



„Hadak útján”

A népvándorlaskor fiatal kutatóinak
XXVI. konferenciája

GAZDASÁG – KERESKEDELEM – KÉZMŰVESSÉG

26th Conference of Young Scholars
on the Migration Period

ECONOMY – TRADE – CRAFTSMANSHIP



DISSERTATIONES ARCHAEOLOGICAE
ex Instituto Archaeologico
Universitatis de Rolando Eötvös nominatae
Supplementum 2.

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Budapest, 2016. november 3–4.

edited by

Zsófia RÁCZ – István KONCZ – Bence GULYÁS



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Editors:
BENCE GULYÁS
ISTVÁN KONCZ
ZSÓFIA RÁCZ

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Contact: dissarch@btk.elte.hu

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Szerkesztői előszó

RÁCZ ZSÓFIA

*Régészettudományi Intézet
Eötvös Loránd Tudományegyetem*

zsafia_racz@yahoo.de

KONCZ ISTVÁN

*Régészettudományi Intézet
Eötvös Loránd Tudományegyetem*

fredgar22@gmail.com

GULYÁS BENCE

*Régészettudományi Intézet
Eötvös Loránd Tudományegyetem*

gbence567@gmail.com

A „*Hadak útján*” – *A népvándorlaskor fiatal kutatóinak konferenciáját* először 1990-ben, Szentesen rendezték meg nagy érdeklődés közepette. A rendezvény hiánypótlónak számított, korábban ugyanis nem volt lehetősége a pályakezdő népvándorlás koros régészeknek, hogy saját korosztályuk körében megosszák egymással tudományos eredményeiket. Már az első találkozó interdiszciplináris együttműködésre törekedett: régészek mellett történészek, művészettörténészek és nyelvészek is előadást tartottak; az előadások alapján készült tanulmányok külön kötetben jelentek meg. A konferencia elnöki tisztjét az első alkalom óta dr. Tomka Péter, a Kárpát-medencei népvándorlás kor kiemelkedő kutatója tölti be.

A szentesi konferencia egy sikeres sorozat első állomása lett: 2015-ben, Révkomáromban a kezdeményezés már negyedszázados születésnapját ünnepelhette. A „*Hadak útján*” 26. találkozójának megszervezését – a sorozat történetében először – az ELTE BTK Régészettudományi Intézete vállalta magára. Témájául a népvándorlás kori gazdaság, kereskedelem és kézművesség kérdésköreit választottuk. 2016. november 3–4-én összesen 47 előadótól mintegy 32 előadást hallhattunk, amelyeket témakörök szerint több szekcióba – kapcsolatrendszerek, kereskedelem, gazdálkodás és háztartások, anyag és technológia, valamint kézművesség – soroltunk. Ezek közül most 13 előadás jelenik meg írásos formában is, részben magyarul, részben azonban – a megjelenésnek teret biztosító folyóirat, a *Dissertationes Archaeologicae* irányelvei alapján – angol és német nyelven. Reméljük, hogy az idegen nyelvű kiadás segítségével a konferencián bemutatott sokrétű és gyakran új módszertani megközelítésre támaszkodó eredmények a nemzetközi kutatás számára is hozzáférhetővé válnak.

Budapest, 2018. október 1.

A konferencia eddigi helyszínei

- 1990 Szentes
- 1991 Nyíregyháza
- 1992 Sátoraljaújhely
- 1993 Visegrád
- 1994 Szenna
- 1995 Velem
- 1996 Pécs
- 1997 Veszprém
- 1998 Eger
- 1999 Szeged – Domaszék
- 2000 Székesfehérvár
- 2001 Simontornya
- 2002 Gyula
- 2003 Keszthely
- 2004 Várgesztes
- 2005 Nagykovácsi
- 2006 Nagyvárad
- 2007 Kecskemét
- 2008 Győr
- 2010 Budapest – Szigethalom
- 2011 Szeged
- 2012 Visegrád
- 2013 Veszprém
- 2014 Esztergom
- 2015 Révkomárom
- 2016 Budapest
- 2017 Debrecen
- 2018 Mosonmagyaróvár

About brooches and networks: Some remarks on the female dress in the 6th-century Pannonia

ISTVÁN KONCZ

*Institute of Archaeological Sciences
ELTE Eötvös Loránd University*

fredgar22@gmail.com

Abstract

The so called four-brooch dress (Vierfibeltracht) – widely considered by the Hungarian research as the typical female dress in the 6th-century Pannonia – consists of two brooches located on the upper body, and two other ones generally found in the area of the pelvis or between the femurs or the knees. Although the name of the type of this dress clearly emphasizes the brooches, it consists of two parts: first the upper body clothing was fastened in a way and the second is a girdle-hanger that is usually, but not necessarily decorated with brooches. With the analysis of the cemeteries from South-Transdanubia, I would like to present that the two aforementioned elements of the 6th century female dress are independent from each other, and that the versions decorated with brooches are just their common, archaeologically well represented variants. So the four-brooch dress is the combined occurrence of these common variants of two dress elements. There is a difference between the connection networks of small and bow brooches based on 33 sites from modern-day Moravia, Lower Austria, Western Hungary and Slovenia. It can be presumed that there were different – spatial or temporal – structures behind their distribution.

Introduction¹

In the 6th-century Carpathian Basin the most iconic and probably most researched elements of the female burials are the brooches. Because of their high diversity in both form and decoration, and the difference in their production quality which is discernable in many cases, archaeological research soon identified them as artefacts used to express – ethnical, cultural or economical – identities. This symbolic aspect of the brooches became one of the main foci of their research over time beside the typological and chronological analyses.² These studies are mostly based on the physical characteristics (raw material, form and decoration) of the brooches and on their position in the grave that is defined by their role in the female dress. Four-brooch dress (*Vierfibeltracht*) is widely considered by the Hungarian research as the typical female dress in the 6th-century Pannonia,³ and viewed as a cultural marker of the Germanic – in this case Langobardic – population, unlike the use of single brooches that is commonly seen as an attribute of the Late Antique or Mediterranean groups.⁴

1 The research was granted by the National Research, Development and Innovation Office (NKFIH), decision number: OTKA NN 113157.

2 KOCH 1998, 535–540.

3 BÓNA 1993, 128–129.

4 Without intending to be complete: MARTIN 1994, 543–545; MARTIN 1995, 630–633; BIERBRAUER 1996, 110–113; KOCH 1996, 723–730; RIEMER 2000, 235–238. Critique of the ethnic interpretation based on dress: BRATHER 2007; FEHR 2010, 664–669; VON RUMMEL 2010.

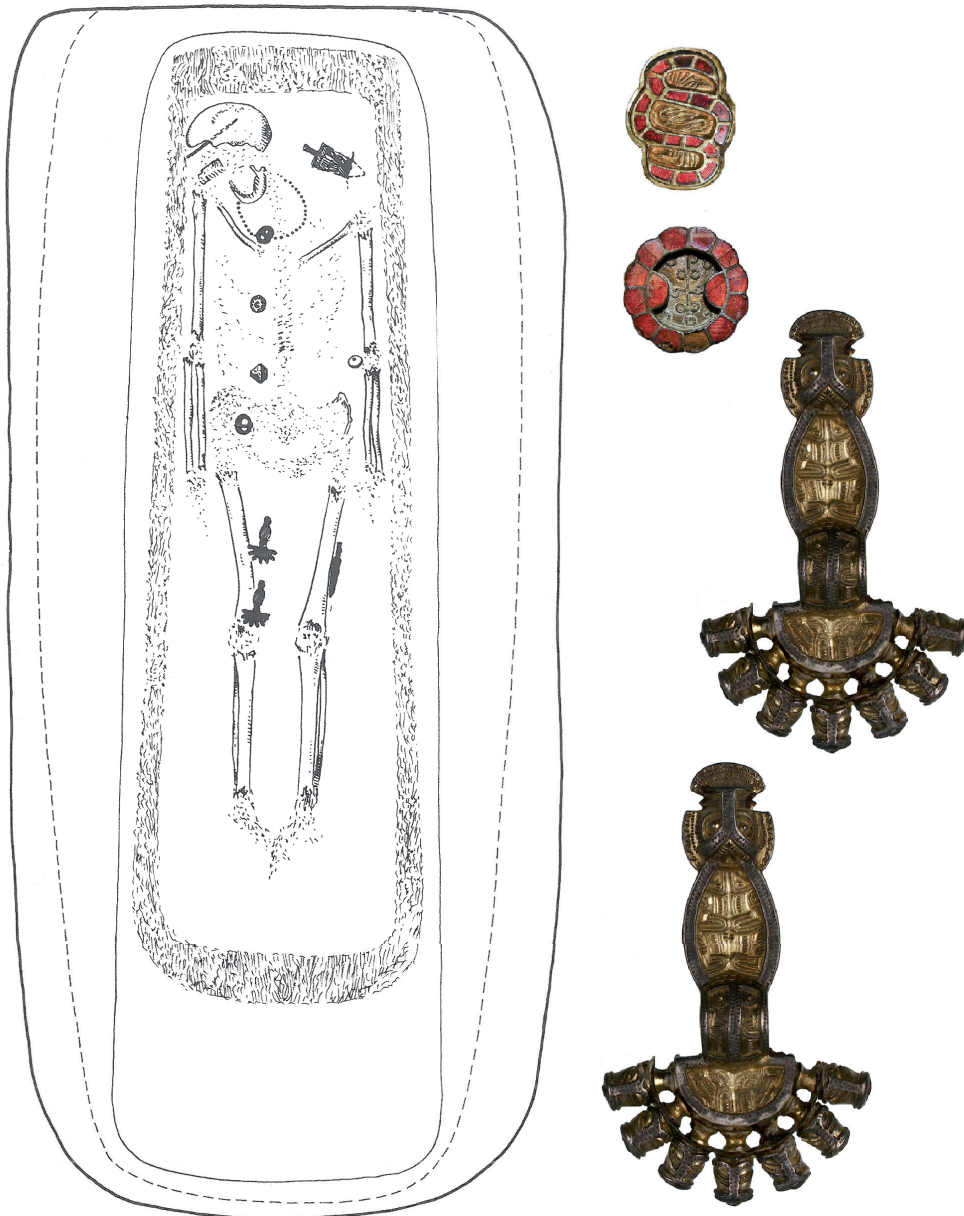


Fig. 1. Kajdacs grave 2: A woman buried in four brooch dress (Based on BÓNA – B. HORVÁTH 2009, f. 33 and t. 20. with pictures from János G. Ódor and HORVÁTH 2012b)

The main attribute of the four-brooch dress – as its name clearly shows – is that it consists of four brooches (fibulae). Two brooches are located on the upper body, while the other two are generally on the area of the pelvis or between the femurs or the knees.⁵ The so called small brooches (*Kleinfibeln*) that are on the upper body can be placed next to, below or on top of each other on the chest or just below the neckline, and according to the reconstructions they were used to fasten the upper clothing. There are different interpretations of the brooches located at the pelvis or between the legs. They could also have a functional role in fastening a long dress or skirt,⁶ but it is more widely accepted that they decorated a textile or leather strap hanging from

5 The four brooches can appear in a different position as for example in grave 26 from the cemetery of Tamási, where one of the bow brooches were found on the upper body with the two small brooches, while the other bow brooch was placed between the legs. BÓNA – B. HORVÁTH 2009, 150–152. and t. 67.

6 CLAUS 1987, 513–519.

the waist-belt,⁷ and did not play any practical role. It is possible that the function of the brooches varied according to their different location, so brooches in the area of the abdomen were actually used in fastening the dress, but while moving downwards, they lost this role.⁸ Based on the description of the classical four-brooch dress in this position we usually find bow brooches (*Bügelfibeln*) (Fig. 1). While this type of female dress is present in Transdanubia (Western Hungary) and in most of Western Europe as well, interestingly the female dress shows a different development east from the Danube and this four-brooch dress is missing,⁹ mostly because another kind of the girdle-hangers is present, one that is mostly without or with only one brooch.¹⁰



Fig. 2. Stuttgart Psalter: Women wearing the same dress with (a) and without a brooch (b). Stuttgart Psalter 41 v. and 82 v. (Source: Württembergische Landesbibliothek Stuttgart: <http://digital.wlb-stuttgart.de/purl/bsz307047059>)

Although the name of the type of this dress clearly emphasizes the brooches, it consists of two parts: first the fastening of the upper body clothing was necessary; the second is the aforementioned girdle-hanger that could be decorated.¹¹ The main problem of the reconstruction of the 6th-century female dress based on the archaeological data in general is that it can only be based on elements made of metal or other non-perishable materials,

7 BÓNA 1993, 128; Max Martin derived this girdle-hanger from the Late Roman *cingulum*: MARTIN 1995, 658–661.

8 The placement of the bow brooches in the grave also have a chronological aspect. Bow brooches found on the pelvis area suggest an earlier mode than bow brooches between the legs: MARTIN 1995, 654–661.

9 RÁCZ 2011, 170; DOBOS 2012, 45.

10 DOBOS 2012, 43–45.

11 As demonstrated by MARTIN 1995, 635.

which heavily favours solutions like brooches. Particularly in fastening of the upper body clothing, simple solutions made of different organic materials, like leather or textile strings could have played an important role¹² (Fig. 2). The situation is more fortunate in the case of girdle-hangers, because examples without brooches are known as well, decorated with objects such as spindle-whores, pendants or even keys.¹³

Variations to brooches

With the analysis of the cemeteries from South-Transdanubia, I would like to present that the two aforementioned elements of the 6th century female dress are independent from each other, and that the versions decorated with brooches are just their common, archaeologically well represented variants. So the four-brooch dress is the combined occurrence of the common variants of two dress elements. First I compared the number of adult female burials with the number of burials with brooches and with four-brooch dress in twelve 6th-century cemeteries located in Transdanubia. The results show that while four-brooch dress is indeed common, brooches were used outside of this mode as well.

	<i>number of burials</i>	<i>adult female burials</i>	<i>adult female burials with brooches</i>	<i>adult female burials with four-brooch dress¹⁴</i>
<i>Gyönk</i>	6	3	1	0
<i>Hegykő</i>	81	21	5	2
<i>Kádárta</i>	7	1	0	0
<i>Kajdacs</i>	37	10	3	1
<i>Kápolnásnyék</i>	4	2	2	1
<i>Mohács</i>	6	5	4	1
<i>Rácalmás</i>	19	6	3	2
<i>Szeleste</i>	112	23	9	3
<i>Szentendre</i>	89	27	9	5
<i>Szólád</i>	45	12	6	2
<i>Tamási</i>	52	25	10	7
<i>Vörs</i>	37	21	7	4

From the 156 adult female burials from the twelve sites 59 (38%) contained any kind of brooch that was part of the female dress,¹⁵ and in 28 cases (47.5%) out of the 59 the four-brooch dress was present.¹⁶ The percentages vary over a wide range, the ratio of adult female burials to

12 The depictions of the Stuttgart Psalter used by Gisela Clauss to illustrate contemporary female dress shows multiple women wearing the very same dress both with and without brooches. CLAUSS 1987, 492–494.

13 For example grave 19 from Tamási-Csikólegelő, where a spindle-whore located between the femurs suggests a girdle-hanger (BÓNA – B. HORVÁTH 2009, 146) or grave 24 from Hegykő-Mező utca where a large glass bead was found between the knees (BÓNA – B. HORVÁTH 2009, 40–41) and grave 54 from the same cemetery with a limestone orb and iron knife between the legs. (BÓNA – B. HORVÁTH 2009, 46–47)

14 I included burials with less than four brooches, where the contemporary disturbance clearly focused on brooches. As for example 10, 18 and 30 graves from Tamási, where the burials were reopened and a secondary pit was dug over the femurs, the presumed location of the bow brooches.

15 I did not count brooches found in pouches etc.

16 The percentages are heavily influenced by the different degree of disturbance observed on the sites (in case

adult female burials with brooches change between 13 and 100%, while the ratios of burials with brooches and burials with four-brooch dress are between 33 and 70%.¹⁷

The most common solution for fastening the upper body clothing is the use of brooches, but they do not necessarily belong to the same pair.¹⁸ In grave 196 of the cemetery of Jutas as an alternative, a pin paired with an S-brooch was found on the chest of the buried woman.¹⁹ However in most cases pins came to light from around the head and are considered as hair pins or parts of the headdress.²⁰ It is important to note that for example simple leather or textile strings or bands leave no archaeological traces and could be observed only in very fortunate circumstances. Solutions with brooches or other artefacts made of non-perishable materials are overrepresented in the archaeological material, though even in the lack of these fastening the clothing was necessary. Perhaps we can observe such solution in case of grave 5 and 7 from the cemetery of Tamási.²¹ Both of the adult female burials are undisturbed,²² and between the femurs, a pair of bow brooches was found indicating the presence of a girdle-hanger, but no brooches came to light from the upper body. At the same time both women were buried with an uncommonly plentiful bead necklace arranged in multiple lines, which could have also played a role in fastening their dress instead of the missing small brooches.

The decoration of the girdle-hangers has more diversity. Four-brooch dress can be observed for example in grave 2 from the cemetery of Kajdacs and graves 23 from the cemetery of Tamási. In the 2nd grave of Kajdacs a rosette brooch and a paragraph brooch were found on the chest of the buried woman and the girdle-hanger was decorated with a pair of bow brooches,²³ from grave 23 from Tamási a pair of S-brooches from the chest and a pair of bow brooches between the femurs came to light. A more complex decoration of the girdle-hanger can be observed in grave 2 of the cemetery from Mohács, where beside the pair of bow brooches a line of silver mounts with punched-in decoration were also found and a limestone orb was used as a pendant²⁴ (Fig. 3). The woman buried in grave 955 from Szeleste had a girdle-hanger decorated with

of Vörs 100% of the burials, while in Szólád none of the graves were disturbed). It is impossible to eliminate this problem, the percentage of the burials with brooches could have been much higher, but its effect on the comparison of burials with brooches and burials with four-brooch dress is probably less influential.

17 No adult female burial with brooch is known from Kádárta and no four-brooch dress came to light from Gyöng.

18 Kajdacs grave 2: a rosette and a paragraph brooch paired up. Tamási grave 23: a pair of S-brooches.

19 The female dress reconstructed in grave 196 is unique in 6th-century Pannonia. As shown in the first publication of the grave, the bow brooches were located on the shoulders (RHÉ – FETTICH 1931, 35–36) and not between the legs or on the pelvis as was common during this period. Dress pins in the chest area were not in use during the Langobard Period in Pannonia. They are found, however, in the almost contemporaneous graves of the Keszthely-culture and in the early Avar Period as well, although these tend to be different types, usually stylus pins. The best parallel for wearing a pin and a small brooch on the chest together is the find recovered from the well known and often discussed Arnegunde burial. (FLEURY – FRANCE-LENORD 1998) For the problematic of grave 196 in Jutas see in detail: KONCZ 2015, 328–330.

20 About the pins of this period: VIDA 1998; VIDA 2015.

21 Grave 6: BÓNA – B. HORVÁTH 2009, 137–139. and t. 60; grave 7.: BÓNA – B. HORVÁTH 2009, 139–140. and t. 60.

22 One end of grave 7 was destroyed by sand mining works, but it only concerns the feet area, no other parts of the burial were affected. BÓNA – B. HORVÁTH 2009, 139–140.

23 BÓNA – B. HORVÁTH 2009.

24 The authors interpreted it as part of a costume influenced by the Byzantine fashion and not as a girdle-hanger. KISS – NEMESKÉRY 1964, 98–107. Its critique: BÓNA 1993, 128–129. A similar structure can be observed in grave 18. from the cemetery of Hegykő, where similar the girdle-hanger was decorated with similar mounts, but the limestone orb was replaced by a faceted rock-crystal pendant. BÓNA – B. HORVÁTH 2009, 37–38. and t. 8. There are similar mounts in Szentendre grave 29 and grave 56, in case of the former the girdle-hanger ended in a limestone disk, while the latter held a cairngorm sphere fastened by silver straps. BÓNA – B. HORVÁTH 2009, 104–106. and t. 41; 119–123. and t. 50.

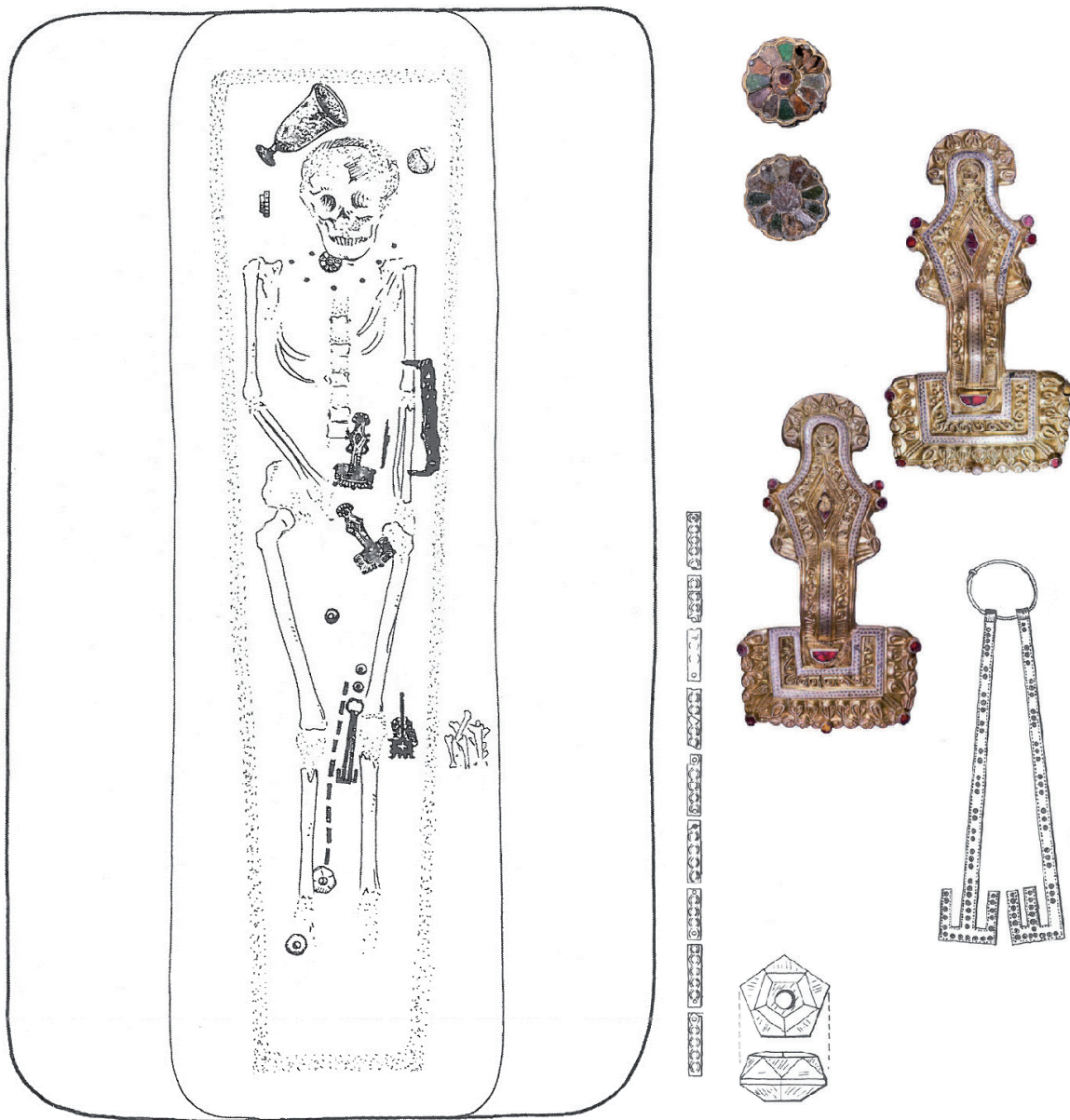


Fig. 3. Hegykő grave 18: A woman buried in four brooch dress with a girdle-hanger decorated with both silver mounts and other accessories: a rock-crystal pendant and a set of symbolic keys). (Based on BÓNA – B. HORVÁTH 2009, f. 8. and t. 15. with pictures from HORVÁTH 2012b)

a set of mounts made of bronze (?) that has no direct parallels yet.²⁵ So in multiple instances the common brooch decoration was supplemented by mounts, but we do not find the use of mounts without the brooches. A set of mounts similar to Mohács grave 2 were found in the cemetery of Keszthely-Fenéki út without any brooches. But in this case the lack of brooches is probably just the consequence of the heavy disturbance of the still very richly furnished female burial.²⁶ These complex girdle-hangers with more adherent artefacts raise the question whether all the objects belonged to a simple, wide girdle-hanger or multiple ones.²⁷

25 The structure of the girdle-hanger could be different based on the small iron buckle found between two of the mounts *in situ* position. Kind personal communication by Ildikó Katalin Pap.

26 SÁGI 1991, 114–121.

27 Uta von Freedden distinguished multiple girdle-hangers in Szólád grave 25 based on the two lines of mounts very similar to the ones found in Mohács grave 2. VON FREEDEN 2008, 405.



Fig. 4. Szólád grave 38: Brooches replaced by shoe-shaped rivets in the decoration of the girdle-hanger (After VON FREEDEN 2008, f. 15.)

However, bow brooches are not indispensable accessories of the girdle-hangers. Although such solution from the 6th-century Transdanubia is unknown, in grave 38 from the cemetery of Güttingen a pair of disc brooches was found instead of the bow brooches at the pelvis area, below the belt. Gisela Clauss presumed that they were used to fasten a skirt or a longer dress,²⁸ but their position – just below the belt – questions this purpose, it is possible that they replaced the bow brooches in the decoration of a girdle-hanger. From the 6th-century Transdanubia we know multiple variations of girdle-hangers decorated without the use of brooches. In case of grave 38 from the cemetery of Szólád, the bow brooches were replaced by two shoe-shaped rivets (*schildförmige Gürtelhaften*),²⁹ which are usually connected to waist-belts³⁰ (Fig. 4). A 5–6 years old girl was buried in grave 38, in this young age even the presence of a girdle-hanger is unusual as gender specific grave goods start to appear in female burials around young adulthood (14–22 years).³¹ Perhaps the explanation behind the replacement of the brooches is the girl's age.

A line of bronze rivets accompanied by an iron knife were found between the legs of an adult woman in Tamási grave 5, the rivets were interpreted as remains of the scabbard,³² but their position compared to the knife allows other explanations as well (Fig. 5). They could have been part of the dress or even part or decoration of a girdle-hanger. The presence of a rock-crystal pendant in sling of four silver bands between the legs in Tamási grave 52 indicates the presence of a girdle-hanger,³³ probably the capsule (amulet?) made of bronze belonged to the otherwise undecorated girdle-hanger as well. The lack of bow brooches (or any other decoration) is even more interesting, as a pair of S-brooches were found on the upper body.³⁴

Different networks of distribution

I analysed the connection between 33 sites from modern-day Moravia, Lower Austria, Western Hungary and Slovenia based on the occurring brooch types. My main question was whether there is a difference between the networks created based on small brooches and

28 CLAUSS 1987, 503–504.

29 VON FREEDEN 2008, 405–406.

30 KONCZ 2014, 79–80.

31 BARBIERA 2005, 22, 47–49, and 65–66.

32 BÓNA – B. HORVÁTH 2009, 137–139, and t. 59.

33 Similar situations, where the girdle-hanger is only indicated by a pendant, were observed in grave 24 and 54 from the cemetery of Hegykő. BÓNA – B. HORVÁTH 2009, 40–41, and 46–47.

34 BÓNA – B. HORVÁTH 2009, 165–166, and t. 79.

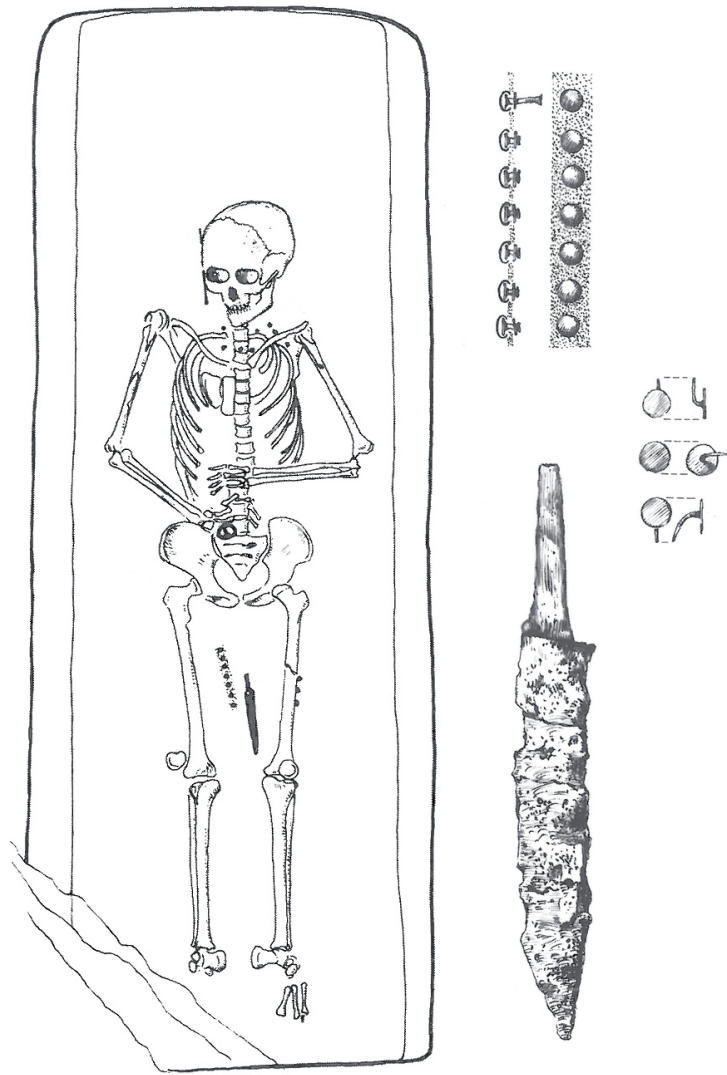


Fig. 5. Tamási grave 5: Line of bronze rivets found between the legs (Based on BÓNA – B. HORVÁTH 2009, f. 99, and t. 59)

based on bow brooches. A difference would indirectly implicate that there was some kind of difference in the structure of their distribution and whether we can consider the four-brooch dress as a unit or not. The analyses was hindered by some problems, that make the applicability of basic network analysis somewhat limited as a research method in case of cemeteries. The sizes of the compared sites varied from a few graves to more than one hundred and the proportion of disturbed burials changed between 0 and 100%. We can neither consider the sites closed archaeological contexts, nor well-defined units. Because of the problems mentioned the method cannot lead to exact conclusions,³⁵ but based on the available data, a general network of connections can be drawn. A connection (edge) between two sites (nodes) is the presence of the same brooch type on both locations, and a connection is weighted based on the number of these connections. I kept the accepted archaeological typology of the disc and S-brooches,³⁶ but counted the bird brooches as one group. In the

35 VÁCZI 2014.

36 In regard of disc brooches see: VIELITZ 2003. In case of S-brooches I used a slightly changed altered: BRATHER-WALTER 2009.

case of bow brooches, instead of a very detailed typology, I used six broader groups based on form (of the head and the body), as the large number of different types together with the low number of cases would have made the analysis impossible (*Fig. 6*).

Both the small brooch network and the bow brooch network show certain tendencies. The central role of Kranj, Szentendre and Szeleste in case of the small brooch network can be explained with their size, as they are among the largest cemeteries of the analysis. Some of the geographical regions also appear on the network: because of their intensive connection most of the sites from South Transdanubia – Kajdacs, Tamási, Szólád and Vörs – settled next to each other, this intensive connection is tightly linked to their geographical proximity. There is also a clear Lower Austrian cluster as well.³⁷ Interestingly the network based on the bow brooches shows a different picture. It is not surprising that Szentendre still plays a central role, but otherwise it seems that the size of the sites influences this network on a lower degree. While the South Transdanubian cluster is still present, its structure changed, instead of multiple sites with close to equal weight, Tamási became the center that binds Mohács, Kajdacs and Vörs together, while Szólád is separated. It seems that geographical position play a less influential role in the bow brooch network. In general there are less connections (101 in against 128³⁸), but more unique connections, even though I used broader brooch type groups in creating the bow brooch network.

The difference observed between the two networks can be explained to a certain extent by the nature of grave disturbances, as in some cases clearly the bow brooches were the target, but usually larger parts or even the whole burial was reopened. Based on the two networks, it can be presumed that there were different structures behind the distribution of the small brooches and the bow brooches. One possibility is the difference in workshop practice. The Andernach-Hegykő group defined by Eszter Horváth only contained jewelry (small brooches and pendants) belonging to the upper body clothing.³⁹ The suspended cloisonné technique that is characteristic to this group was not used on bow brooches in the Carpathian Basin. It is interesting that the most common decoration – glass or stone inlays – of the small brooches was very rarely used on bow brooches and even so mostly on unique pieces.⁴⁰

It is possible to explain the difference in the two networks with the help of different temporal structures behind them. The small brooches on the upper body had a functional role; they were worn in everyday life. As they were put through an intensive use, a more frequent change was necessary in their case than in the case of bow brooches that were used mainly for decoration and were probably not part of the everyday female dress. This assumption could be only proved with a comprehensive analysis of traces of use, but as a starting point it is interesting, that where two small brooches (38 burials from the 12 sites analysed in detail) or two bow brooches (21 burials) are present, in case of the former dissimilar brooches are more frequently paired up. Differing small brooches were paired up

37 The Fruchterman – Reingold-algorithm used to create the networks did not take geographical position into account in any way, so this proves that geographical proximity did effect the intensity of the connection between the sites.

38 The more connections of the small brooch network are partially due to the two numerous S-brooch types (Schwechat-Pallersdorf and Várpalota 19).

39 HORVÁTH 2012a, 221–224.

40 For example Hegykő grave 18, Szeleste grave 445, Szólád grave 21 and Jutas grave 196.

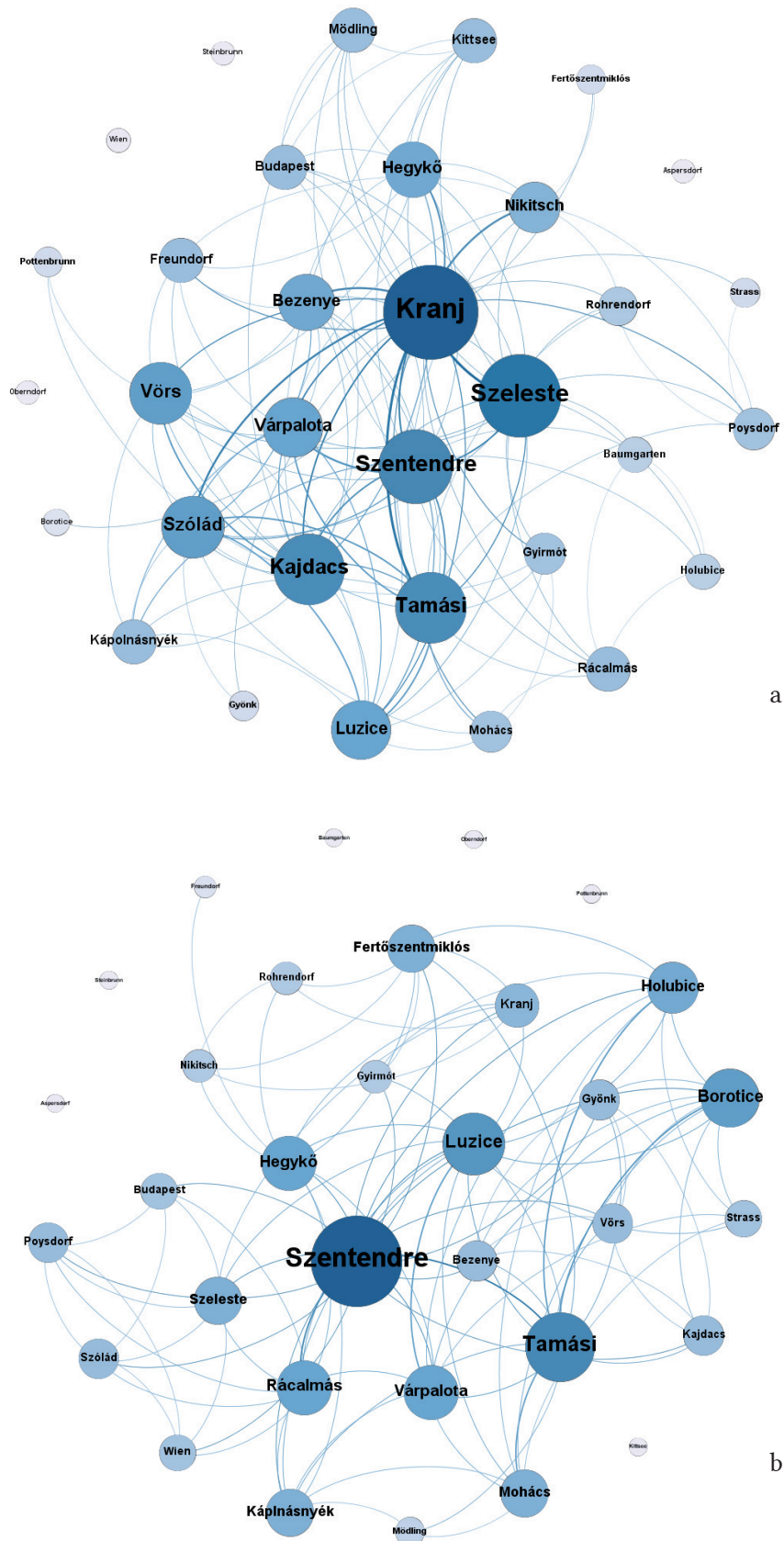


Fig. 6. Networks based on the connections defined by the small brooches (a) and the bow brooches (b). (Some characteristics: Number of nodes: 33; number of edges – a: 128, b: 101; average path length – a: 1.746, b: 1.866; average degree – a: 7.758, b: 6.121; average weighted degree – a: 11.515, b: 6.485.) Both networks were created with Gephi version 0.9.1. (BASTIAN – HEYMANN – JACOMY 2009)

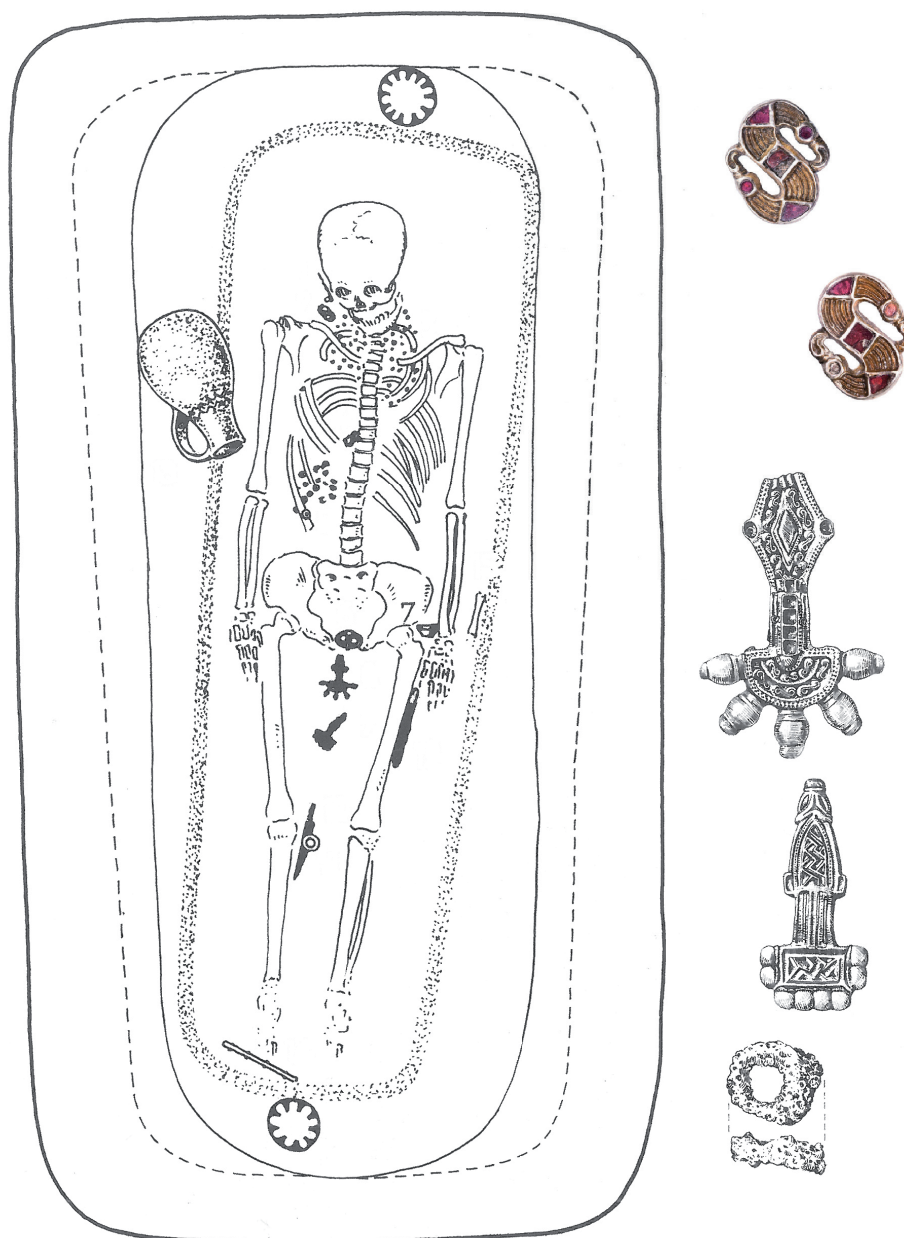


Fig. 7. Szentendre grave 33: Different type of bow brooches paired up. Note the visible difference of the state of the brooches (Based on BÓNA – B. HORVÁTH 2009, f. 75, and t. 42. with pictures from HORVÁTH 2012b)

in six burials (16%), while there is only one similar burial with bow brooches⁴¹ (Fig. 7). The more frequent replacement of the small brooches would give an explanation of this phenomenon and would also explain the difference between the two networks. The more frequent change of brooches would mean a more frequent update of the network and as a consequence, a more intensive connection between the actors.⁴² This change in frequency of the replacement of the small brooches could have also affected the structure of the workshop practice as well (the law of supply and demand).

41 Szentendre grave 33: one of the bow brooches is in much worse condition than the other, it could be assumed that the woman acquired one brooch later than the other. BÓNA – B. HORVÁTH 2009, 108–110, and t. 42.

42 This explanation does not refer to the intensity of the connection between the communities, only to the two networks created based on the brooches.

To understand the real reasons behind the difference of the two presented networks further analyses are required – especially studies of production technology and traces of use would help us to understand the everyday role of the brooches. The outlined interpretations are only general ideas based on the current data.

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