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# SEXUAL DIMORPHISM AND GENERAL ACTIVITY LEVELS AS REVEALED BY THE DIAPHYSEAL EXTERNAL SHAPE AND HISTORICAL EVIDENCE: CASE STUDY ON A MEDIEVAL POPULATION FROM TRANSYLVANIA

CRISTINA MUJA\*, ADRIAN IONIȚĂ\*\*

**Keywords:** sexual dimorphism, cross-sectional shape, levels of activity, 12<sup>th</sup> century German colonists, Transylvania

**Abstract:** The levels of sexual dimorphism in diaphyseal cross-sectional shape of long bone have the potential to reveal differences in male and female levels of activity. This study examines the external diaphyseal shape of the major long bones for the population of Feldioara/Marienburg (com. Feldioara, Brașov County, Romania), in an attempt to highlight the potential sex differences in general levels of activity in this medieval population. While for the cross-sectional shape of the upper limb bones no significant sex effect was found, for the lower limb bones the significant sexual differences were found. This suggests that some sex differences in the levels of mobility may have existed, which is consistent with the historical evidence.

**Cuvinte-cheie:** dimorfism sexual, secțiune transversală, niveluri de activitate, coloniști germani secolul XII, Transilvania

**Rezumat:** Materialele osteologice care fac obiectul analizei noastre provin din necropola coloniștilor germani stabiliți la Feldioara/Marienburg (com. Feldioara, jud. Brașov, România) în a doua jumătate a secolului al XII-lea. Acest studiu analizează forma diafizei exterioară a oaselor lungi pentru populația adultă, în încercarea de a evidenția eventualele diferențe de sex în nivelurile generale de activitate. În timp ce pentru forma secțiunii transversale a oaselor membrilor superioare nu a fost observat nici un efect semnificativ de sex, pentru oasele membrilor inferioare s-au găsit diferențe sexuale semnificative. Gradul mai mare de mobilitate pe care îl implică activitățile desfășurate preponderent de bărbați față de cele în care sunt angrenate femeile se reflectă și în analiza oaselor acestora, ceea ce este în concordanță și cu sursele istorico-arheologice.

## INTRODUCTION

The analyses of long bones cross-sectional morphology were extensively used in the reconstruction of the behaviour of past populations. Anthropologists examined various issues, such as the sexual division of labour, mobility patterns, changes in the subsistence strategy, using the long bones cross-sectional properties. The ground for all these studies is the capacity of the bony tissue to have an adaptive response to the mechanical environmental stimuli – the long bone shafts react to increased mechanical strain by deposition of new bone tissue<sup>1</sup>.

Several anthropologists inferred that the sexual dimorphism in long bones cross-sectional properties is due to sexual division of labour (e.g. Bridges *et alii*<sup>2</sup>, Ruff<sup>3</sup>). However, these studies make reference to sex differences in general activity levels and not to specific activities, especially in the analysis of the cross-sectional morphology of the upper limb bones. Oglive and Hilton<sup>4</sup>, for example, analysed the patterns of

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<sup>1</sup> Ruff 1987; Ruff 2008, p. 184.

<sup>2</sup> Briggess, Blity, Solano 2000.

<sup>3</sup> Ruff 1987.

<sup>4</sup> Oglivie, Hilton 2011.

sexual division of labour for two archaeological samples from the Prehispanic American Southwest, with different subsistence strategies – foragers (ca. 2300-1300 YBP) and late prehistoric farmers (700-500 YBP) – using cross-sectional geometric proprieties of the humeri. They found that the female foragers had less robust humeri compared to female farmers and argued that the greater humeral biomechanical loading in female farmers is associated with the agricultural intensification. In the biomechanical studies of the lower limb bones, the levels of sexual dimorphism in diaphyseal cross-sectional proprieties in the area around the knee are considered to be related to the patterns of mobility<sup>5</sup>, as the lower limbs are involved almost exclusively in locomotion. A relevant example is the study made by Ruff<sup>6</sup>, which analysed the cross-sectional morphology of the femoral midshaft in several archaeological samples that were classified into three groups according to the subsistence strategy (hunter-gatherers, horticulturalists, industrialists) and showed that the sexual dimorphism in diaphyseal shape decreases from hunter-gatherers to industrial populations.

The present study examines the sexual dimorphism in diaphyseal cross-sectional shape for the population of Feldioara (Romania) in an attempt to highlight the potential sex differences in general levels of activity in this medieval population. Considering the cultural background of this population, it is expected that some significant sex effects in the analysed external cross-sectional parameters to be found.

### ARCHAEOLOGICAL BACKGROUND

The osteological materials presented in our study come from the Feldioara cemetery (Braşov County, Romania), which was excavated in the years 1991-1995, 1998-1999 and 2006-2007. Feldioara is located on the left bank of the Olt River, 17 km north-west of Braşov and is known by two different names. The name “Földvár”, equivalent to the Romanian version Feldioara, comes from Hungarian and means “fortress of earth”. The second name, used by the German settlers, is “Marienburg” – Saint Mary’s Fortress – and probably dates from 1211, when the Teutonic Knights were granted land in the Țara Bârsei, knowing that St. Mary was the patron of the Crusaders’ order. Taking into account the analogy given by the city Marienburg (Malbork) from northern Poland, which was founded in the middle of the 13<sup>th</sup> century, we are entitled to consider Feldioara the principal headquarters of the military-political administration exercised in Transylvania by the Teutonic Knights between 1211 and 1225<sup>7</sup>.

Feldioara was first documented in 1240, under the name *Castrum Sanctae Mariae*, when, together with three other *ecclesias in Burca*, it was offered by King Bela IV (1235-1270) to the Cistercian Order<sup>8</sup>. The second document dates from 1371 and records the name of the current Saxon village – *Mërenburch*<sup>9</sup>, and several years later, in a document from 1379, Feldioara also appears under the name of *Fewlduar*<sup>10</sup>.

The archaeological site (partly under the contemporary settlement) is located on a high terrace that forms a spur from west to east into the Olt’s meadow. The site includes several periods: Neolithic, Bronze Age, Hallstatt, La Tène, Roman and Medieval.

The most important results are related to the medieval discoveries. We first note the cemetery located in a square between the evangelical church and the parsonage. From the 127 graves that were investigated, most were simple graves, but also some double and triple graves were identified<sup>11</sup>. For various reasons, some parts of the cemetery were not accessible to research while others have been destroyed over time, so we estimate that about 50% of the total number of graves was excavated.

A dominant ritual that gives distinction to this necropolis was observed. The deceased adults, probably wrapped in a shroud, were placed without coffin in pits with a step. This type of pit involves first a large rectangular hole with another smaller pit at the bottom that has the shape and size of the human body including a niche for the head. Children’s graves do not have the niche for the head, this being a

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<sup>5</sup> Holt 2003; Marchi 2008; Ruff 1987; Sládek, Berner, Sailer 2006; Wescot 2006.

<sup>6</sup> Ruff 1987.

<sup>7</sup> Zimmermann 1996, p. 208-224.

<sup>8</sup> Ub. I, 68; DIR, C, I, 319.

<sup>9</sup> Ub. II, 369.

<sup>10</sup> Ub. II, 509-510.

<sup>11</sup> The graves found outside the churchyard (109) were published in Ioniță *et alii* 2004, p. 29-58, 93-129.

differential funeral treatment. Defunct individuals were deposited in supine position with the head to the west and, usually, with the upper limbs arranged along the body.

The funeral inventory is extremely poor. In fact the austerity of the inventory together with the presence of the niche for the head, are the defining features of the Feldioara cemetery. As grave goods, besides some Roman coins that do not help us in establishing the chronology, six anonymous Hungarian denars ascribed to Geza II (1141-1161) and Stephan III (1162-1172) were found, as well as three earrings with the end in "S" form, which place the cemetery in the second half of the 12<sup>th</sup> century<sup>12</sup>.

The burials at this site are spread over 2-3 generations from the last years of Geza II's reign until the installation of the Teutonic Knights (1211)<sup>13</sup>.

Analogies with the cemeteries of Western Europe and with those from Transylvania<sup>14</sup> – all located in the Saxon colonization zone – show that the cemetery from Feldioara belonged to the first wave of German settlers who arrived in Transylvania after the middle of the 12<sup>th</sup> century<sup>15</sup>.

### MATERIALS AND METHODS

In this study, only the adult individuals (with complete union of epiphyses) from Feldioara sample were included. The sample comprised 65 adult individuals (34 males and 31 females) that had at least one intact long bone. Age and sex were estimated using the standard morphological methods (Lovejoy *et alii*<sup>16</sup>, Buikstra and Ubelaker<sup>17</sup>).

The general level of sexual dimorphism, expressed as dimorphism index-ratio of male bone mean to female bone mean (table 1) in Feldioara population was established using the maximal bone lengths of main long bones from upper and lower limbs, measured following Martin<sup>18</sup>.

For all major long bones, cross-sectional indices were calculated from external diaphyseal diameters measured using a sliding calliper with a precision of 0.1 mm, following the methods of Martin<sup>19</sup>, Bass<sup>20</sup> and Buikstra and Ubelaker<sup>21</sup>. The external diaphyseal dimensions were used in this study due to their proved utility<sup>22</sup> and also due to the inexpensive equipment needed, despite the criticism of several anthropologists that argued that they are not sufficient for the biomechanical studies as they don't take into account the internal morphology of the bones<sup>23</sup>.

The index of diaphyseal shape for humerus (table 2) was computed as the ratio between minimum midshaft diameter and maximum midshaft diameter multiplied by 100<sup>24</sup>. The indices of diaphyseal shape for radius, ulna (table 2) and midshaft of the femur (pilasteric index, table 3) were determined as the ratios between the antero-posterior midshaft diameters and medio-lateral midshaft diameters multiplied by 100<sup>25</sup>. Another three indices (table 3) were also calculated, one for femora (the platymeric index, representing the ratio between the subtrochanteric antero-posterior diameter and subtrochanteric medio-lateral diameter multiplied by 100<sup>26</sup>) and two for tibias (the cnemic and midshaft indices, representing the ratio between the medio-lateral and antero-posterior diameters multiplied by 100, at foramen and respectively midshaft

<sup>12</sup> Ioniță *et alii* 2004, p. 43-44, 108-109; Ioniță 2005, p. 218.

<sup>13</sup> Ioniță 2013.

<sup>14</sup> Ioniță 2005, p. 218-220.

<sup>15</sup> Ioniță *et alii* 2004, p. 56, 122.

<sup>16</sup> Lovejoy *et alii* 1985.

<sup>17</sup> Buikstra, Ubelaker 1994, p. 15-38.

<sup>18</sup> Martin 1914, 903-953.

<sup>19</sup> Martin 1914, 903-953.

<sup>20</sup> Bass 1987, p. 147-234.

<sup>21</sup> Buikstra, Ubelaker 1994, p. 80-83.

<sup>22</sup> Ruff 1987, p. 400; Wescott 2006, p. 207.

<sup>23</sup> Bridges, Blitz, Solano 2000, p. 225; Ruff 1987, p. 400.

<sup>24</sup> Martin 1914, 903-953.

<sup>25</sup> Martin 1914, 928.

<sup>26</sup> Martin 1914, 928; Bass 1987, p. 214.

level<sup>27</sup>). As in the case of the maximal bone lengths, the diaphyseal shape indices for upper and lower limb bones (tables 2-3) were used to calculate the dimorphism index.

The diaphyseal shape indices for humerus, radius, femur and tibia were also used to examine the bilateral asymmetry (table 4), reflected by the percent of absolute asymmetry (AA %) as described by Auerbach and Ruff<sup>28</sup>:

$$\% AA = \frac{(\text{maximum} - \text{minimum})}{(\text{mean of maximum and minimum})} \times 100$$

The percent of sexual difference was used in this study as an alternative way to express the degree of sexual dimorphism that allows comparisons with the data from other similar studies:

$$\% \text{ sex difference} = \frac{(\text{male bone mean} - \text{female bone mean})}{(\text{female bone mean})} \times 100$$

Statistical evaluation of sex differences were generally carried out using Student's *t* test, but for the series of data that displayed significant deviation from normality (Shapiro-Wilk test), the data were analysed with nonparametric Mann-Whitney *U* test. Origin 6.0<sup>29</sup> and Past 2.07<sup>30</sup> were used for statistical treatment of the data.

## RESULTS

The mean values and standard deviation for long bones length as well as the sexual dimorphism indices are presented in table 1. The indices range from 1.094 to 1.138 and the biggest sexual dimorphism is observed for ulna on both left and right sides. The comparison of dimorphism indices for left and right sides of each element shows that none of the sides is more dimorphic relative to the other.

| Bone    | Side | Male                  | Female                | Dimorphism index |
|---------|------|-----------------------|-----------------------|------------------|
|         |      | Mean ( $\pm$ SD)      |                       |                  |
| Humerus | L    | 331.50 ( $\pm$ 16.34) | 300.00 ( $\pm$ 18.27) | 1.105            |
|         | R    | 336.13 ( $\pm$ 18.68) | 299.63 ( $\pm$ 16.86) | 1.121            |
| Radius  | L    | 248.66 ( $\pm$ 11.56) | 221.56 ( $\pm$ 14.17) | 1.122            |
|         | R    | 249.05 ( $\pm$ 14.80) | 227.58 ( $\pm$ 13.51) | 1.094            |
| Ulna    | L    | 272.28 ( $\pm$ 10.70) | 239.25 ( $\pm$ 14.37) | 1.138            |
|         | R    | 274.28 ( $\pm$ 9.12)  | 241.00 ( $\pm$ 9.04)  | 1.138            |
| Femur   | L    | 466.64 ( $\pm$ 25.04) | 426.32 ( $\pm$ 22.00) | 1.094            |
|         | R    | 465.65 ( $\pm$ 24.33) | 424.33 ( $\pm$ 26.12) | 1.097            |
| Tibia   | L    | 385.92 ( $\pm$ 25.14) | 351.13 ( $\pm$ 32.47) | 1.101            |
|         | R    | 383.83 ( $\pm$ 22.75) | 349.36 ( $\pm$ 31.65) | 1.098            |

Table 1. Sexual dimorphism in long bone length.

Upper limb diaphyseal shape indices show no significant difference between sexes (table 2). The biggest difference between male and female diaphyseal shape is found in the right ulna.

In the lower limb, the only significant sexual difference is noticed in the diaphyseal shape of the left femoral midshaft – pilasteric index (table 3). The corresponding dimorphism index is high (1.077) and the discriminant analysis shown significant sex effects ( $p \leq 0.05$ ). This significant difference is produced by a greater antero-posterior diameter compared with the medio-lateral measurement in males as well as a

<sup>27</sup> Martin 1914, 933.

<sup>28</sup> Auerbach, Ruff 2006, p. 205.

<sup>29</sup> Microcal Software, 1991-1999. Microcal Origin, Version 6.0.

<sup>30</sup> Hammer, Harper, Ryan 2001.



greater medio-lateral diameter relative to the antero-posterior dimension in females, showing that the antero-posterior bending strength was bigger for males than for females.

| Index            | Side | Male |       | Female |       | Significance (p)   | Dimorphism index |
|------------------|------|------|-------|--------|-------|--------------------|------------------|
|                  |      | n    | Mean  | n      | Mean  |                    |                  |
| Humerus midshaft | L    | 22   | 82.48 | 24     | 81.65 | 0.618 <sup>a</sup> | 1.010            |
|                  | R    | 23   | 81.27 | 19     | 79.09 | 0.254 <sup>a</sup> | 1.027            |
| Radius midshaft  | L    | 23   | 77.25 | 16     | 75.81 | 0.413 <sup>a</sup> | 1.019            |
|                  | R    | 18   | 75.12 | 12     | 73.13 | 0.317 <sup>a</sup> | 1.027            |
| Ulna midshaft    | L    | 23   | 79.52 | 24     | 78.17 | 0.709 <sup>b</sup> | 1.017            |
|                  | R    | 22   | 84.83 | 19     | 80.75 | 0.168 <sup>a</sup> | 1.050            |

Table 2. Upper limb diaphyseal shape indices.

<sup>a</sup> Student's *t* test; <sup>b</sup> Mann-Whitney *U* test

| Index            | Side | Male |        | Female |       | Significance (p)          | Dimorphism index |
|------------------|------|------|--------|--------|-------|---------------------------|------------------|
|                  |      | n    | Mean   | n      | Mean  |                           |                  |
| Femur platymeric | L    | 27   | 78.85  | 30     | 76.94 | 0.216 <sup>a</sup>        | 1.024            |
|                  | R    | 26   | 80.00  | 30     | 77.03 | 0.067 <sup>a</sup>        | 1.038            |
| Femur pilasteric | L    | 25   | 103.81 | 25     | 96.36 | <b>0.003</b> <sup>a</sup> | 1.077            |
|                  | R    | 23   | 100.97 | 24     | 98.99 | 0.491 <sup>a</sup>        | 1.020            |
| Tibia cnemic     | L    | 25   | 69.43  | 27     | 70.68 | 0.320 <sup>b</sup>        | 0.981            |
|                  | R    | 25   | 71.14  | 28     | 71.94 | 0.552 <sup>b</sup>        | 0.987            |
| Tibia midshaft   | L    | 24   | 75.99  | 22     | 75.44 | 0.652 <sup>a</sup>        | 1.007            |
|                  | R    | 23   | 77.65  | 22     | 76.37 | 0.503 <sup>a</sup>        | 1.016            |

Table 3. Lower limb diaphyseal shape indices.

<sup>a</sup> Student's *t* test; <sup>b</sup> Mann-Whitney *U* test; **Bold** denotes significant sex effects (p? 0.05)

Sexual dimorphisms for bilateral asymmetry in diaphyseal shape of long bones are presented in table 4. The evaluation of absolute asymmetry shows that there is not any significant sexual difference in bilateral asymmetry. It indicates that the relative load affecting the left and right limbs was similar in males and females.

| Index            | Males |        | Females |        | Significance of sex effects* |
|------------------|-------|--------|---------|--------|------------------------------|
|                  | n     | Median | n       | Median |                              |
| Humerus midshaft | 17    | 3.498  | 14      | 5.518  | 0.827                        |
| Radius midshaft  | 14    | 5.695  | 10      | 4.157  | 0.883                        |
| Femur platymeric | 24    | 3.921  | 30      | 3.855  | 0.607                        |
| Femur pilasteric | 21    | 3.870  | 21      | 4.769  | 0.804                        |
| Tibia cnemic     | 23    | 3.475  | 27      | 2.493  | 0.330                        |
| Tibia midshaft   | 21    | 3.539  | 20      | 3.458  | 0.824                        |

Table 4. Sexual dimorphism for bilateral asymmetry in diaphyseal shape.

\* Mann-Whitney *U* test

Data from other similar studies<sup>31</sup> were also used for comparison in order to try to get a better understanding of the results from Feldioara sample.

Ruff<sup>32</sup> presented data for several populations from different parts of the world, but mainly from North America, that were classified as a function of their subsistence technology into three groups (hunter-gatherers, agricultural and industrial). The author showed that the degree of sexual dimorphism in bone shape around the knee is related to the subsistence strategy and that the sexual dimorphism in diaphyseal

<sup>31</sup> Ruff 1987; Pomeroy, Zarzewski 2009.

<sup>32</sup> Ruff 1987.

shape decreases from hunter-gatherers to industrial populations. By comparing Ruff's data and the results from Feldioara, we attempted to integrate our results into a greater context.

Another similar study<sup>33</sup> gave us the possibility to analyse the similarities in sexual dimorphism of diaphyseal shape between Feldioara population and other two European samples. The authors compared the data for the medieval Muslim population of Ecija (Spain) and the Anglo-Saxon population from Great Chesterford (United Kingdom) and showed that the sexual dimorphism in the lower limbs is higher in the Spanish population than in the Great Chesterford population.

The variations of the percent of sex difference for Ruff's groups are presented in fig. 1, together with the data for Ecija, Great Chesterford<sup>34</sup> and our results. Feldioara population shows a sexual dimorphism in femur midshaft shape within the range of the agricultural group from Ruff's study<sup>35</sup> and closer to the values for Great Chesterford population than for Ecija population.

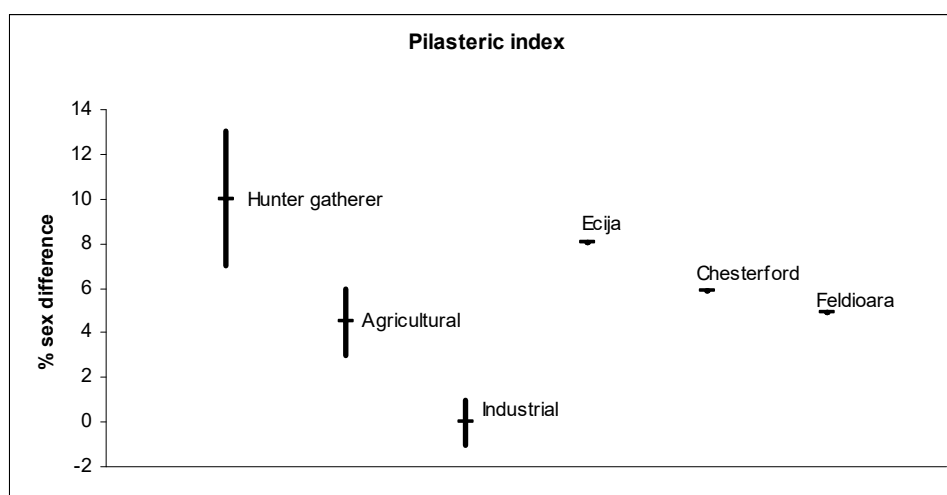


Fig. 1. Comparison of the results for Feldioara with the data for hunter-gatherer, agricultural and industrial populations from Ruff 1987 and the data for the Ecija and the Great Chesterford populations from Pomeroy and Zarzewski 2009.

## DISCUSSIONS AND CONCLUSIONS

The analysis of the upper limb bones did not reveal any significant sexual difference in diaphyseal shape. A possible cause for this lack of significance can be the complexity of the behaviour that involves the upper limbs, which implies a great variability in mechanical loadings<sup>36</sup>. While several authors (e.g. Weiss<sup>37</sup>, Ogilvie and Hilton<sup>38</sup>) reported positive relationships between the robusticity of the humerus and the general activity levels, in the case of cross-sectional shape of upper limb bones, their relationship with the patterns of activity is not so straightforward. In the same time, the cross-sectional morphology of the limb bones is affected not only by the mechanical loading, but also by different pre-existing biological factors, as the genetic background and hormonal factors<sup>39</sup>, that have to be considered in the evaluation of the sexual differences in limb activity. In the same time, the lack of any significant sexual difference in bilateral asymmetry in diaphyseal shape for the upper limb bones, as well as for the lower limb bones, suggests that the loadings on the sides were similar in males and females in Feldioara population. On the other hand, in this part of the study the size of our sample has been reduced due to preservation and appears

<sup>33</sup> Pomeroy, Zarzewski 2009.

<sup>34</sup> Pomeroy, Zarzewski 2009.

<sup>35</sup> Ruff 1987.

<sup>36</sup> Weiss 2003; Pomeroy, Zarzewski 2009, p. 58.

<sup>37</sup> Weiss 2003.

<sup>38</sup> Ogilvie, Hilton 2011.

<sup>39</sup> Weiss 2005, p. 312; Devlin 2011, p. 54.

finally not so large. Only a mean number of 20 individuals of each sex was analysed for bilateral asymmetry, while a minimum sample required for this type of analysis is 30 individuals for each sex<sup>40</sup>.

Unlike the upper limbs which are involved in a variety of activities, the lower limbs are used almost exclusively for locomotion, which allows an easier evaluation of the effects of environmental factors on the diaphyseal shape of the bones. According to the predictions of the biomechanical model, a high level of relative mobility determines a greater antero-posterior / medio-lateral ratio at femoral midshaft level<sup>41</sup> and also a greater sexual dimorphism in this ratio<sup>42</sup>. In Feldioara sample, a significant difference between males and females was obtained for the shape of the left femoral midshaft, which suggests that sex differences in the levels of mobility may have existed. On the other hand, the lack of significant sexual difference in the shape of the right femoral midshaft seems to be in conflict with the results for the left femur and demands an analysis of the possible causes of this inconsistency. In a study on the asymmetry in limb bone dimensions, Auerbach and Ruff<sup>43</sup> found a significant left-shifted directional asymmetry for the femoral diaphyseal breadth. They argued that their results support the existence of crossed symmetry between the upper and lower limbs – the right-handed individuals use for stability and postural support the left foot – and consequently, the mechanical load on the left foot is greater. In this context and in the case of a small size sample like Feldioara sample, it is possible that the significant sexual difference to be reached easier for the left side, which would explain the disparity of our results for the shape of femoral midshaft on left and right sides. Taking into account the results obtained for the pilasteric index, it was expected to find a significant sexual difference in the cnemic index also, but our data showed that the cnemic indices are close between males and females, and that there is not any significant sex effect in this index on either the right or the left side.

The limited information that we have regarding the arrival of western colonists and their first decades of life in Transylvania do not allow an accurate picture, but they are convergent with our findings. We know that the settling on royal land, like in the case of Feldioara, and in some situations in the counties of local nobles, was made under the leadership of *greavi*, and that the division of the land into lots (*sessile*) was done using the Flemish model<sup>44</sup>. It is assumed that the first settlers who came to Transylvania, denominated by the generic term of Saxons, belonged to a not very wealthy class, and that a certain egalitarianism existed among them, at least in the first decades after their settlement. This idea is suggested by the division of the land made for the delivery of new territories and also by the fact that no particular funeral treatment was observed, that could distinguish some individuals from the rest of the community. Social stratification in the Saxon rural communities started later.

Saxon local tradition preserves the memory of the fact that the first settlers entered in the Țara Bârsei from the Rupea, over the Bogatei hill, making their way with axes through the forest of the same name<sup>45</sup>.

Regarding the activities of the first generation of settlers from Feldioara, apart from those arising from taking possession of the parcels – deforestation and / or grubbing and, obviously, house building, the individuals of this small community with about 20 families had, undoubtedly, practiced an autarchic type of economy. There is no any evidence of specialization in different socio-economic activities. This leads to the idea that all the products needed were produced within the community through a range of activities involving all members of the community without distinction. The claim is supported by the relative homogeneity of the lot of bones analysed.

Until the late Middle Ages the main occupation was agriculture with its two branches – the cultivation of cereals (wheat, barley, rye) and stock-breeding (mainly cattle and horses)<sup>46</sup> – in which the men had a

<sup>40</sup> Stirland 1993 *apud*. Pomeroy, Zarzewski 2009, p. 56.

<sup>41</sup> Ruff 1987, p. 392.

<sup>42</sup> Ruff 1987, p. 400; Wescott 2006, p. 205.

<sup>43</sup> Auerbach, Ruff 2006, p. 213.

<sup>44</sup> Nägler 1997, p. 51-55.

<sup>45</sup> This activity has left traces in the local Saxon toponyms, such as Radeln / Roadeș, Homorod / Homoroden, *roden* in Saxon meaning the clearing of wooded areas. Near Feldioara there is a stream flowing into the Vulcănița, some authors, however, considering that the Vulcănița flows into the Homorod. Feldioara actually lies at the confluence of the Vulcănița (or Homorod) and the Olt.

<sup>46</sup> Nägler 1976, p. 84-85; Nägler 1979, p. 190-191.

primary role. Furthermore, the men carried out tasks linked to the agricultural land expansion and the deforestation of Olt's meadow, hay mowing, the purchase of firewood, as well as the transportation of the harvest and the woods to the household. These operations involve, in addition to an increased physical effort, no doubt also a daily movement of people in the area. Women's activities were related mainly to household tasks – cooking, kneading and baking bread, the preparation of milk products, caring for the animals, cultivation of vegetables in the gardens near the houses – as well as other operations – weaving, spinning, sewing – but all having more static nature compared with the men's activities. It is assumed that the whole family did the harvesting, while the processing of wood for construction (carpentry), and animal slaughtering were duties performed only by men. Inside the community, certain individuals practiced some other craft activities – pottery, leather manufacturing (for clothing, belts, harnesses) and rope making. Regarding the pottery, at least in a first phase, we believe that the vessels were produced by almost every family according to their needs, for the execution of which, probably, both men and women were participating, while the firing of the vessel was done in a common oven. We can also assume that at least one blacksmith and one wheelwright existed in the village.

As we see, all the information indicates that the population of Feldioara had a lifestyle based entirely on agriculture.

The comparisons made with the data from others studies allowed us to better understand the results from Feldioara, although they are restricted by the differences of chronology and geographic origin of the populations. The comparison with Ruff's data showed, as expected, that the sexual dimorphism in pilasteric index for Feldioara population is close to the mean value found for the agricultural group. In the same time, the comparison between our results with the data for the Muslim population of Ecija and the Anglo-Saxon population from Great Chesterford<sup>47</sup> demonstrate that the percent of sex difference in pilasteric index for Feldioara sample is closer to the one obtained for the Anglo-Saxon population. The greater difference from Ecija is not surprising, since in the Muslim societies the economical role of women was limited by the Koran and restricted to household activities. On the other hand, in the case of Great Chesterford population, despite the difference of six centuries from Feldioara population, both populations belonged to agriculture-based societies, where women had more house-centred tasks but both men and women were involved in agricultural activities.

In conclusion, for the upper limb bones, no significant sexual difference was found, probably due to the complexity of the behaviour that involves the upper limbs. The small size of the samples used in the analysis of the bilateral asymmetry did not allow us an interpretation of the results.

The level of sexual dimorphism in lower limb bone diaphyseal shape indices is moderately high, although the significant sexual differences appear just in pilasteric index, which suggests a probable difference in levels of mobility between men and women that is consistent with the historical data. A future more detailed study on the lower limb bones, using the cross-sectional geometrical proprieties is expected to allow more precise evaluation the sexual differences in the levels of mobility in the medieval population of Feldioara.

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<sup>47</sup> Pomeroy, Zarzewski 2009.

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## ABRÉVIATIONS

- AA – Archäologischer Anzeiger. Deutsches Archäologisches Institut, Darmstadt, München, Tübingen–Berlin
- ABSA – The Annual of the British School at Athens, Athens
- ActaArchCarp – Acta Archaeologica Carpatica, Kraków
- ActaArchHung – Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
- Acta Classica – Acta Classica. Journal of the Classical Association of South Africa, Pretoria
- ActaHistHung – Acta Historica Academiae Scientiarum Hungaricae, Budapest
- ActaMN – Acta Musei Napocensis. Muzeul Național de Istorie a Transilvaniei, Cluj-Napoca
- ActaMP – Acta Musei Porolissensis. Muzeul Județean de Istorie și Artă, Zalău
- ActaTS – Acta Terrae Septemcastrensis. Institutul pentru Cercetarea Patrimoniului Cultural Transilvănean în Context European, Sibiu
- AÉ – L'Année Épigraphique, Paris
- Aegean Studies – Aegean Studies. Aegeus - Society for Aegean Prehistory, Athens
- AEM – Archäologisch-epigraphische Mitteilungen aus Österreich-Ungarn, Wien
- Aevum – Aevum. Rassegna di Scienze Storiche Linguistiche e Filologiche. Vita e Pensiero – Pubblicazioni dell'Università Cattolica del Sacro Cuore
- Agria – Agria. Az Egri Múzeum Évkönyve – Annales Musei Agriensis. Dobó István Vármúzeum, Eger
- AHA – Acta Historiae Artium. Academiae Scientiarum Hungaricae, Budapest
- AHB – The Ancient History Bulletin (digital version only: <http://ancienthistorybulletin.org/>)
- AHR – The American Historical Review, Bloomington
- AIIA (Cluj-Napoca) – Anuarul Institutului de Istorie și Arheologie, Cluj-Napoca
- AInf – Archäologische Informationen, Mitteilungen zur Ur- und Frühgeschichte, Bonn
- AISC – Anuarul Institutului de Studii Clasice, Cluj-Napoca
- AJA – American Journal of Archaeology, Boston
- AJN – American Journal of Numismatics. American Numismatic Society, New York
- AJPh – American Journal of Philology, Baltimore
- AM – Mitteilungen des Deutschen Archäologischen Instituts. Athenische Abteilung, Athen
- Am. J. Phys. Anthropol. – American Journal of Physical Anthropology. Journal of the American Association of Physical Anthropologists, ([http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1096-8644](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1096-8644))
- American Anthropologist – American Anthropologist. Journal of the American Anthropological Association, ([http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1548-1433](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1548-1433))
- American Antiquity – American Antiquity. Society for American Archaeology, Washington
- ANarch – Archäologisches Nachrichtenblatt, Berlin
- AnB (S.N.) – Analele Banatului (Serie Nouă), Muzeul Banatului, Timișoara
- AnSt – Anatolian Studies. British Institute at Ankara, Ankara
- Antaeus – Communicationes ex Instituto Archaeologico Academiae Scientiarum Hungaricae, Budapest
- Anthropology Today – Anthropology Today. Royal Anthropological Institute, London
- Antiquity – Antiquity. A Review of World Archaeology, Durham, UK
- AntOr – Antiguo Oriente: Cuadernos del Centro de Estudios de Historia del Antiguo Oriente. Pontificia Universidad Católica Argentina Santa María de los Buenos Aires
- AO – Arhivele Olteniei, Craiova
- AO .... Moskow – Arheologičeski Otkritja, Moskva
- Apulum – Acta Musei Apulensis. Muzeul Național al Unirii, Alba Iulia
- ArchA<sup>5</sup> – Archaeologia Aeliana, Fifth Series. Society of Antiquaries of Newcastle upon Tyne, Newcastle
- Archaeol. Rev. Camb. – Archaeological Review from Cambridge. University of Cambridge, Cambridge
- Archaeologia – Altum castrum online. Mátyás király Múzeum, Visegrád
- Archeometriai Műhely – Archeometriai Műhely a Magyar Régészeti és Művészettörténeti Társulat interdiszciplináris kutatásokkal foglalkozó vitaülés-sorozata, Budapest
- ArchÉrt – Archeológiai Értesítő, Budapest

- ArchHung – *Archaeologia Hungarica, Acta Archaeologica Musei Nationalis Hungarici*, Budapest
- ArchKorr – *Archäologisches Korrespondenzblatt*, Mainz
- ArchPolski – *Archeologia Polski*, Wrocław – Warszawa
- ArchRozhledy – *Archeologické Rozhledy*, Praha
- ArhMed – *Arheologia Medievală*. Complexul Muzeal Bistrița-Năsăud, Bistrița
- ArhMold – *Arheologia Moldovei*. Academia Română, Institutul de Arheologie, Iași
- ArhVestnik – *Arheološki vestnik*, Ljubljana
- AȘUI – *Analele Științifice ale Universității “Al. I. Cuza” din Iași*, Iași
- Athenaeum – *Studi di Letteratura e Storia dell’Antichità* pubblicati sotto gli auspici dell’Università di Pavia, Pavia
- AVANS – *Archeologické Vyskumy a Nálezy na Slovensku*, Nitra
- Banatica – *Banatica*. Muzeul Banatului Montan, Reșița
- BARBrSer – *British Archaeological Reports, International Series*, Oxford
- BARIntSer – *British Archaeological Reports, British Series*, Oxford
- BayVgBl – *Bayerische Vorgeschichtsblätter*. Kommission für bayerische Landesgeschichte bei der Bayerischen Akademie der Wissenschaften in Verbindung mit dem Bayerischen Landesamt für Denkmalpflege und der Archäologische Staatssammlung, München
- BCH – *Bulletin de Correspondance Hellénique*, Athènes–Paris
- BÉ – *Bulletin Épigraphique*, Paris
- BerRGK – *Bericht der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts*, Frankfurt am Main
- BIAUL – *Bulletin of the Institute of Archaeology (University of London)*, London
- BIDR – *Bulletino dell’Istituto di Diritto Romano*, Roma
- BJb – *Bonner Jahrbücher des Rheinischen Landesmuseums in Bonn*, Bonn
- BMN – *Bibliotheca Musei Napocensis*, Cluj-Napoca
- Britannia – *Britannia. Journal of the Society for the Promotion of Roman Studies*, Cambridge
- BSNAF – *Bulletin de la Société nationale des antiquaires de France*, Paris
- BSNR – *Buletinul Societății Numismatice Române*, București
- BUFM – *Beiträge zur Ur- und Frühgeschichte Mitteleuropas*, Wilkau-Haßlau - Langenweißbach
- Byzantina (Thessalonic) – *BYZANTINA. Annual Review of the “Byzantine Research Centre”*, Thessalonic
- Byzantinoslavica – *Byzantinoslavica. Revue internationale des Études Byzantines*, Slovanský ústav Akademie věd ČR, Praha
- C&M – *Classica et Mediaevalia: Danish Journal of Philology and History*, Aarhus
- Caiete ARA – *Caiete ARA. Arhitectură, Restaurare, Arheologie*. Asociația ARA, București
- CCA. Campania ..... – *Cronica Cercetărilor Arheologice din România*, București
- Chiron – *Mitteilungen der Kommission für Alte Geschichte und Epigraphik des Deutschen Archäologischen Instituts*, München
- CICSA – *Centrul de Istorie Comparată a Societăților Antice*, Universitatea București, București
- CIL – *Corpus Inscriptionum Latinarum*, Berlin
- CN – *Cercetări Numismatice*. Muzeul Național de Istorie a României, București
- ComArchHung – *Communicationes Archaeologicae Hungariae*, Budapest
- CQ – *The Classical Quaterly*, The Classical Association, Cambridge
- CRAI – *Comptes Rendus des Séances de l’Académie des Inscriptions et Belles-Lettres*, Paris
- Crisia – *Crisia*. Muzeului Țării Crișurilor, Oradea
- CSCA – *California Studies in Classical Antiquity*. University of California, Los Angeles
- Current Anthropology – *Current Anthropology*. University of California, Merced
- CW – *Classical World*. Temple University, Philadelphia
- Dacia – *Dacia. Fouilles et recherches archéologiques en Roumanie*, București
- Dacia N.S. – *Dacia (Nouvelle Série)*. *Revue d’archéologie et d’histoire ancienne*. Académie Roumaine. Institut d’archéologie « V. Pârvan », București
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- Dolgozatok Cluj – Dolgozatok az Erdélyi Nemzeti Múzeum Érem- és Régiségárából, Kolozsvár  
 Dolgozatok Szeged – Dolgozatok a M. Kir. Ferencz József Tudományegyetem Archaeologiai Intézetéből, Szeged
- EJA – European Journal of Archaeology. European Association of Archaeologists (<http://e-a-a.org/eja.htm>)
- Elbinger Jahrbuch – Elbinger Jahrbuch. Zeitschrift der Elbinger Altertumsgesellschaft und der städtischen Sammlungen zu Elbing, Elbing (1920-1941)
- EphemNap – Ephemeris Napocensis. Academia Română, Institutul de Arheologie și Istoria Artei, Cluj-Napoca
- ÉPRO – Études préliminaires aux religions orientales dans l'Empire romain, Leiden
- Études Celtiques – Études Celtiques, Paris
- Evol Anthropol – Evolutionary Anthropology. Duke University, Durham NC
- FBW – Fundberichte aus Baden-Württemberg, Stuttgart
- FHDR I-II – H. Mihăescu, G. Ștefan, R. Hîncu, V. Iliescu, V.C. Popescu (eds.), *Fontes ad historiam Dacoromaniae pertinentes*, I-II, București, 1964–1970
- File de Istorie – File de Istorie. Muzeul Județean Bistrița-Năsăud, Bistrița
- FontesArchPosn – Fontes Archaeologici Posnanienses, Poznan
- FrühMitAltSt – Frühmittelalterliche Studien. Jahrbuch des Instituts für Frühmittelalterforschung der Universität Münster, Münster
- Germania – Germania. Anzeiger der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main
- Glasnik SAD – Glasnik Srpskog Arheološkog Društva, Belgrad
- H-Soz-u-Kult – Kommunikation und Fachinformation für die Geschichtswissenschaften (<http://www.hsozkult.de/>)
- HambBeitrA – Hamburger Beiträge zur Archäologie. Universität Hamburg, Hamburg
- HCT – A.W. Gomme, A. Andrewes, K.J. Dover, *A Historical Commentary on Thucydides*, Oxford, Clarendon Press, 1945-1981.
- Hermes – Hermes. Zeitschrift für Klassische Philologie, Franz Steiner Verlag, Stuttgart
- Historia – Historia. Zeitschrift für Alte Geschichte, Franz Steiner Verlag, Stuttgart
- HistoriaBuc – Historia, București (<http://www.historia.ro/revista#>)
- HOMÉ – A miskolci Hermann Ottó Múzeum évkönyve, Miskolc
- Homo – HOMO. Journal of Comparative Human Biology. Australasian Society for Human Biology, Elsevier Press (<http://www.journals.elsevier.com/homo/>)
- HZ – Historische Zeitschrift, Akademie Verlag GmbH, Berlin
- IDR – *Inscriptiile Daciei romane*
- IDRE – C.C. Petolescu, *Inscriptiones Daciae Romanae. Inscriptions externes concernant l'histoire de la Dacie*, I-II, București, 1996-2000
- IG – *Inscriptiones Graecae*, Berlin
- IGLR – E. Popescu, *Inscriptiile grecești și latine din secolele IV–XIII descoperite în România*, București, 1976
- Il Mar Nero – Il mar nero : annali di archeologia e storia, Roma
- ILD – C.C. Petolescu, *Inscriptii Latine din Dacia*, București, 2005
- ILS – H. Dessau, *Inscriptiones Latinae Selectae*, Berlin, I (1892), II (1902), III (1916)
- Int J Osteoarchaeol – International Journal of Osteoarchaeology
- Istros – Istros, Muzeul Brăilei, Brăila
- JAMÉ – A Jós András Múzeum Évkönyve, Nyíregyháza
- J.Archaeol.Sci – Journal of Archaeological Sciences, London – New York
- JDAI – Jahrbuch des Deutschen Archäologischen Instituts, Deutsches Archäologisches Institut, Berlin
- JEA – Journal of European Archaeology, former name of EJA
- JHS – Journal of Hellenic Studies, London
- J. Hum. Evol. – Journal of Human Evolution, Elsevier Press (<http://www.journals.elsevier.com/journal-of-human-evolution/>)
- JNES – Journal of Near Eastern Studies. The Oriental Institute, University of Chicago, Chicago
- JRA – Journal of Roman Archaeology, Portsmouth, Rhode Island

- JRA SS – Journal of Roman Archaeology, Supplementary Series, Portsmouth, Rhode Island  
 JRGZM – Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz, Mainz  
 JRS – Journal of Roman Studies, London  
 Klio – Klio. Beiträge zur Alten Geschichte, Berlin  
 KölnJb – Kölner Jahrbuch. Römisch-Germanisches Museum Köln, Köln  
 Közlemények – Közlemények az Erdélyi Nemzeti Múzeum Érem-és Régiségtárából, Kolozsvár  
 Kuhn-Archiv – Universität Halle-Wittenberg. Landwirtschaftliches Institut, Martin-Luther-Universität Halle-Wittenberg, Landwirtschaftliches Institut, Halle  
 Lethes – Lethes. Cadernos Culturais do Limia, Centro Cultural Popular do Limia, Ourense  
 LSJ – H.G. Liddell, R. Scott, H.S. Jones (eds.), *A Greek-English Lexicon*, Oxford, Clarendon Press (9th edition), 1940.  
 Lucentum – Lucentum. Universidad de Alicante, Alicante  
 Lumea veche – Lumea Veche, Revistă de umanioare, București  
 MAGW – Mitteilungen der Anthropologischen Gesellschaft in Wien, Wien  
 MAInstUngAk – Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften, Budapest  
 Marisia – Marisia. Muzeul Județean Mureș, Târgu Mureș  
 MASP – Materiali po Arheologii Severnogo Pričernomorja, Odesa  
 MatArch – Materiały Archeologiczne, Kraków  
 MatArchNovHuty – Materiały Archeologiczne Nowej Huty, Nova Huta  
 Materiały Starożytne – Materiały Starożytne i Wczesnosredniowieczne, Warszawa  
 MCA – Materiale și cercetări arheologice. Academia Română, Institutul de Arheologie „Vasile Pârvan”, București  
 MCV – Mélanges de la Casa Velázquez. Casa de Velázquez, Madrid  
 MFME – A Móra Ferenc Múzeum évkönyve. Móra Ferenc Múzeum, Szeged  
 ML – R. Meiggs, D.M. Lewis, *A Selection of Greek Historical Inscriptions to the End of the Fifth Century BC*, Oxford, OUP, 1969  
 Mnemosyne – Mnemosyne, A Journal in Classical Studies, Brill, Leiden  
 MSROA – Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego, Rzeszów  
 Mus.Afr. – Museum Africum. West African Classical Association, University of Ibadan – Department of Classics, Ibadan  
 Nor.Arch.Rev – Norwegian Archaeological Review, Taylor & Francis  
 NumZ – Numismatische Zeitschrift. Österreichische Numismatische Gesellschaft, Wien  
 OMNI. Revue internationale de numismatique – OMNI. Revue internationale de numismatique, L’association OMNI (Objets et Monnaies Non Identifiés) – <http://www.identification-numismatique.com/> (<http://www.wikimoneda.com/omni/>)  
 Palaeontologia Electronica – Palaeontological Association, England  
 Pallas – Pallas. Revue d’Études Antiques. Université de Toulouse le Mirail, Toulouse  
 PamArch – Památky Archeologické, Praha  
 PAPHs – Transactions and Proceedings of the American Philological Society. Johns Hopkins University Press, Baltimore  
 PBF – Prähistorische Bronzefunde. Akademie der Wissenschaften und der Literatur, Mainz, Seminar für Vor- und Frühgeschichte der Goethe-Universität Frankfurt a. M., Abteilung für Ur- und Frühgeschichtliche Archäologie des Historischen Seminars der Westfälischen Wilhelms-Universität, Münster  
 Peuce – Peuce. Studii și Note de Istorie Veche și Arheologie. Muzeul Delta Dunării / Institutul de Cercetări Eco-Muzeale „Simion Gavrilă”, Tulcea  
 Peuce S.N. – Peuce, serie nouă. Studii și Cercetări de Istorie și Arheologie. Institutul de Cercetări Eco-Muzeale „Simion Gavrilă”, Tulcea  
 Phoenix – Phoenix. Classical Association of Canada, Trinity College, Toronto, Ontario  
 PIR<sup>2</sup> – *Prosopographia Imperii Romani, saec. I-III*, ed. II, Berlin-Leipzig  
 PLRE – *Prosopography of the Later Roman Empire*, Cambridge University Press, 3 vol., 1971, 1980, 1992

- PME – H. Devijver, *Prosopographia militiarum equestrium quae fuerunt ab Augusto ad Gallienum*, 5 vol., Louvain, 1976–1993
- Pomorania Antiqua – Pomorania Antiqua, Gdańsk
- Pontica – Pontica. Muzeul de Istorie Națională și Arheologie, Constanța
- Prace i Materiały – Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi, Łódź
- Proceedings of the Massachusetts Historical Society – Proceedings of the Massachusetts Historical Society. Massachusetts Historical Society, Boston
- PV – Přehled Výzkumů, Brno
- PZ – Praehistorische Zeitschrift. Freie Universität, Institut für Prähistorische Archäologie, Berlin
- RadVM – Rad Vojvodjanskih Muzeja, Novi Sad
- Raport ... – Raport, Narodowy Instytut Dziedzictwa. National Heritage Board, Warszawa
- RE – Realencyclopädie der classischen Altertumswissenschaften, Stuttgart, 1893 –
- REA – Revue des Études Anciennes. Maison de l'Archéologie, Université Bordeaux Montaigne, Pessac
- RechsArch – Recherches Archeologiques, Kraków
- RégFüz – Régészeti Füzetek. Magyar Nemzeti Múzeum, Történeti Múzeum, Budapest
- RESEE – Revue des Études Sud-Est Européennes. Academia Română, Institutul de Studii Sud-Est Europeene, București.
- RevBistr – Revista Bistriței. Complexul Muzeal Bistrița-Năsăud, Bistrița
- RevMédVét – Revue de Médecine Vétérinaire. Ecole Nationale Vétérinaire de Toulouse, Toulouse
- RFE/RL East European Perspectives – Radio Free Europe / Radio Liberty
- RH – Revue Historique. Presses universitaires de France, Paris
- RhM – Rheinisches Museum. Rheinisches Museum für Philologie, Universität zu Köln, Köln
- RI S.N. – Revista Istorică. Academia Română, Institutul de Istorie „Nicolae Iorga”, București
- RIC – *Roman Imperial Coinage*, London
- RM – Mitteilungen des Deutschen Archäologischen Instituts, Römische Abteilung, Rom
- RMD – M.M. Roxan, P. Holder, *Roman Military Diplomas*, 5 vol., London, 1978–2006
- RocznMuzGórnyBytom – Rocznik Muzeum Górnośląskiego w Bytomiu, Bytom
- RRH – Revue roumaine d'histoire. Academia Română, București
- RRHA – Revue Roumaine d'Histoire de l'Art, Série Beaux-Arts. Academia Română, Institutul de Istoria Artei „G. Oprescu”, București
- RRSE – Revista Română de Studii Eurasiatice. Centrul de Studii Eurasiatice, Constanța
- SAA – Studia Antiqua et Archaeologica. Universitatea “Al. I. Cuza”, Iași
- Sargeția – Acta Musei Devensis. Muzeul Civilizației Dacice și Romane, Deva
- Sautuola – Sautuola. Instituto de Prehistoria y Arqueología “Sautuola”, Santander
- SCIM – Studii și Cercetări de Istorie Medie. Academia Română, Institutul de Istorie „Nicolae Iorga”, București
- SCIV(A) – Studii și cercetări de istorie vecie (și arheologie). Academia Română, Institutul de Arheologie „Vasile Pârvan”, București
- SCN – Studii și Cercetări de Numismatică. Academia Română, Institutul de Arheologie „Vasile Pârvan”, București
- Scripta Mediterranea – Scripta Mediterranea. Canadian Institute for Mediterranean Studies, University of Toronto, Toronto
- SHA – *Scriptores Historiae Augustae*
- SIB – Studii de Istorie a Banatului. Universitatea de Vest din Timișoara, Timișoara
- SlovArch – Slovenská Archeológia, Nitra
- SMIM – Studii și Materiale de Istorie Medie. Academia Română, Institutul de Istorie „Nicolae Iorga”, București
- Somogyi Múzeumok Közleményei – Somogyi Múzeumok Közleményei, Kaposvár
- SpisyArch – Spisy Archeologického Ústavu v Brně, Brno
- SprawArch – Sprawozdania Archeologiczne, Kraków
- ŚSA – Śląskie Sprawozdania Archeologiczne, Wrocław
- StComSatuMare – Studii și Comunicări. Muzeul Județean Satu Mare, Satu Mare
- ŠtudZvesti AÚ SAV – Študijné Zvesti. Archeologického Ústavu Slovenskej Akadémie Vied, Nitra

- Syria – Syria. Revue d'Art Oriental et d'Archéologi., Institut français du Proche-Orient, Paris
- Talanta – Talanta. Proceedings of the Dutch Archaeological and Historical Society, Amsterdam
- Thraco-Dacica – Thraco-Dacica. Academia Română, Institutul de Arheologie „Vasile Pârvan”, București
- Tibiscum – Tibiscum. Studii și comunicări de etnografie-istorie. Muzeul Caransebeș, Caransebeș
- TIR – *Tabula Imperii Romani*
- Transilvania – Transilvania. Centrul Cultural Interetnic Transilvania, Sibiu
- Transylvanian Review – Transylvanian Review. Centrul de Studii Transilvane, Cluj-Napoca
- Ub. I – *Urkundenbuch zur Geschichte der Deutschen in Siebenbürgen I* (eds.: F. Zimmermann, C. Werner), Hermannstadt, 1892.
- Ub. II – *Urkundenbuch zur Geschichte der Deutschen in Siebenbürgen II* (eds.: F. Zimmermann, C. Werner, G. Müller), Hermannstadt, 1897.
- Váci Könyvek – Váci Könyvek. Tragor Ignác Múzeum, Vác
- VP – Východoslovenský Právek, Košice
- Wiadomości Arch. – Wiadomości Archeologiczne, Bulletin Archéologique Polonais, Warszawa
- WJA – Würzburger Jahrbücher für die Altertumswissenschaft, Würzburg
- ZA – Zeitschrift für Archäologie, Berlin
- Zborník SNM ... , Archeológia ... – Zborník Slovenského Národného Múzea. Archeológia, Bratislava
- Ziridava – Ziridava. Studia Archaeologica. Muzeul Județean Arad, Arad
- ZPE – Zeitschrift für Papyrologie und Epigraphik, Bonn
- ZRG – Zeitschrift der Savigny-Stiftung für Rechtsgeschichte. Romanistische Abteilung, Köln