PRECUCUTENI ANTHROPOMORPHIC FIGURINES FROM THE BOIAN-GUMELNIȚA SETTLEMENT AT CHITILA-FERMĂ

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Cuvinte cheie: *figurine antropomorfe, Precucuteni, Boian, Gumelnița, eneolitic, importuri, fluorescență de raze X (XRF), analiza componentelor principale (PCA).*

Abstract: *The aim of our paper is to resume the discussion on Precucuteni "imports" from the Boian-Gumelnița settlements with a case-study about the anthropomorphic clay figurines from the site at Chitila-Fermă. The main subjects were the anthropomorphic clay figurines with attributes specific to the Precucuteni tradition and, as comparative materials, Boian figurines and various pottery sherds discovered within the site. In this approach both macroscopic observations and archaeometric analyses were employed. The observations on archaeological contexts and manufacturing methods have provided little useful information in marking clear separations between the analyzed items. The chemical compositions of the paste samples were obtained with the aid of a portable XRF spectrometer. The results were processed using principal component analysis (PCA) and subsequently more correlations between subjects could be made.*

Rezumat: *Scopul lucrării noastre este de a relua discuția asupra „importurilor" Precucuteni din așezările Boian-Gumelnița, prezentând un studiu de caz asupra figurinelor antropomorfe de lut din situl de la Chitila-Fermă. Subiecții principali au fost figurinele antropomorfe din lut cu atribute specifice tradiției Precucuteni, iar ca materiale comparative s-au folosit figurine de tradiție Boian și diverse fragmente ceramice descoperite în cadrul sitului. În această abordare au fost implicate atât observații macroscopice, cât și analize arheometrice. Observațiile privind contextele arheologice și metodele de manufacturare au oferit puține informații utile în marcarea unor diferențe clare între probele incluse în studiu. Compozițiile chimice ale probelor au fost obținute cu ajutorul unui spectrometru portabil XRF. Rezultatele au fost prelucrate utilizând analiza componentelor principale (în limba engleză PCA) și astfel s-au observat mai multe corelații între obiectele de lut analizate.*

[*] Bucharest Municipality Museum.

Introduction

During the 5th millennium BC human communities inhabiting the present territory of southern and eastern Romania developed within two major cultural groups: the Boian-Gumelnița, and the Precucuteni-Cucuteni, respectively[1]. The range of produced objects was very similar, but cultural differences were particularly observed in the shapes and decoration of the clay objects (mainly pottery and figurines), the types of settlements and the mortuary practices[2]. Wide exchange networks were suggested by several discoveries of objects identified as imports based on their different appearance in terms of shape and decoration[3]. The connections between the two cultural groups reached their highest level after the middle of the 5th millennium BC, when the Stoicani-Aldeni mixed cultural group developed in the contact area between the late Precucuteni and the early Gumelnița communities[4]. The Precucuteni finds from Boian-Gumelnița settlements were often limited only to pottery sherds[5], while anthropomorphic clay figurines were discovered with a very small incidence[6]. So far, questions on the provenance of these "exotic" items were addressed only based on logical intuition[7]. The aim of our study is to resume the discussion on the Precucuteni "imports" from the Boian-Gumelnița settlements with a case study on the antropomorphic clay figurines from Chitila-Fermă.

Archaeological context

The tell at Chitila-Fermă

The prehistoric tell at Chitila-Fermă is located near the town of Chitila, 15 km northwest of Bucharest, on the right bank of the Colentina River (Fig. 1-2). In 1972, Aristide Ștefănescu reported that industrial works had almost completely levelled the *tell*. Prior to that moment, the dimensions of the mound were about 80 m in length and 60 m in width. In 1982, when the first archaeological investigation began, only about 6 m of its length and 40 m of its width were still preserved[8] (less than 10% of the initial size) (Fig. 2). Nowadays, the remains of the mound are hardly visible in the present landscape (Fig. 3). Between 1982 and 1985, Vasile Boroneanț coordinated excavations on the undisturbed northern part of the settlement. In the same area, he conducted shorter excavation campaigns in 1997, and between 2002 and 2004[9]. On the excavated part of the *tell*, the vertical stratigraphy comprises at least nine anthropic layers[10] (Fig. 4).

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[1] Bem 2001.
[2] Berciu 1961; Marinescu-Bîlcu 1974; Comșa 1974; Dumitrescu *et alii* 1983; Comșa 1987.
[3] Roman 1963; Marinescu-Bîlcu 1976; Frînculeasa 2008, p. 17; Ștefan 2014.
[4] Dragomir 1983; Frînculeasa 2016.
[5] Rosetti 1934; Berciu 1961; Roman 1962; Marinescu-Bîlcu 1976; Boroneanț 1983; Bem 2011; Ștefan 2014.
[6] Berciu 1961, p. 66-67, Fig. 248/2; Marinescu-Bîlcu 1976, p. 349.
[7] Roman 1963; Marinescu-Bîlcu 1976.
[8] Boroneanț 2000, p. 49.
[9] Boroneanț 1983; 2000; Nicolae *et alii* 2003.
[10] Boroneanț 2001, Fig. 3.

Based on pottery typology, the first occupation of the settlement began during the Middle Neolithic (the Boian-Bolintineanu or the Vădastra cultures, ca. 5200-5000 BC) and the last anthropic layer dates to the end of the Middle Eneolithic (the Gumelnița culture, ca. 4500-3900 BC)[11].

Anthropomorphic figurines

The first selected samples for this study were 15 figurines displaying elements related to the Precucuteni tradition (Tab. 1) (Pl. I-IV), discovered at the site in an uncommonly high number. Among these, only one preserved almost all of its body (Pl. III/10), while the rest were fragmented. Nine Precucuteni figurines came from the 1982-1985 and 1997 excavations; the black ink marking on their surfaces provided the only existing data regarding their archaeological context: site, trench, square and depth. Other six fragments of Precucuteni figurines came from the 2002-2004 excavation campaigns. Two of them were discovered in a disturbed layer[12], three items were found in the Boian layers and another one in a Gumelnița layer (Tab. 1). Thus, based on this information, we can assume that the figurines with Precucuteni traits from Chitila-Fermă were discovered in both Boian and Gumelnița layers.

The Boian anthropomorphic figurines discovered at the site have specific types of shapes and decorations, and can easily be differentiated from the Precucuteni ones. We managed to identify 15 Boian anthropomorphic figurines resulted from the earlier excavations and 6 from the new ones. Among all these we selected 6 items as reference material (Pl. V/18, VI, VII) to be compared with the Precucuteni ones in terms of clay provenance and manufacturing technology. Two other fragments with no specific typological features were included in our analysis as "undetermined" in terms of stylistic tradition (Tab. 1) (Pl. V/16-17).

ID	Year	Section	Square	Depth (m)	Stratigraphic Unit	Stylistic tradition	Preservation state
1	2002	-	-	-	passim	Precucuteni	Fragmentary
2	2002	-	-	-	passim	Precucuteni	Fragmentary
3	2003	SA	D	0.5	1023 (Gumelnita)	Precucuteni	Fragmentary
4	2003	SB	X	1.3	2006 (Boian)	Precucuteni	Fragmentary
5	2003	SB	Z	1.32	2006 (Boian)	Precucuteni	Fragmentary
6	2003	SB	Z	1.43	2004 (Boian)	Precucuteni	Fragmentary
7	1982	III	1	0.4	N/A	Precucuteni	Fragmentary
8	1982	I	2	0.95	N/A	Precucuteni	Fragmentary
9	1985	IV	-	1.5	N/A	Precucuteni	Fragmentary
10	1984	V	3	1.55	N/A	Precucuteni	Complete
11	1997	-	3	1.55	N/A	Precucuteni	Fragmentary
12	1985	V	3	1.6	N/A	Precucuteni	Fragmentary
13	1985	V	4	1.7	N/A	Precucuteni	Fragmentary

[11] Boroneanț 1992; 2005.

[12] These two figurines fragments have already been published by Nicolae *et alii* 2003; they were unavailable to macroscopic and pXRF analysis.

14	1983	III	2	1.9	N/A	Precucuteni	Fragmentary
15	1985	-	5	2.1	N/A	Precucuteni	Fragmentary
16	2003	SB	X	1.14	2006 (Boian)	Undetermined	Fragmentary
17	1982	I	3	1.10-1.40	N/A	Undetermined	Fragmentary
18	2003	-	-	-	passim	Boian	Complete
19	2003	SB	Z	1.12	2005 (Boian)	Boian	Fragmentary
20	2003	SB	Z	1.23	2003 (Boian)	Boian	Fragmentary
21	1982	-	-	-	N/A	Boian	Fragmentary
22	1984	I	4	0.4	N/A	Boian	Fragmentary
23	-	V	4	1.7	N/A	Boian	Fragmentary

Table 1. Chitila-Fermă *tell*. Archaeological context, stylistic tradition and preservation state of the selected anthropomorphic figurines (IDs correspond to numbers in Plates I-VII).

Pottery samples

Pottery was by far the most common type of artefacts discovered at the site. Given the high quantity and the common technological and typological styles, we started from the assumption that this pottery was locally manufactured. This hypothesis was also strengthened by studies on the provenance of clays used for pottery from other Eneolithic sites in southern Romania[13]. Thus, we chose 10 pottery sherds from the 1982 campaign in order to compare paste inclusions and geochemical characteristics with those of the anthropomorphic figurines. The main selection criteria were the depth marked on the package, the stylistic tradition (Tab. 2) and the presence of clean flat surfaces necessary for the pXRF analysis.

ID	Year	Section	Square	Depth (m)	Stylistic tradition	Vessel part
24	1982	I	4	0.4	Gumelnița	Rim
25	1982	I	4	0.4	Gumelnița	Body-neck
26	1982	I	2	0.9	Gumelnița	Rim
27	1982	I	4	0.9	Gumelnița	Rim
28	1982	I	3	1.2	Boian-Spanțov	Rim
29	1982	I	3	1.2	Boian-Spanțov	Body
30	1982	I	3	1.6	Boian-Spanțov	Rim
31	1982	I	3	1.6	Boian-Spanțov	Body
32	1982	I	3	1.85	Boian-Giulești (?)	Body
33	1982	I	3	1.85	Boian-Giulești (?)	Body

Table 2. Chitila-Fermă *tell*. Archaeological context, stylistic tradition and preservation state of the selected samples of pottery (IDs correspond to numbers in Plate VIII).

[13] Haită 2012; Ignat *et alii* 2013; Dimache, Haită 2015; Opriș *et alii* 2017.

Methodology

Macroscopic examination

The stylistic traditions of the anthropomorphic figurines from Chitila-Fermă were determined based on overall archaeological observations on shape and decoration. Macroscopic examination was employed in order to emphasize certain correlations between the two stylistic traditions (the Precucuteni and the Boian), and the technological choices (types of clays, tempers used, manufacture methods and firing conditions). The inclusions (natural or added) from the figurines' paste were observed with the aid of a magnifying glass (×2.25) equipped with light emitting diodes. Also, fresh sections of the selected pottery samples were analysed in the same manner and the result were used for comparison.

pXRF measurements

The geochemical characteristics of the figurines and pottery samples were determined using a portable (fourth generation Genius) X-ray fluorescence spectrometer. This instrument comprises an X-ray tube with an Ag anode with maximum voltage and current of 50 kV and 100 mA respectively. The system includes an ANTEK Silicon Drift Detector with big window, 25 mm^2 active area and a resolution higher than 139 eV. The chemical data was acquired with a beam of 6 mm diameter on the sample, having a penetration of 100 µm in depth. The calibration curve of the spectrometer was set on soil mode. The compositional data was gathered with a voltage of 45 kV, a current of 80 µA and a measuring time of 100 seconds. The detected concentrations were of minor and trace elements that ranged from K to Pb, while the major elements specific to ceramics composition (as Si and Al) were not measured due to the technical limitations of the pXRF spectrometer[14]. Two measurements were performed on two distinct areas on the surface of each sample. Given the limited variability in chemical signatures for each artefact, the final result for each sample is the average[15] of the concentrations of each chemical element identified by two measurements (Tab. 4).

Results and discussion

Macroscopic examination results

The *paste* of the Precucuteni figurines discovered at Chitila-Fermă was obtained from clays with fine natural inclusions such as white mica (which is omnipresent) and fine sand, while occasionally medium size inclusions (<2 mm) such as calcareous concretions or sparse quartz grains were identified (Tab. 3). Only one Precucuteni figurine had fine grog added as temper. In terms of natural inclusions, the paste of the Boian figurines has mostly the same characteristics as the Precucuteni one, making it almost impossible to draw clear differentiations between them. What retained our

[14] Hunt, Speaksman 2015.
[15] Forouzan *et alii* 2012, p. 3536.

attention was the fact that three out of the six analysed Boian figurines had organic remains used as temper. This information is significant when compared with the results of pottery paste analysis, where six out of ten samples had organic remains in their composition (Tab. 3). Thus, the preparation of the paste by mixing clay with organic debris can be hypothesised as a local tradition of making clay objects.

ID	Natural inclusions*	Temper	Forming	Finishing	Decoration	Firing
3	Calcareous concretions	-	Two vertical halves	Polishing	Incision filled with white paste	Irregular firing
4	-	-	Modelled piece of clay	Smoothing	Incision	Incomplete oxidizing
5	Quartz grains	-	Two vertical halves; a core covered with a thick layer of clay	Smoothing	Incision	Incomplete oxidizing
6	Quartz grains	-	Coarsely modelled piece of clay; the breasts and the hands were attached	Smoothing	A quartz grain in the mouth area	Incomplete oxidizing
7	Fine sand	-	Coarsely modelled feet covered with a thick layer of clay	Polishing	Incision	Irregular firing
8	Calcareous concretions	-	Modelled piece of clay	Polishing	Incision	Incomplete oxidizing
9	-	-	Modelled piece of clay	Smoothing by fingers	-	Reducing
10	-	-	Coarsely modelled feet and body covered by a clay layer; the hands were attached	Smoothing	Incision	Irregular firing
11	Calcareous concretions	-	Modelled piece of clay	Smoothing	-	Incomplete oxidizing
12	Calcareous concretions	-	Modelled piece of clay	Smoothing	Incision filled with white paste	Complete oxidizing
13	Calcareous concretions Fine sand	Grog	Coarsely modelled piece of clay; the buttocks and the hands were attached	Smoothing by fingers	-	Irregular firing
14	Fine sand Calcareous concretions	-	Two vertical halves	Smoothing	Incision	Irregular firing
15	Iron oxides	-	Modelled piece of clay on which the breasts and the hands were attached	Smoothing	-	Irregular firing
16	-	-	N/A	Smoothing	-	Irregular firing
17	-	-	Two vertical halves	Smoothing	-	Irregular firing

18	Black mica Quartz grains	-	Modelled piece of clay; the belly and the hands were attached	Polishing	-	Incomplete oxidizing
19	Fine sand Quartz grains	Organic	Two vertical halves	Polishing	Incision filled with white paste	Reducing
20	Quartz grains	-	Two vertical halves	Smoothing	Incision	Complete oxidizing
21	Fine sand	Organic	Modelled piece of clay	Polishing	Incision	Reducing
22	-	-	Modelled piece of clay, only the hands extremities were attached	Polishing	Incision filled with white paste	Irregular firing
23	Quartz grains Calcareous concretions	Organic	Two vertical halves	Smoothing	Incision filled with white paste	Incomplete oxidizing
24	Quartz grains	Grog Organic	Horizontal coiling	Smoothing	Barbotine	Incomplete oxidizing
25	-	Organic	Horizontal coiling	Smoothing	Barbotine	Complete oxidizing
26	Fine sand	Organic	-	Smoothing	Impressions	Incomplete oxidizing
27	Quartz grains	Grog	Horizontal coiling	Polishing	-	Reducing
28	Calcareous concretions	Organic	Horizontal coiling	Polishing	-	Incomplete oxidizing
29	Calcareous concretions	Grog	-	Polishing	-	Reducing
30	Calcareous concretions	-	-	Polishing	Horizontal flutes	Secondary fired
31	Fine sand	Organic	-	Smoothing	Barbotine	Incomplete oxidizing
32	Quartz grains Calcareous concretions	-	-	Polishing	-	Complete oxidizing
33	Quartz grains	Organic	-	Smoothing	-	Reducing

Table 3. Technological observations on the anthropomorphic figurines (3-23) and the pottery samples (24-33) from Chitila-Fermă. *White mica was present in all samples (figurines and pottery) with a variable frequency (IDs correspond to numbers in Plates I-VIII).

Given the fragmentary preservation state of the analysed items, the *manufacturing methods* could only partially be observed (Tab. 3). Both the Precucuteni and Boian figurines were primary formed either as two vertical halves, made individually and then stuck together, or as a core modelled according to the body's desired shape. Characteristic for most of the Precucuteni ones was the coating with a fine clay layer (varying from 1 to 5 mm) during the secondary forming stage. During the same stage various body parts were added (mostly schematic hands, breasts or

buttocks) (Tab. 3). A similar manufacturing method was observed on the anthropomorphic clay figurines from Târgu Frumos[16], a large Precucuteni settlement located in north-eastern Romania. The addition of body parts can be observed on Boian items also, but without adding the coating with fine clay.

During the third stage of manufacture, the surfaces were finished by smoothing or polishing. The prints left by human fingers on some of the Precucuteni figurines suggest little concern about the surface's final appearance. In other cases, especially on the Boian figurines, the surfaces were carefully polished.

The majority of the analysed items were decorated with incisions. The Precucuteni ones have deep incisions used as demarcations of the body parts and areas (legs, pubic triangle, facial elements), while the Boian ones have superficially sketched incisions forming specific decoration patterns. In some cases, the incisions preserved some of the inlaid white paste.

The firing of both the Precucuteni and Boian figurines took place in various ways (Tab. 3). Most of them were fired in uncontrolled environments, such as bonfires or domestic ovens, resulting in ceramic objects with a black core and partially or completely oxidized surfaces (irregularly or incomplete firing). However, another kind of oxidized firing result was also encountered, as two items were completely oxidized. Three items (one Precucuteni and two Boian) have black cores and surfaces resulting from a controlled reducing firing. Overall, from the observations made on the manufacturing methods, the secondary stage modelling treatments and the incised decoration patterns are the most visible distinctions that can be made between the Precucuteni and the Boian anthropomorphic figurines from Chitila-Fermă.

pXRF results

The elemental compositions for the analysed anthropomorphic figurines and pottery samples are presented in Table 4. The reading of these numbers in tables does not allow for interpretation and consequently, a method of data classification was employed. Based on previous studies on similar subjects[17], the principal components analysis (PCA) was chosen as a multivariate method for statistical analysis. The chemical compositions, expressed in parts per million, were submitted to PCA after normalizing to log base 10 values, thus smoothing out the differences between the major and the trace elements[18].

For this procedure we only selected the elemental compositions detected in all the samples provided by the pXRF measurements. The sample values were correlated to the provisional groups suggested by archaeological observations (Precucuteni figurine, Boian figurine, Indet figurine, Boian pottery and Gumelnita pottery). The PCA was performed using the Minitab 17 software package and the score plot of first two principal components can be visualized in Figure 5.

[16] Ursulescu *et alii* 2014, p. 382.
[17] Papachristodoulou *et alii* 2006; Sakalis *et alii* 2012;
[18] Papachristodoulou *et alii* 2006, p. 349.

ID	K	Ca	Ti	Mn	Fe	Ni	Zn	Sr	Zr	Pb
3	30538.62	30896.97	4804.85	863.55	31387.71	53.93	147.69	199.82	231.62	20.60
4	28872.22	56140.89	4251.64	1049.97	33826.63	57.85	166.72	218.12	252.64	22.31
5	29364.92	15148.46	5265.54	954.90	40131.15	71.68	104.96	131.13	288.85	15.23
6	25797.10	50415.07	5055.12	859.54	36687.72	53.85	102.67	229.65	263.72	18.45
7	29272.54	16553.26	5274.42	1027.26	41486.85	59.18	133.37	112.46	304.33	30.29
8	32888.50	4840.74	3571.56	693.00	29543.74	67.22	89.52	169.69	252.53	22.89
9	28408.19	7930.89	5157.17	465.86	34084.84	80.40	160.97	168.43	277.71	28.88
10	17873.41	18439.98	4000.64	1004.17	28034.27	66.92	144.21	116.61	246.22	8.86
11	45462.86	24248.62	3651.21	753.99	31389.03	58.72	133.28	179.29	264.89	13.26
12	29615.17	12710.00	4338.73	606.46	27063.40	84.74	112.00	100.02	249.31	8.99
13	30092.29	9811.89	4006.74	1194.21	30346.96	97.47	143.46	156.28	234.02	33.09
14	25956.73	28928.96	4437.19	1008.48	37769.19	56.17	146.91	128.93	141.63	6.91
15	28195.12	8812.58	4957.28	714.80	32756.96	61.54	122.59	127.84	239.75	12.49
16	30815.41	33141.82	4619.94	1124.14	38571.83	60.38	84.04	121.38	182.85	12.46
17	29092.03	45414.93	4003.14	759.71	32399.66	62.55	152.66	182.29	131.15	10.89
18	30149.63	14080.27	5574.42	812.27	39506.59	80.34	105.01	304.14	301.10	29.11
19	29014.16	21814.33	5275.91	750.85	39911.00	65.54	128.13	194.01	197.32	23.70
20	29987.17	20505.22	5635.65	815.15	42500.76	88.79	134.45	196.03	320.85	25.26
21	29822.23	11583.05	5321.57	727.02	32647.10	58.07	144.78	161.80	308.48	23.82
22	44538.17	19875.11	5449.66	803.72	41672.46	59.68	162.83	121.58	213.49	37.93
23	25495.89	9455.03	5198.63	1052.48	38588.26	86.58	130.54	166.96	258.52	20.95
24	30004.16	19646.49	5149.75	934.18	47133.21	70.29	132.20	134.40	249.31	32.07
25	28244.67	7000.60	5473.37	410.15	37088.79	58.19	76.38	213.32	336.31	22.98
26	34128.04	30365.42	5393.63	809.43	42019.39	49.47	132.50	199.18	200.25	32.03
27	28790.11	16208.38	5458.24	458.60	45183.61	69.79	135.69	166.70	192.79	29.21
28	40697.16	32356.63	5133.68	1041.25	35639.43	50.27	84.16	132.18	322.26	20.92
29	31256.08	22376.26	5467.66	882.68	46038.87	60.78	147.92	319.32	170.99	25.00
30	47382.58	20471.13	5185.75	984.18	39779.15	58.21	191.00	166.48	319.44	32.08
31	27737.81	18809.85	5189.07	1308.28	37795.08	73.53	101.70	162.85	314.26	25.24
32	31543.49	9371.79	5221.30	1147.73	36423.98	55.29	102.89	199.22	303.14	40.79
33	28996.81	6517.14	5629.83	1197.17	34892.87	61.77	88.22	173.52	328.44	26.65

Table 4. Elemental composition (as determined by the pXRF) of the analyzed anthropomorphic figurines (3-23) and pottery samples (24-33) from Chitila-Fermă. The values represent the average of two measurements at two different positions (values in mg/kg).

When analysing the plot distribution, at least two important observations can be made. On the first hand, regardless of the depth or cultural framework, all the analysed

Boian anthropomorphic figurines have similar geochemical characteristics to those of the pottery samples from Chitila-Fermă and a single chemical group can be distinguished based on paste composition (Fig. 5 –all on the right side of the graph). This may be evidence for the local manufacturing of pottery and anthropomorphic clay objects using common clay sources, most probably located within the settlement surroundings.

On the other hand, the elemental compositions of the Precucuteni anthropomorphic figurines from Chitila-Fermă generated various distributions, most of them being clearly outside the plot distribution area of both the Boian ones and the pottery samples. In the same distinct category are the two fragments of the "undetermined" typological style. These differences observed in the score plot distribution constitute strong evidence for the different provenance of the clays used for the Precucuteni figurines and the "undetermined" ones. When this information is correlated with the exotic appearance in terms of shape, decoration and manufacture technology, then all together become indicative of "imports", characterized by a different manufacturing, being made in workshops situated outside of the Chitila-Fermă geographical area.

However, there are at least four Precucuteni items that have geochemical characteristics similar to the Boian figurines and the pottery samples (all of them being distributed in the right part of the graph). The observed similarities can be related to the use of common clay sources, but there can be other explanations as well (productions sites from other geographical areas with similar geochemical prints or the limits of pXRF method itself[19]). In these cases, a hypothesis may be that these four Precucuteni items were locally manufactured. Considering that their manufacture techniques are specific to the Precucuteni tradition, their makers seemed to be fully equipped with the "Precucuteni knowledge" of making figurines and consequently the presence of non-local craftsmen can be suggested.

Conclusions

The anthropomorphic clay figurines made in the Precucuteni tradition, discovered in large amounts at the Chitila-Fermă settlement, represent uncommon finds within the Boian-Gumelnița sites in southern Romania. In the present paper, questions about their provenance were addressed and an integrated analysis took place in order to find reliable answers. The Boian clay figurines and the Boian/Gumelnița pottery samples used as comparative materials showed similarities in terms of paste composition, indicative of a local production. The Precucuteni items were produced using clays of various geochemical composition and were manufactured in specific ways. Although the pXRF method is an incomplete tool for studying the provenance of clay artefacts, the correlations of geochemical data with archaeological classifications is worth to be taken into account within the large discussion on imports in the Eneolithic of southeastern Romania. The Precucuteni items from the site at Chitila-Fermă suggest

[19] Hunt 2012.

on the first hand a north to south route, of both people and finished items. On the other hand, some of them might have been locally manufactured by non-local craftsmen.

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List of illustrations / Lista ilustrațiilor

Figure 1. Chitila-Fermă *tell*. Geographical location.
Figura 1. *Tell*-ul de la Chitila-Fermă. Localizarea geografică.
Figure 2. Chitila-Fermă *tell*. The investigated part of the *tell* is marked in solid yellow line. The aproximated contour of the *tell* is marked in dashed red line.
Figura 2. *Tell*-ul de la Chitila-Fermă. Partea cercetată din tell este marcată cu linie galbenă. Conturul aproximativ al tell-ului este marcat cu linie roșie punctată.
Figure 3. Chitila-Fermă *tell*. The northern part of the settlement in 2015 (view from the south-west).
Figura 3. *Tell*-ul de la Chitila-Fermă. Partea de nord a așezării în anul 2015 (vedere dinspre sud-vest).
Figure 4. Chitila-Fermă *tell*. The stratigraphic sequence (adapted after Boroneanț 2001).
Figura 4. *Tell*-ul de la Chitila-Fermă. Secvența stratigrafică (adaptat după Boroneanț 2001).
Figure 5. Bi-plot of the first and second principal components resulting from PCA on the log-ratio transformed concentrations (K, Ca, Ti, Mn, Fe, Ni, Zn, Sr, Zr, Pb).
Figura 5. Biplotul dintre prima și a doua componentă principală rezultat din analiza PCA a concetrațiilor chimice (K, Ca, Ti, Mn, Fe, Ni, Zn, Sr, Zr, Pb), transformate prin logaritmare în baza 10.
Plate I. Chitila-Fermă *tell*. Precucuteni clay figurines (1-2 after Nicolae *et alii* 2003, adapted).
Plașa I. *Tell*-ul de la Chitila-Fermă. Figurine din lut Precucuteni (1-2 după Nicolae *et alii* 2003, modificat)
Plate II. Chitila-Fermă *tell*. Precucuteni clay figurines.
Plașa II. *Tell*-ul de la Chitila-Fermă. Figurine din lut Precucuteni.
Plate III. Chitila-Fermă *tell*. Precucuteni clay figurines.
Plașa III. *Tell*-ul de la Chitila-Fermă. Figurine din lut Precucuteni.
Plate IV. Chitila-Fermă *tell*. Precucuteni clay figurines.
Plașa IV. *Tell*-ul de la Chitila-Fermă. Figurine din lut Precucuteni.
Plate V. Chitila-Fermă *tell*. 1-2. Undetermined clay figurines; 3. Boian clay figurine.
Plașa V. *Tell*-ul de la Chitila-Fermă. 1-2. Figurine din lut nedeterminate; 3. Figurină din lut Boian.
Plate VI. Chitila-Fermă *tell*. Boian clay figurines.
Plașa VI. *Tell*-ul de la Chitila-Fermă. Figurine din lut Boian.

Plate VII. Chitila-Fermă *tell*. Boian clay figurines.
Plaşa VII. *Tell*-ul de la Chitila-Fermă. Figurine din lut Boian.
Plate VIII. Chitila-Fermă *tell*. Pottery samples (without scale).
Plaşa VIII. *Tell*-ul de la Chitila-Fermă. Probe ceramice (fără scală).

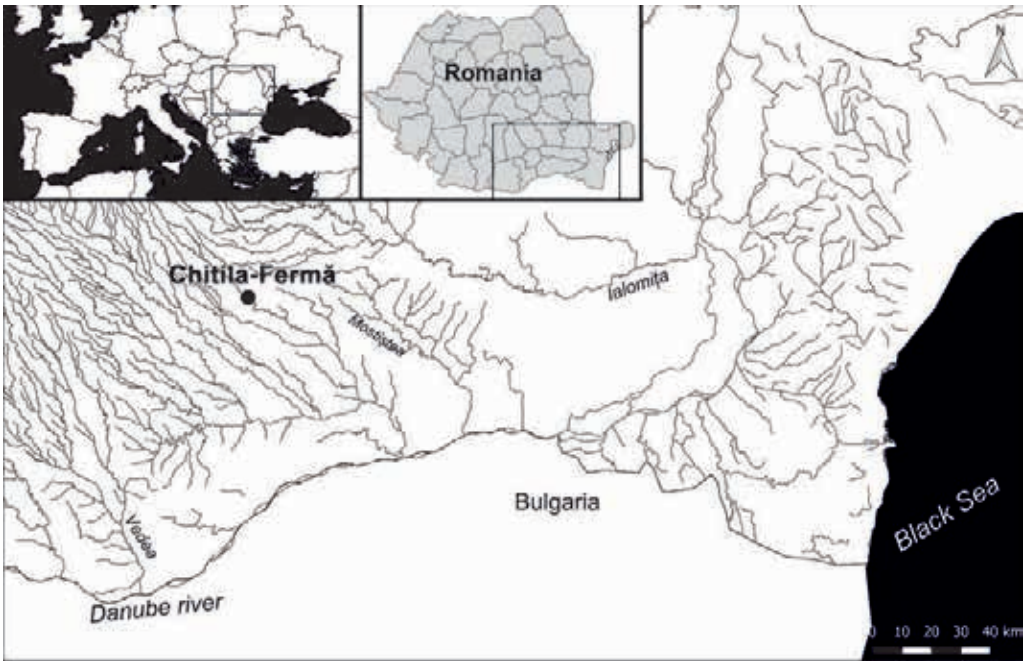


Figure 1. Chitila-Fermă *tell*. Geographical location.

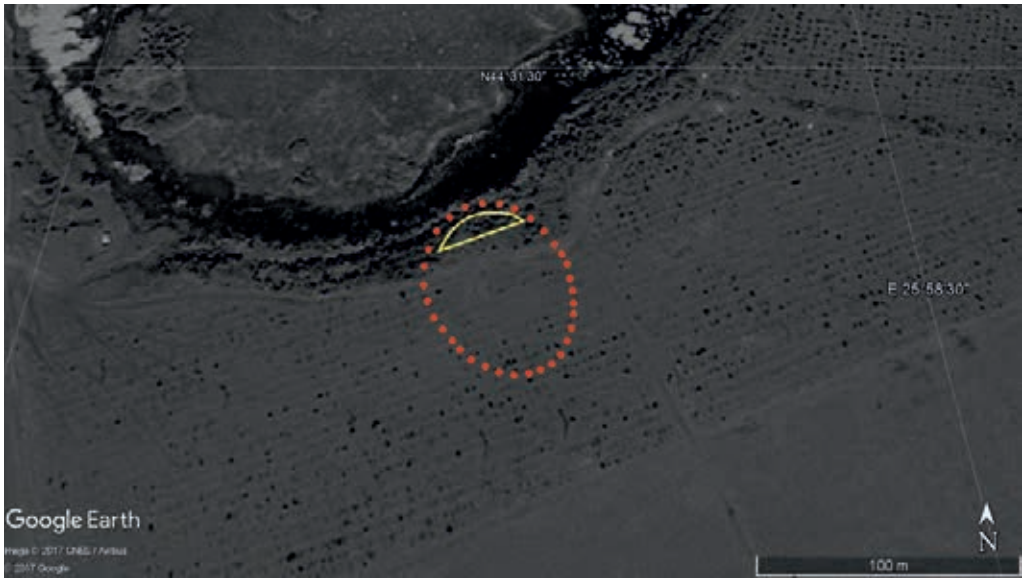


Figure 2. Chitila-Fermă *tell*. The investigated part of the *tell* is marked in solid yellow line. The aproximated contour of the *tell* is marked in dashed red line.

Figure 3. Chitila-Fermă *tell*. The northern part of the settlement in 2015 (view from the south-west).

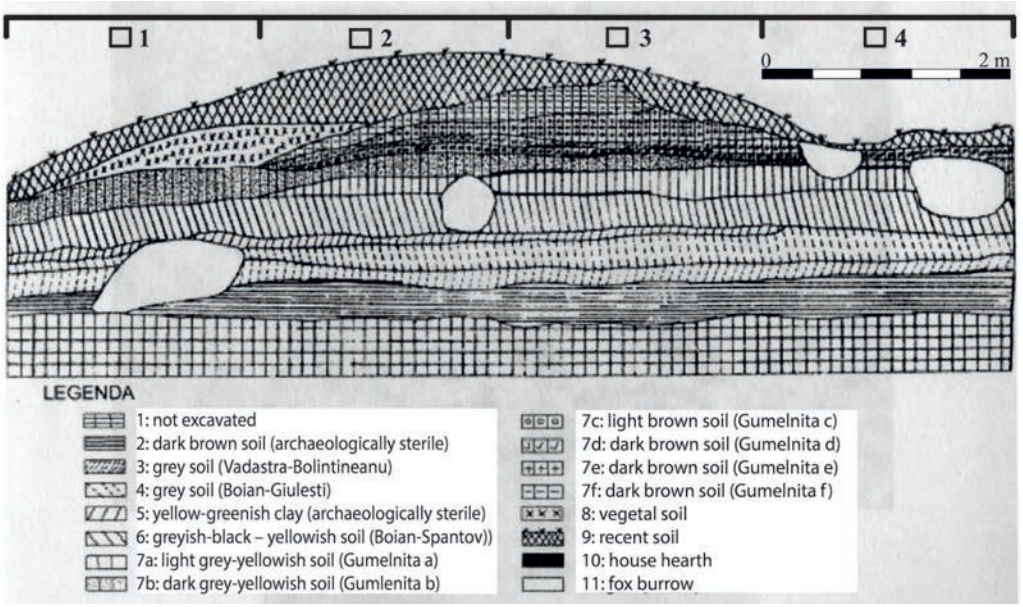


Figure 4. Chitila-Fermă *tell*. The stratigraphic sequence (adapted after Boroneanț 2001).

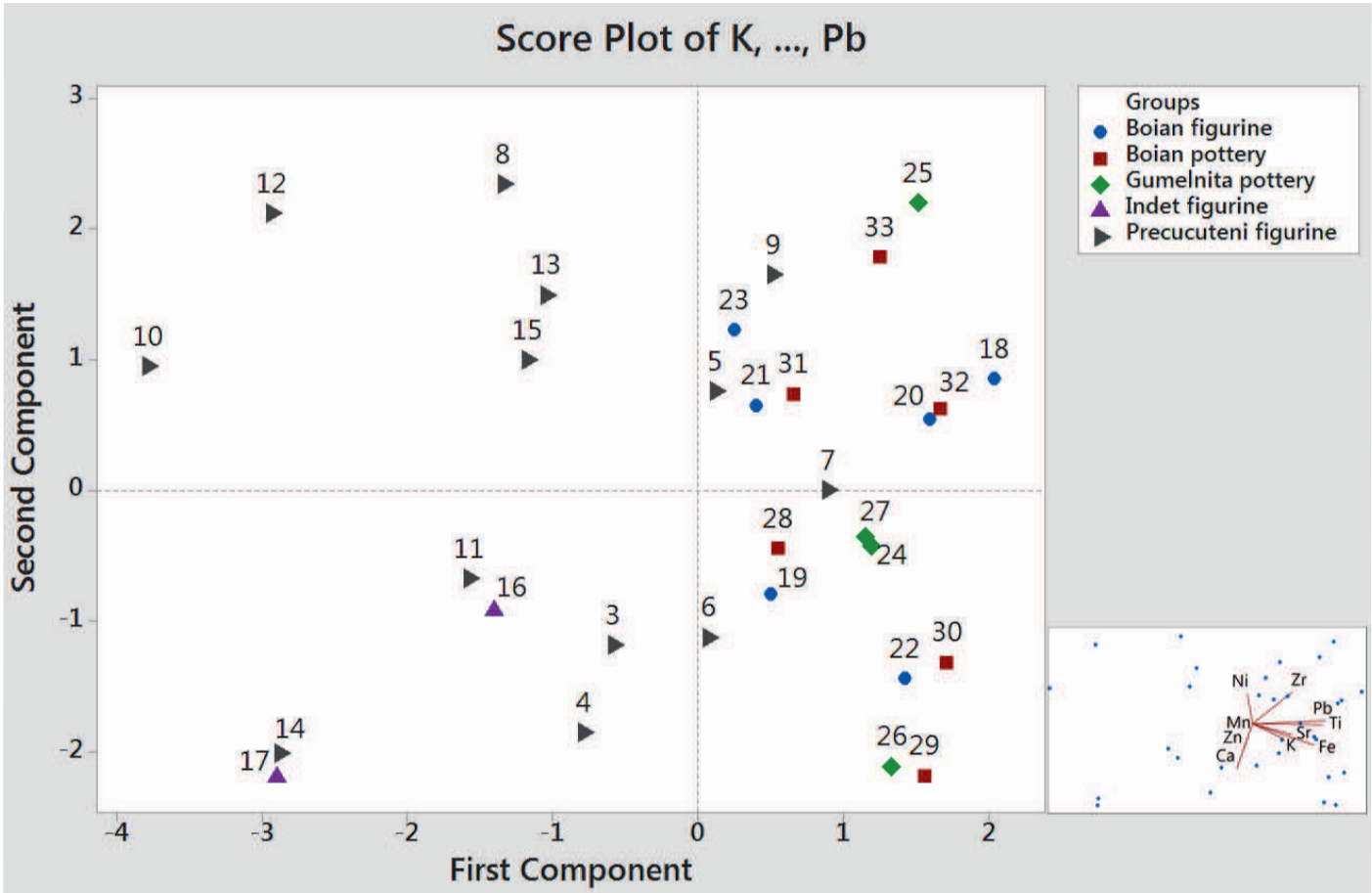
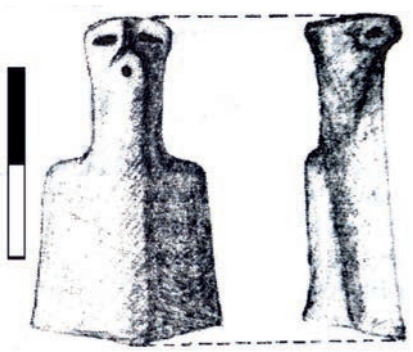


Figure 5. Bi-plot of the first and second principal components resulting from PCA on the log-ratio transformed concentrations **(K, Ca, Ti, Mn, Fe, Ni, Zn, Sr, Zr, Pb).**

1



2

3

4

5

6

Plate I. Chitila-Fermă *tell*. Precucuteni clay figurines
(1-2 after Nicolae *et alii* 2003, modified).

7

8

9

Plate II. Chitila-Fermă *tell*. Precucuteni clay figurines.

10

11

12

Plate III. Chitila-Fermă *tell*. Precucuteni clay figurines.

13

14

15

Plate IV. Chitila-Fermă *tell*. Precucuteni clay figurines.

16

17

18

Plate V. Chitila-Fermă *tell*. 1-2. Undetermined clay figurines; 3. Boian clay figurine.

19

20

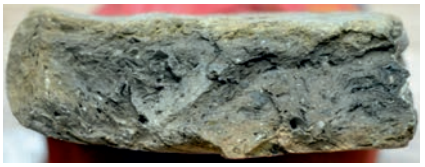
21

Plate VI. Chitila-Fermă *tell*. Boian clay figurines.

22

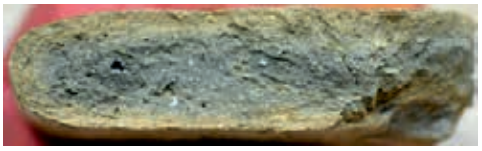
23

Plate VII. Chitila-Fermă *tell*. Boian clay figurines.



24

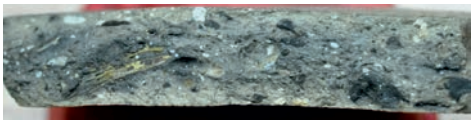
25



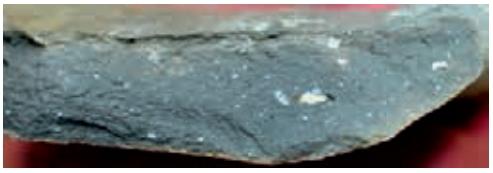
26

27

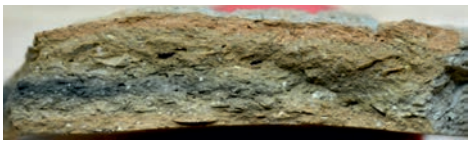
28



29



30



31

32

33

Plate VIII. Chitila-Fermă *tell*. Pottery samples (without scale).