

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**Abstract:** *The present article explores the possibilities of reconstructing social behaviour through a detailed analysis of the so-called ‚ashmounds’ of the Late Bronze Age in Eastern Europe, starting from the settlement of the Noua culture from Rotbav, Southeastern Transylvania. ‚Ashmounds’ are round heaps formed of greyish sediments and are distributed mostly in the Noua-Sabatinovka-Coslogeni cultural complex. Until recently they were believed to represent the remains of houses or burned waste. New evidence shows that the ‚ashmounds’ are not randomly formed mounds of waste, but special, collectively used places at the boundaries of settlements; they are not piled on the walking level, but in intentionally dug basins. Chemical analyses prove the sediment to be constituted not of ash, but of a mixture of earth, lime and burned lime. Burnt lime is ethnographically known to have been used for departing hair from hides. Tools for the scraping of hides, needles, awls and a considerable amount of animal bones give further prove to an intense production of leather. Concentrations of drinking vessels and cooking utensils prove that the ‚ashmounds’ may also have played a role in feasting.*

*By using one of these activity zones, it was slowly filled and marked at the end of its use-life through depositions of bronze objects or animal skulls. Furthermore the present article introduces a new workmanship in the Late Bronze Age in Eastern Europe of less visible commodities.*

**Rezumat:** *Studiul de față explorează posibilitățile de a reconstitui comportamentul social printr-o analiză detaliată a așa-numitelor „cenușare” din epoca bronzului târziu din Europa de Est, având ca punct de plecare așezarea culturii Noua de la Rotbav, din Transilvania de sud-est. „Cenușarele” sunt movile de formă aproximativ rotundă, constituite dintr-un sediment cenușiu și sunt răspândite în principal în aria complexului cultural Noua-Sabatinovka-Coslogeni. Până recent s-a crezut că ele reprezintă ruine ale unor locuințe sau grămezi arse de gunoi. Noi indicii arată că cenușarele nu sunt grămezi de gunoi formate accidental, ci reprezintă locuri de activitate colectivă aflate la marginea spațiului locuit din așezări. Acestea nu sunt formate pe nivelul de călcare, ci în bazine săpate intenționat.*

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<sup>1</sup> The present article is in large parts a translation of the article „Aschehügel“ der Noua-Kultur als Plätze von Arbeit und Fest, in: Berecki, S., Németh, B., Rezi, B. (coord.), *Bronze Age Rites and Rituals in the Carpathian Basin. Proceedings of the international colloquium from Târgu Mureș, 8-10 October 2010, Târgu Mureș, 131-142.*

\* German Archaeological Institute, Orient-Department, Podbielskiallee 69-71, 14195, Berlin; e-mail: [laura.dietrich@dainst.de](mailto:laura.dietrich@dainst.de)

*Analizele chimice arată că sedimentul nu e format din cenușă, ci dintr-o mixtură de pământ, calcar și calcar ars. Calcarul ars, în combinație cu apa, e folosit tradițional în procesul prelucrării pieilor. Unele pentru prelucrarea pieilor, ca de exemplu omoplații crestați pentru îndepărtarea părului sau ace și împungătoare, precum și o cantitate impresionantă de oase de animal provenite din cenușar oferă indicii unei intense activități în domeniul pielăriei. Concentrații ale anumitor categorii de ceramică fină, ca vasele-kantharoi, precum și a unor ustensile tipice folosite în procesul de gătit indică și o altă dimensiune a cenușarelor, acestea jucând probabil și un rol de locuri de sărbătoare comunală. Zonele acestea special demarcate se umpleau probabil lent și erau „marcate” la sfârșitul ciclului lor de existență prin depuneri de bronzuri sau cranii de animale. Studiul de față aduce noi date despre procesul manufacturării unor produse mai puțin vizibile arheologic din epoca bronzului târziu din Europa de est.*

**Key words:** ‚Ashmounds’, Noua Culture, Rotbav, settlement, leather, hideworking, feasts.

**Cuvinte cheie:** cenușare, cultura Noua, Rotbav, așezare, piele, pielărie, sărbători colective.

### **‚Ashmounds’ – an unusual site feature**

One of the most characteristic phenomena related to the Late Bronze Age Noua Culture are the ‚ashmounds’ or ‚zolniki’. They are usually described as light to dark-greyish, round or oval, considerably flattened mounds of ash. They can easily be spotted on the modern surface, as well in the terrain as on aerial photographs. Their diameter varies between 15 and 45 m, bigger mounds are rare<sup>2</sup>. Before the most important theories regarding their functions can be discussed, some peculiarities of their inner structure have to be stressed. Eugen Sava<sup>3</sup> has summarized the main characteristics as follows: ‚ashmounds’ are usually formed of layers 0,60-0,80 m in thickness, sometimes features like pits, ovens, or houses are found inside (as well as besides) them. The material culture is conspicuously unitary; no secondary effects of fire are visible. All inventories of ‚ashmounds’ published so far consist of a large amount of pottery and animal bones, human remains are attested more rarely in the form of dispersed bones or complete skeletons; in addition clay and bone objects appear as well as, more seldom, bronze artefacts<sup>4</sup>. It has been stated empirically that the quantity of finds is much higher than in areas outside the mounds.

A complete map of the ‚ashmounds’ is missing so far, but Sava<sup>5</sup> states that they are a feature of the majority of Noua sites<sup>6</sup>. In the eastern<sup>7</sup> distribution area of the Noua

<sup>2</sup> Bicbaev-Sava 2004; Sava 2005; Kaiser-Sava 2006, 142, fig. 4, 5, all with further literature.

<sup>3</sup> Sava 2005, 73.

<sup>4</sup> Summaries in Florescu 1964, 150-169; Sava 2005, 73-78.

<sup>5</sup> Sava 2005, 69.

<sup>6</sup> The Noua Culture is often seen as a part of the bigger Noua-Sabatinovka-Coslogeni complex (f. e. Sava 2005). The present paper focusses mainly on the ‚ashmounds’ of the Noua Culture, as the main example discussed here, the site of Rotbav, lies in this area. Anyway,

culture ,ashmounds' are associated closely with settlements; however it remains unclear whether the mounds constitute the settlement, e.g. domestic structures in the widest sense, or form just a part or element of it. Basically three functions have so far been proposed for the ,ashmounds':

- a) a function as *dwelling*s;
- b) a function as *garbage dumps*;
- c) a function as *cult places*.

As will be argued in more detail below, the ,patches of ash' haven been in the focus of research, as they are easy to recognize in the terrain and in excavation trenches. This led to a fairly complete image regarding their typical find material and inner structures, however omitting their entanglement with the surrounding cultural landscape nearly completely. This problem lies at the basis of many interpretational approaches to the ,ashmounds'.

Most archaeologists have tended towards the first explanatory pattern, proposing, partially caused by the insufficient archaeological data available, differing and partly contradictory arguments. In the 1950ies, M. Petrescu-Dîmbovița<sup>8</sup> listed 46 sites with Noua pottery; he mentions oval ,ashmounds' on the modern surface at nine of them. At this point, he had conducted excavations at three sites (Corlăteni, Larga Jijia, Trușești), excavating mainly small soundings inside the ,patches of ash'. He recognized the immense thickness of the ,ash' layers, which showed multiple stratification and generated a large quantity of finds. The big greyish-white layers led him to interpret his findings as the remains of burned huts; the absence of burned daub or traces of fire in general was explained by light constructions consisting just of thin wattle or reed, which would have burned completely to ashes<sup>9</sup>. A.C. Florescu<sup>10</sup> commented on the shortcomings of this interpretation, which were due to an insufficient number of sites excavated and small-scale, selective excavation methods. In his extensive study of the Noua Culture, he did not disregard Petrescu-Dîmbovița's

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several reasons have been brought forward for a more reluctant use of the concept of this ,cultural complex' (Dietrich 2010a). The ,ashmound'-phenomenon is far wider spread to the east than the limits of the proposed Noua-Sabatinoivka-Coslogeni area (Sava 2005, 67).

<sup>7</sup> The distribution area of the Noua Culture is divided in an eastern zone (Romanian Moldova and Republic Moldavia on both shores of the Prut as well as the Ukraine) and a western zone (Transylvania). The eastern zone is characterized by ,ashmounds', while they are missing in the west with exception of southeastern Transylvania.

<sup>8</sup> Petrescu-Dîmbovița 1953, 445-448, Nr. 5, 9, 10, 17a, 19a, 25a, 26, 28, 30c.

<sup>9</sup> Petrescu-Dîmbovița 1953, 450.

<sup>10</sup> Florescu 1964.

interpretation outright, but nevertheless plead for cautiousness<sup>11</sup>. He correctly stressed the point that an interpretation of the ‚ashmounds‘ would not be possible without research in the areas surrounding them<sup>12</sup>. Nevertheless, with a few exceptions (e.g. Rotbav, Zoltan, Petrușeni, Magala, see below) up to today excavations have centered on the ‚ashmounds‘.

An apparent affirmation for the settlement-hypothesis was the discovery of archaeological features inside several mounds. In the eyes of some researchers, pisé platforms, fire places, ovens and pits were evidence for domestic structures<sup>13</sup>. Inside the ‚ashmounds‘ of Lichișteni, Banca, Bărboasa<sup>14</sup> and Cândești<sup>15</sup>, in each case two to four pisé platforms of approximately rectangular shape were found. At Cândești they were arranged in a circle and marked the center of the mound. Between these platforms, fireplaces and ovens were placed in equally regular order, in the center there was a pit, to which the excavators attributed a cultic function. The excavators explicitly stressed the scarcity of burned daub and proposed an explanation in the lines of lightly constructed huts, much like Petrescu-Dâmbovița had done earlier. The obvious question of the source of the large amounts of ash remained unanswered, as secure evidence for fire was restricted to the fire places<sup>16</sup>.

This gap in the interpretation was already noticed by Dragomir<sup>17</sup>. He had excavated some of the ‚ashmounds‘ of Cavadinești<sup>18</sup>, where he observed similar structures (pisé platforms, fire places, ovens) inside and a few meters outside the ‚ashmounds‘. As also at Cavadinești the thickness of the ‚ash‘-layers was remarkable (c. 1.60 m), he correctly reasoned that even the burning of all detectable constructions would not have sufficed to form them<sup>19</sup>. He explained the findings by drawing an analogy to modern shepherd’s huts; he proposed that in a first construction phase simple seasonally used huts had been erected. The waste of this settlement would have been burned besides the huts together with the dung of the animals due to hygienic considerations. As the people of the Noua Culture were herdsmen, the

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<sup>11</sup> Similar thoughts already in Nestor 1952, 89-91.

<sup>12</sup> Florescu 1964, 146.

<sup>13</sup> *Inter alia* Florescu-Căpitanu 1968, Morintz 1978, 152, Dergačev 1986, 156 ff., Florescu, Florescu 1983, 119; Florescu, Florescu 1990; Neagu 1993.

<sup>14</sup> Florescu, Căpitanu 1968.

<sup>15</sup> Florescu, Florescu 1990.

<sup>16</sup> Florescu, Florescu 1990, 54-57, fig. 3, 4.

<sup>17</sup> Dragomir 1959; Dragomir 1961; Dragomir 1980; Dragomir 1996. 231-256.

<sup>18</sup> Dragomir 1959; Dragomir 1961.

<sup>19</sup> Dragomir 1959, 455.

amount of dung would have sufficed to produce the large layers of ash<sup>20</sup>. Dragomir thus perceived the 'ashmounds' as dumps reflecting culturally determined rules for disposing waste.

The same view is held by Smirnova<sup>21</sup>, though with different arguments. During her excavations at the settlement of Magala, she was able to observe that areas perceived by her as domestic lay predominantly outside of the 'ashmounds'. From that she reasoned that these mounds were the result of repeated disposal of waste and ashes.

The exponents of the 'cult place theory' based their interpretations as well on the find material. Especially the discovery of human skeletons and animal skulls was proposed as an argument in favor of this hypothesis. In combination with the large amounts of ash they were thought to hint at rituals in connection with fire and sacrifices (e.g. Tošćev-Čerjakov 1986, especially for the ashmounds of the Sabatinovka Culture).

Two important articles sum up the latest state of research on the topic. In his study on the Late Bronze Age 'ashmound' E. Sava<sup>22</sup> merges the existing theories into a 'multifunctionality'; a combination of profane as well as sacred aspects would have led to the development of the 'ashmounds'. In his view the 'ashmounds' were situated near the seasonal houses and stock enclosures and rose as accumulations of dung, waste and ashes. The presence of structures which he interprets as domestic inside the 'ashmounds' and the covering of structures by 'ash' are explained by repeated relocations of the houses, which would have been leveled and burnt at the end of their use-lives. Following this line of thought the structures inside the mounds would have to be older than those outside<sup>23</sup>. A cultic aspect would be proven primarily through actions involving fire (i.e. the presence of ashes) and through human sacrifice (i.e. the presence of human bones)<sup>24</sup>. To sum up, in Sava's view the 'ashmounds' are waste dumps with cultic aspects inside seasonal settlements of a semi-nomadic population.

The most recent interpretations regarding the 'ashmounds' have been influenced very much by the fact that the 'ash' forming the mounds turned out to be no ash at all. First results from pedogenic and chemical analysis of the sediments of several mounds from Odaia Miciurin (Republic of Moldova) showed a significantly bigger content of carbonate and phosphates to be the only difference between the 'ash'-layers and the other strata<sup>25</sup>. Based on this and on the presence of constructions inside the

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<sup>20</sup> Dragomir 1980.

<sup>21</sup> Smirnova 1969, 13-14.

<sup>22</sup> Sava 2005.

<sup>23</sup> Sava 2005, 93.

<sup>24</sup> Sava 2005, 98-99.

<sup>25</sup> Kaiser, Sava 2006, 163-165, Tab. 4, 5; Sava, Kaiser 2011, 375-377.

mounds, the excavators of Odaia Miciurin proposed a new model for the genesis and meaning of the ‚ashmounds‘. The mounds would be the result of several dwellings and other domestic structures, which would have been left, partially filled and reconstructed several times *,until, over time, a bigger inhabited area formed, which today is visible in the form of an unregulated mound‘*; the grey layer marked the cultural debris of these homesteads, the carbonate would be of an unspecified natural origin, while the phosphates are explained as the results of modern fertilizers<sup>26</sup>. Thus, the mound would ultimately be the result of the backfilling of pits (interpreted as houses).

### **The structure of the ‚ashmounds‘**

Hence the three most important theories on the ‚ashmounds‘ and the main arguments of their protagonists have been summarized. All of them share at least two weak points. Due to the excavation strategies applied they center on the ‚ashmounds‘ themselves and neglect the rest of the settlements; there are no comparisons, for example, of the find material from both areas. The second and more severe point is that the optical impression of ‚ashmounds‘ seems to be wrong due to chemical analysis.

As ‚ashmounds‘ are without doubt parts of larger settlement areas<sup>27</sup>, the entire ensemble has to be taken into account in order to understand their role. The intentional character of the mounds and their integration into settlement patterns is underlined by the aerial photographs from Moldavia<sup>28</sup> showing them to form linear and circle-like arrangements or spatial clusters.

As constructions are known as well inside and outside of the mounds, the question has been asked what functions those features fulfilled and how a Noua settlement’s complex overall structure has to be understood. To reach some conclusions in this respect, I want to use the thoroughly researched settlement of Rotbav as an example.

At Rotbav excavations have been undertaken between 1970 and 1973 by A. Vulpe and M. Marcu, and again between 2005 and 2009 by A. Vulpe, L. Dietrich, O. Dietrich; work centered on the area outside the ‚ashmound‘, which was discovered in 2007 (Fig. 1). The actual Noua settlement lies outside of the mound. It has two construction phases with numerous houses and considerably thick cultural layers. The ‚ashmound‘ at Rotbav belongs to the earlier phase of the Noua settlement; it lies in the center of the plateau on which the site is situated and marks the boundary of the settled area at that

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<sup>26</sup> Sava, Kaiser 2011, 426-433.

<sup>27</sup> Sava 2005, 69, Abb. 2/1, 3, 3/2, 4/6; with geomagnetic plan of Odaia Miciurin – Kaiser, Sava 2006, 152 Abb. 18.

<sup>28</sup> Bichbaev-Sava 2004, 338-353, fig. 2-5.

time. To the south a cemetery of the Noua Culture is known due to the fortuitous discovery of a stone cist grave<sup>29</sup>.

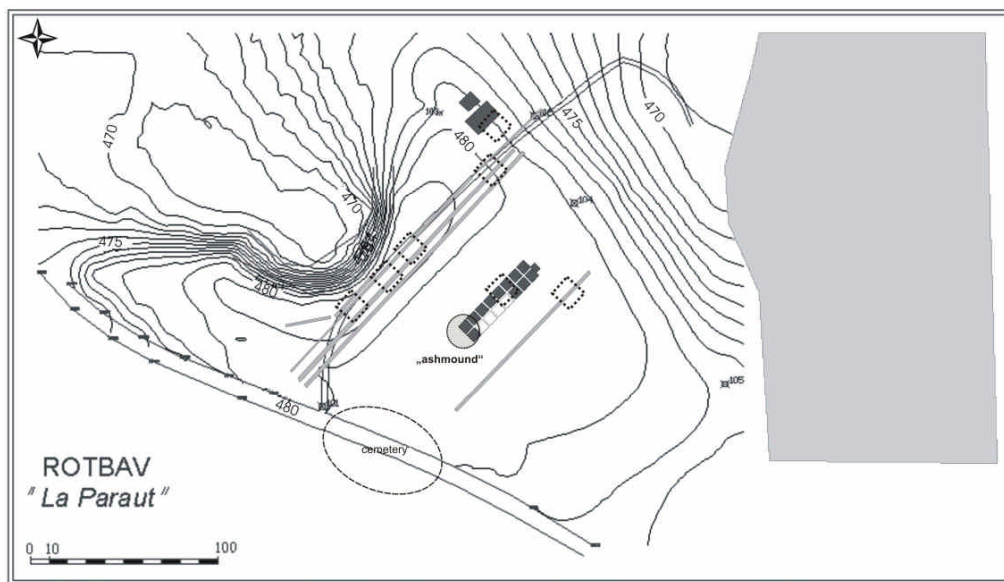


Fig. 1. The Noua settlement of Rotbav, general plan.

The base of the 'ashmound' does not lie on the walking level of the contemporaneous settlement, but in an at least 30-50 cm deep oval basin, which was intentionally made in that form from the beginning. The basin was dug to the genuine, yellowish loamy soil, earlier settlement debris of the Wietenberg Culture were deliberately and completely removed. The mound was erected only later and is not the primary attribute of the feature (Fig. 2 with a schematic representation of the settlement stratigraphy; Fig. 3 for a schematic reconstruction of the 'ashmound').

As most excavations have centered on the 'ashmounds' it is not possible to draw analogies between Rotbav and other sites. Some excavators mention limited soundings outside the 'ashmounds'<sup>30</sup>; systematic publications of the findings are lacking however. Not only in the published plans of Odaia Miciurin<sup>31</sup>, but also in less-well known sites like Ghindești<sup>32</sup>, Căndești<sup>33</sup>, Gârbovăț<sup>34</sup>, Trușești-Movila<sup>35</sup>, Costești<sup>36</sup>

<sup>29</sup> Dietrich, Dietrich 2007.

<sup>30</sup> f. e. Florescu, Căpitanu 1968, 37; Florescu 1991, 70; Dragomir 1959; Cavruc 1998, 86-89, Nr. XVIII d 5/253; Cavruc 2001, 50-55.

<sup>31</sup> Kaiser, Sava 2006, Abb. 18, 21, 25.

<sup>32</sup> Meljukova 1961; Sava 2005, fig. 2/1.

<sup>33</sup> Florescu, Florescu 1990.

this concentration on the mounds is obvious, at least as far as the excavation areas are represented in the plans or their positions are described by the excavators. According to some of the few accounts available, the layers outside of the mounds were thin and yielded few finds<sup>37</sup>.

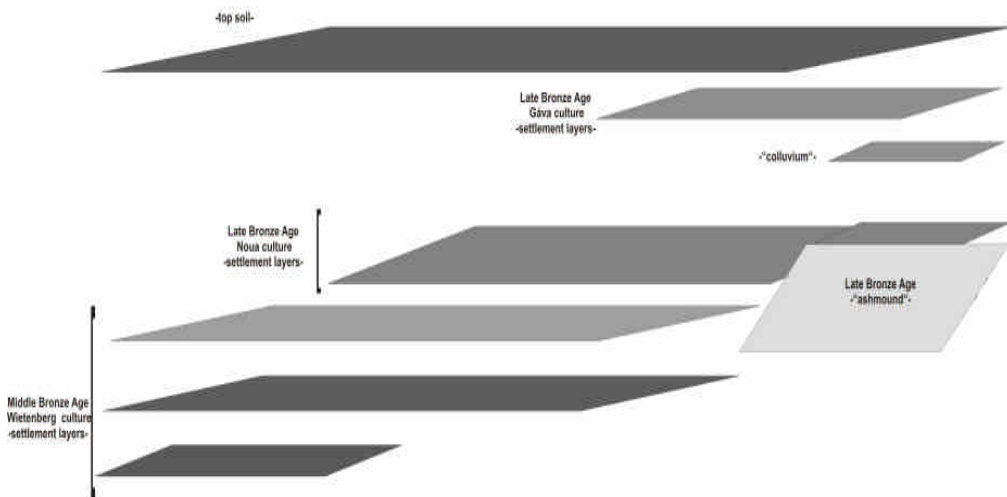


Fig. 2. Schematic representation of the stratigraphy of the settlement of Rotbav.

In this respect it is important to note that none of the theories proposed so far has taken into account site formation and especially post-depositional processes in the interpretation of the stratigraphies. Sommer<sup>38</sup> has pointed out several post-depositional processes affecting the archaeological record in different stages of site formation: anthropoturbation (e.g. dislocation of finds due to human movement, construction work, agriculture, exploitation of natural resources, treasure hunting), bioturbation (e.g. scoring/destruction/dislocation of bones by dogs and pigs, dislocation of finds due to the activity of moles and worms or growing of roots) and geoturbation (biological degradation, weather influences, erosion, wear leading to relocation, deformation and covering of finds and features).

Fig. 4 is a schematic reconstruction of the formation processes at work for the settlement area and the 'ashmounds' based on observations from Rotbav. In a first phase (fig. 4/1), the oval basin was constructed, the walking level on which the houses

<sup>34</sup> Florescu 1991, 172, 173, fig. 1.

<sup>35</sup> Florescu 1991, fig. 2.

<sup>36</sup> Sava 2005, fig. 3.

<sup>37</sup> e.g. Florescu, Căpitanu 1968, 37; Florescu 1991, 70; Cavruc 2010.

<sup>38</sup> Sommers 1991, 109-123.



are build lies above the basin's floor. In a second phase (Fig. 4/2) the basin is filled slowly, between the houses cultural layers accumulated from waste and debris. At some point, the site is abandoned, the houses decay; the 'ashmound' has reached its maximum height. At Rotbav, the stratigraphy shows a second Noua layer and a humus horizon supraposing this layer, so that the 'ashmound' was well conserved (Fig. 4/3). Starting in the Middle Ages and intensifying in modern times extensive agriculture is practiced in nowadays Romania. Maps showing modern land use (Fig. 5) indicate extensive agriculture as a major factor in the whole distribution area<sup>39</sup> of the Noua Culture. Standard ploughs penetrate the soil to a depth of about 40 cm, the roots of the crops cultivated mostly in Romania reach depths of more than 1 m. Experiments have shown that every ploughing will bring between 5 and 15% of the total amounts of sherds in the zone affected to the surface; another experiment has revealed a dislocation of single artifacts over a distance of up to 17.8 m, with an average movement of 3.5 m<sup>40</sup>. Thus, a massive destruction and distortion of layers and considerable soil erosion have to be taken into account.



Fig. 3. Schematic reconstruction of the stratigraphic position of an 'ashmound'.

The abrasion of layers (Fig. 4/4) has to have affected as well older humus horizons as the prehistoric layers and the tip of the 'ashmound'. In some situations (Fig. 4/5), this may lead to an almost complete destruction and disappearance of the upper settlement layers, while a rest of the 'ashmound', i.e. the round to oval basin, remains.

If the stratigraphic situation at Rotbav is representative of other sites or even all 'ashmounds', the model proposed here would explain the present-day appearance of the 'ashmound'-agglomerations with thin cultural layers between them. Many researchers seem to fall victim to an implicit assumption of a 'Pompeii premise'<sup>41</sup> in their interpretations of these sites, not taking into account that cultural landscapes are products of slow but far-reaching formation and destruction processes. The apparent missing or scarcity of settlement structures outside the 'ashmounds' does not have to reflect the prehistoric reality. Only in well-preserved sites these structures are still visible; at Rotbav this is due to thick younger strata which protected the older ones from abrasion.

<sup>39</sup> cf. Florescu 1991, annex.

<sup>40</sup> Sommers 1991, 121 with bibliography.

<sup>41</sup> Ascher 1961, 342; Schiffer 1976; Schiffer 1983; Binford 1981.

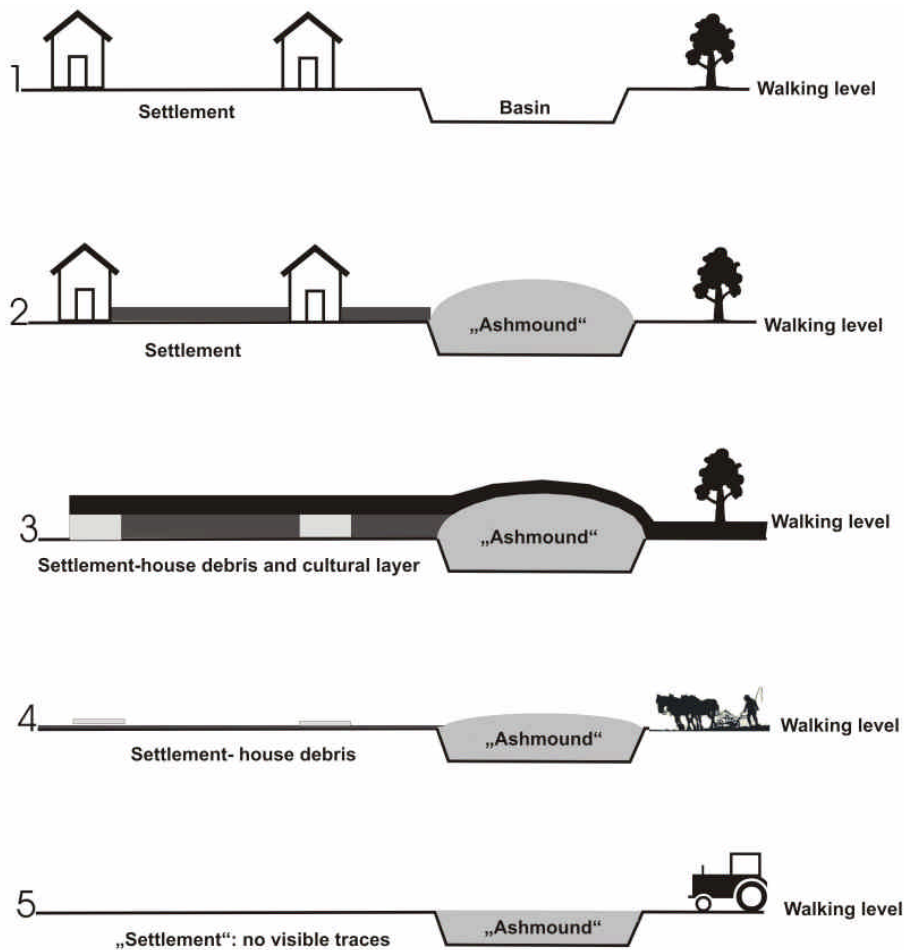


Fig. 4. Reconstruction model for the site formation of a settlement with ‚ashmounds‘.

It has to be stressed that this model also has implications for the chronological interpretation of the stratigraphies of multi-phased Noua settlements. If abrasion affects the upper part of the ‚ashmound‘ and the younger settlement layers, the remaining rest of the mound and the older layer may be on the same absolute level, but not contemporaneous.

As mentioned above, in some ‚ashmounds‘ constructions have been documented; the most numerous are pisé platforms, fireplaces, ovens and pits. In Rotbav and Ostrivec<sup>42</sup> such features lie only outside the ‚ashmound‘. At Petruşeni and Magala

<sup>42</sup> Balaguri 1968, 140.

layers and several features have been excavated besides the 'ashmounds'<sup>43</sup>. In Sava's opinion these features represent the older, burned and leveled houses<sup>44</sup>. As in Odaia Miciurin the grayish-white layer was proven to be not formed of ashes<sup>45</sup>, in my opinion the interpretation is not probable. As will be discussed below in detail, there are further arguments against a function of the constructions as domestic buildings.

### **Material culture: 'ashmound' versus settlement (Rotbav)**

It has been mentioned that so far nearly no systematic comparisons between the material culture of the 'ashmounds' and the settlement areas have been made. The evaluation of the ceramic finds from Rotbav in change has produced distinct distribution patterns of some object categories. From the 'ashmound' arose a quantity of pottery 3 to 4 times higher than from the rest of the site. Cooking ware is also present, but some differences in comparison to the settlement are visible. In the settlement only small amounts of the characteristic double-handled kantharoi, which represent most probably drinking vessels used in feasting<sup>46</sup>, were discovered, usually 1 to 2 items from a house area. In the 'ashmound' kantharoi appear in large quantities<sup>47</sup>.

Another characteristic of the 'ashmound' are hoards and single depositions of bronze objects. At Rotbav, in 2008 a small hoard consisting of a pin of 'Cypriote type' and a bronze ingot was discovered, which lay immediately under the surface of the mound and marked the eastern cardinal direction<sup>48</sup>. From the settlement area hoards are missing.

### **Animal bones: 'ashmound' vs. settlement (Rotbav)**

Remarkable differences are visible also with the animal bones. The quantity of bones from the 'ashmound' is 12 times bigger than from the settlement. The bones are all unburned, big and heavy. The fewer bones from the settlement area are generally found near or inside domestic structures or fireplaces; they are smaller and a part is burned. The bone material from the settlement can be interpreted as the remains of meals, which is also supported by archaeozoological analysis. Whereas the bones in

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<sup>43</sup> Smirnova 1969, 10pp. fig. 1-2; Levițki, Sava 1993, 136; Sava, Levițki 1995, 157 pp., fig. 4; Sava 1998, 272 note. 12; Sava 2005, 73, fig. 8.

<sup>44</sup> Sava 2005, 93.

<sup>45</sup> Kaiser-Sava 2006, 163-165, Tab. 4, 5.

<sup>46</sup> Dietrich 2011b.

<sup>47</sup> Dietrich 2010 a.

<sup>48</sup> Dietrich 2009.

the settlement stem from younger animals butchered for their meat, in the ‚ashmound‘ all age-classes are represented, while generally older animals predominate<sup>49</sup>.

Next to the pottery, also bone tools show distinct spatial patterns. The dominating artifacts in the ‚ashmound‘ are crenated scapulae, which – like the kantharoi - appear only sporadically in the settlement. Near to the ‚ashmound‘ needles and awls concentrate; both object classes are also rare in the settlement. A detailed study of the crenated scapulae produced evidence for a function as scrapers for de-fleshing and un-hair animal skins in the course of leather production<sup>50</sup>. This will prove to be an important aspect in interpreting the ‚ashmounds‘.

### **Chemical analysis of the ‚ashes‘**

As only a preliminary chemical analysis for the sediments from Rotbav is available at this moment, I will use the findings from Odaia Miciurin to further my argument<sup>51</sup>. As mentioned above, the so-called ‚ash-layer‘ of this site was different from the surrounding sediments only in the bigger contents of carbonates and phosphates. The analysis identifies the carbonates as calcium carbonate (Ca CO<sub>3</sub>) and calcium oxide (Ca O), popularly known as burnt lime<sup>52</sup>; the first substance was also identified in Rotbav. Calcium carbonate (Ca CO<sub>3</sub>) is a white substance insoluble in water, occurring inter alia naturally as limestone but also as end result in the transformation-circle of the burnt lime; calcium oxide (Ca O) is obtained by burning limestone or other Ca CO<sub>3</sub> sources with temperatures between 900 and 1300° C. During this process, calcium carbonate decomposes into burnt lime and carbon dioxide. Burnt lime can contain aluminum, iron, silicium and magnesium; these elements are present in the sediments from the ‚ashmound‘ of Odaia Miciurin<sup>53</sup>.

### **‚Ashmounds‘ as places of communal work and feasting**

It has been shown that the ‚ashmounds‘ developed in oval, basin-like structures situated (at least in Rotbav) at the edge of the settled area. From Moldavia several

<sup>49</sup> Bălăşescu, Radu, in preparation.

<sup>50</sup> Bălăşescu, Dietrich 2009; Morgenstern 2011 (in Sava, Kaiser 2011) published later very similar results studying the pieces from Odaia Miciurin, however without mentioning the results from Rotbav.

<sup>51</sup> Sedimentological analysis has been conducted also for ‚Ashmound 1‘ at Coslogeni (Dobrinescu, Haită 2005). Although apparently not complete it could be shown that the sediment was not subjected to thermic alterations; the excavators deduced from this that the mound was not formed of ashes.

<sup>52</sup> Kaiser, Sava 2006, 163-165, Tab. 4, 5. Table 5 in Kaiser, Sava 2006.

<sup>53</sup> Kaiser, Sava 2006, 165, Tab. 5; Sava, Kaiser 2011, 414, tab. 28.

settlements are known through aerial photographs, where 'ashmounds' are arranged in rows, circles or small groups; some seem to be separated from the surrounding area by ditches and ramparts<sup>54</sup>.

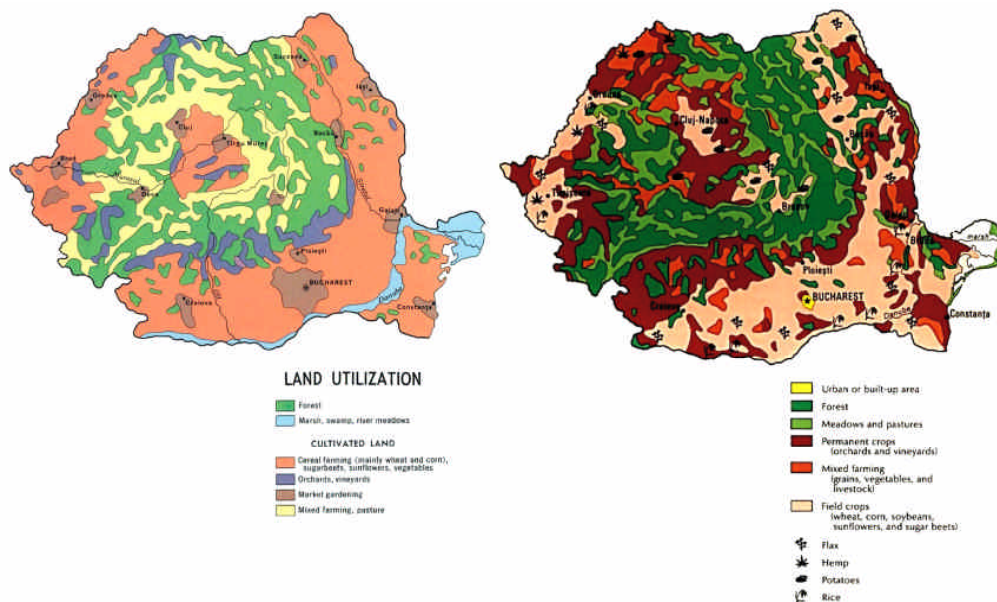


Fig. 5. Modern landuse in Romania

([http://commons.wikimedia.org/wiki/Image:Romania\\_land\\_use\\_%281970%29.jpg](http://commons.wikimedia.org/wiki/Image:Romania_land_use_%281970%29.jpg);

[http://commons.wikimedia.org/wiki/Image:Romania\\_landuse\\_%281990%29.jpg](http://commons.wikimedia.org/wiki/Image:Romania_landuse_%281990%29.jpg)).

The texture of the 'ash' sediments from Rotbav make it probable that the layers here are made up of burnt lime as well. Burnt lime is used, inter alia, in the process of working hides. A traditional method to unhair the hides is to put them into limewash (Ca (OH) 2); another possibility, called 'schwöden' in German or 'liming' in English, is to apply lime paste on the flesh side of the hides. The paste then permeates the skin and loosens the hair. This is not only one of the oldest known methods in Europe; it was also traditionally used in China<sup>55</sup>. The crenated scapulae were probably used to scrape the lime-hair-flesh rests from the hides; traces of carbonates were found on the teeth of one scapula from Rotbav.

<sup>54</sup> Bicbaev, Sava 2004, 338-353, fig. 2-5.

<sup>55</sup> Mauch 2004, 26, 65-66.

Taken together there are several hints at a primary function of the ‚ashmounds‘ as activity areas for leatherworking. Tools for working the raw hides (crenated scapulae) are found in the ‚ashmound‘, while needles and awls, i.e. tools for the further processing of hides are found in the settlement area immediately near the mound. I have pointed out that in several ‚ashmounds‘ constructions are present, which have so far been seen as domestic buildings. Taking into account the arguments presented here at least a part of them (esp. pits and fireplaces) could be seen as related to hide working. The very summary publication of these features unfortunately prevents a more detailed discussion here, but the ovens found at Căndești<sup>56</sup> could well have been used for burning lime, while the pisé platforms could be the loci of actual skin processing. The presence of other structures (like e.g. sheds or buildings) in the ‚ashmound‘ could be explained in these lines as well, there is no need or evidence for an interpretation of these structures as dwellings.

Very good ethnographic analogies for the placement of the ‚ashmounds‘ are given for example by the tanneries of Marrakesh (Fig. 6), which lie surrounded by domestic buildings inside settlements. The term ‚tannery‘ could replace in the future the inexact term of ‚ashmound‘, even if it remains unclear whether the actual process of tanning, the alteration of the protein structure by treatment with acidic chemicals, took place or untanned rawhides were produced by removing flesh, fat and hair and subsequent scraping and drying. The latter would fit very well with the evidence preserved at Rotbav.

A question for further study will be the precise relation between groups of inhabitants of the settlements and the use of the ‚ashmound‘-areas. As mentioned above in the eastern distribution area of the Noua Culture there are usually several ‚ashmounds‘ in connection with one settlement and the mounds seems to be constructed in a planned and ordered way. The question has to be answered, whether this implies a connection to certain groups of people like families or clans. Other models are possible, too, such as utilization by specialized (?) craftsmen. The spreading of the typical Noua *Warzennadel*, which appears as far southwards as northern Greece could hint at considerable distances over which the staples were distributed<sup>57</sup>.

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<sup>56</sup> Florescu, Florescu 1990, 54-55, fig. 81-83.

<sup>57</sup> Hochstetter 1981.



Fig. 6. Tanneries in Marrakech ([http://en.wikipedia.org/wiki/File:Tanneries\\_Marrakech.png](http://en.wikipedia.org/wiki/File:Tanneries_Marrakech.png); [http://en.wikipedia.org/wiki/File:Leather\\_tanning,\\_Fes.jpg](http://en.wikipedia.org/wiki/File:Leather_tanning,_Fes.jpg). Authors Donar Reiskoffer, Bernard Gagn).

Another social dimension of the ‚ashmound‘ can be inferred looking at the large quantity of pottery including many drinking vessels in the form of kantharoi open up the possibility of a connection between work and feasting, more so as further evidence for cooking is known e.g. in form of clay balls<sup>58</sup>. Kantharoi are not daily tableware, they play an important role as grave goods and express special meanings in their zoomorphic forms<sup>59</sup>. Feasts with a cultic connotation, possibly bound to certain fixed events in the course of a year like the bringing down of cattle / arrival of animals driven by herders to pastures over longer distances and slaughtering may have taken place in the surroundings of the mounds. The feasting would surely not take place directly in the ‚ashmound‘, but presumably its rests were deposited here, in the focal point of daily activities surrounding animals and hide working as one central aspect of the life of the people of the Noua Culture.

Lastly, a sacral dimension of meaning of the ‚ashmound‘ is hinted at by the hoard discovered at Rotbav, which can be related to the end of the use-life of a mound. From the ‚ashmound‘ at Cobîlnea<sup>60</sup> there are several bronze needles and awls (i.e. objects connected to hideworking and costume). A closer look reveals that they together with bull skulls marked the four cardinal directions. A recent study of the hoard from Rotbav has opened up the possibility that many single finds of needles and awls from Noua settlements could be in reality depositions in the ‚ashmounds‘<sup>61</sup>.

Summing up, a new view on the ‚ashmounds‘ emerges; they neither are dwellings nor waste dumps or specialized cult areas for sacrifices. An interpretation as activity zones separated from the domestic areas spatially and ritually but nevertheless used daily for hide working, as places for slaughtering animals and for certain rituals in the contexts of feasting seems probable. Their biography is complex; they start out as activity places, changing their function and meaning in time to ritual, specially marked mounds of ‚holy garbage‘.

With the Noua Culture a specialized economic behavior seems to emerge, whose implications like organization of work and exchange, the existence of long-distance exchange networks, competition or collaboration between groups in the production process, will have to be explored in the future. Detailed research in settlements and micro-regional studies of settlement clusters, their distribution and interrelations will be necessary. Leatherworking was surely known and

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<sup>58</sup> Dietrich 2010b.

<sup>59</sup> Dietrich 2011b.

<sup>60</sup> Sava 1998, 273, Abb. 2.

<sup>61</sup> Dietrich 2009, 100.



practiced before the Noua Culture, but the intensity in which it becomes visible archaeologically and the apparent entanglement with central aspects of life make us believe that animals and hide working played a major role in this culture's attitude to the surrounding world.

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