INTRODUCTION

The two graves found near today’s Beremend in Baranya County are of pivotal importance when discussing the communities of the late 6th and 5th centuries BC in southern Transdanubia ever since they were discovered. They were the first cornerstones of the notion that after the 6th century BC upheaval, the communities in southern Transdanubia had integrated into the complex of the southern Pannonian late Hallstatt group, at least as far as the burial customs and characteristic funerary representation is concerned. At the same time, they provide evidence for the re-emerging contacts between the communities in southern Transdanubia and the Dolenjska region in the late 6th and 5th centuries BC, as well as for the new elite which is supposed to have forged and maintained these contacts. With the help of basic network models, in the followings I investigate how contacts and interactions might have been forged and what motivated the creation of such ties between the communities.

THE FORMATION OF A NEW ELITE

It is widely accepted that the first half of the 6th century BC saw a fundamental cultural and social transformation in the western part of the Carpathian Basin. Although the exact causes...
for this process are still debated, its signs in the archaeological record are clear. The custom of building large funerary mounds and most fortified hilltop settlements seems to have been abandoned. All of this suggest that the “crisis” affected primarily the former elite. Their assumed downfall also brought with it either the disintegration or weakening of the interregional communicational ties between the communities in Transdanubia and the adjacent areas and hence it also led to the disintegration of the loosely defined and heterogeneous cultural milieu of the Eastern Hallstatt zone.

However, after the so-called crisis of the Eastern Hallstatt zone, especially from the late 6th century BC onward, similarly to the Dolenjska region in today’s Slovenia, the western half of the Carpathian Basin also saw a period of consolidation.9 Evidence for this is provided by several settlements such as Sopron-Krautacker,10 Sé-Doberdó,11 Zbelava12 and Szajk,13 just to name a few. In addition, the funerary data available in southern Transdanubia, eastern Slavonia and the Srem region strongly suggests that in this period, a new elite emerged.14

The most outstanding and unequivocal evidence for this new elite comes from the area surrounding today’s Sremska Mitrovica. In 1901 several items allegedly belonging to a burial came to light during construction works at the so-called Fabrika tanina site.15 Among the objects, we find the most characteristic elements of late Hallstatt-period attire in the southern Pannonian region, i.e., an astragal belt and Certosa fibulae. Based on the brooches, the assemblage dates to the late 6th and early 5th century BC.16 Although the aforementioned items have been of great importance in defining the cultural framework of the Srem district and the surrounding regions during the latest stage of the Early Iron Age, the most notable item among the finds is a necklace made of gold beads with filigree decoration and tubes of gold wire.17 Its significance stems from the fact that necklaces comprising similar beads made of precious metals are frequently present among the items found in princely graves of the Central and Southern Balkans.18 One can argue that the necklace links the Sremska Mitrovica burial to the most opulent late early Iron Age assemblages of the Central and Southern Balkans to a certain extent,19 and thus, to the upheaval of the elite’s appreciation of precious metals in the 6th century BC.20

The existence of this new elite around today’s Sremska Mitrovica is reflected in further finds. In 1960 fragments of an Illyrian helmet of the III A2-a type came to light from the river Sava near the Šećerana site along the riverbank.21 Unfortunately, due to lacking information about the exact context and possible associated finds, it cannot be decided whether it was part of a grave assemblage or it, say, was deposited as a votive offering. Neither can be its chronological position easily defined, but dating it to the late 6th and the 5th century BC seems feasible.22 Since Illyrian-type helmets were essential elements of the warrior representation in the western Balkans in the late 6th and 5th centuries BC and signalled a certain status,23 it is also fair to assume that in the case of the Sremska Mitrovica example this prestigious item could have also been associated with a local elite.

In addition, in 1978 a bronze situla came to light by chance, possibly in the area of the cellulose plant southeast of the town along the banks of the Sava,24 possibly near the sugar refinery where the helmet is supposed to have been found. As it was pointed out by P. Medović, it is highly probable that the situla originates from the Dolenjska region,25 and based on M. Jereb’s recent assessment of the bronze vessels in Slovenia the situla from Sremska Mitrovica can easily be assigned to variant 3.B1a. Since most such vessels came to light from graves dated to the Negova horizon in terms of the relative chronological framework of the Dolenjska group,26 it is reasonable to date the situla accordingly, i.e. to the second half of the 5th and the beginning of the subsequent century. Thus, it is somewhat younger than the golden necklace and the Illyrian-type helmet, however, this specimen is still worth taking into account here.

These items display a certain dichotomy. The Illyrian-type helmet and the golden necklace along with several other pieces of jewellery made of precious metal from the region indicate the significant role of southern influences in shaping the forms of representation of the newly emerging elite.27 Contacts of this prominent group, nevertheless, do not confine to ties with regions lying to the south of the Srem region. As already mentioned, searching the origin of the bronze situla from Sremska Mitrovica in the Dolenjska region of today’s Slovenia is more than reasonable. Similarly, there is hardly any doubt that the Certosa fibulae should also be

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5The picture of the abandonment of hilltop settlements, however, is far from clear. For instance, based on the preliminary results of their excavation, E. Marton and J. Regenye suggested that Tihany-Óvár had been occupied during the Ha D3/La Tène A transitional period. Marton–Regenye 2005, 52.
6Egg 2010, 63; Egg 2013.
10Jereb 1981.
15Brunšmid 1902, 75.
17Potrebica–Dizdar 2014a, 153.
directly or indirectly of western origin. As a result, one can see these items as evidence for the long-ranging contacts the elite (re-)established and maintained in the late 6th and the 5th century BC.

Evidence for this new prominent stratum in the southern part of the Carpathian Basin and for its aspiration to be involved in an interregional contact network, however, does not confine to the Srem region. Furthermore, it provides additional examples of the pattern seen in the case of the Sremska Mitrovica finds, i.e. that items of both western and southern origin appeared in the representational sets of the newly emerging elite. In 1962 near Beremend workers found the remains of what is now believed to be two distinct inhumation graves in a sand quarry. Both yielded spectacular assemblages containing various types of jewellery and elements of attire (Fig. 1), including items that are indicative of both western and southern contacts of the late 6th- and early 5th-century communities who lived near today’s Beremend. Besides the numerous Certosa fibulae which adorned the attire of both interred individuals, a so-called sceptre (Fig. 1, 5) made of a thin bronze sheet suggests that members of the community burying their dead in the burial ground near Beremend were connected to the Iron Age groups of southeastern Slovenia through a web of interactions and exchange. On the other hand, the graves yielded items that link them to a certain extent to the central Balkans. Such items are the Novi Pazar type silver fibulae32 (Fig. 1, 3–4) from Grave 2 and the silver foil bead decorated with granulation technique33 found among the grave goods of Grave 1 (Fig. 1, 9). Now, the belt plates made of a bronze sheet with openwork decoration (Fig. 1, 1–2), being among the latest ones of their kind, support the second observation insofar as the main distribution area of such items lies between the rivers Velika Morava and Isker.

The sites near Sremska Mitrovica and Beremend are tied together by the directions of the contacts their assemblages suggest, and even by some of the finds. However, another similarity deserves attention. Although the exact contexts and provenience of the finds from Sremska Mitrovica are hardly the most convincing let alone obvious evidence for the intimate relation between waterways and cemeteries of the late Hallstatt period in southern Pannonia. Indeed, I shall address this topic somewhat later, but suffice to say, the site near Beremend fits the pattern.

THE NETWORK OF THE SAVA CORRIDOR

It is a long-established notion that the river Sava played an essential role in providing a communication route for interaction and exchange between Early Iron Age communities of the southern part of the Carpathian Basin, the southeastern Alpine regions as well as the northwestern Balkans. It has also been established several times, that the river served as an essential route over which local elites were able to maintain contacts, exchange or trade relations and possibly political alliances during the Early Iron Age. The example of the Sremska Mitrovica finds indicates that this could have been the case with the newly emerging elite in the late 6th century BC.

In addition, the general importance of this waterway – the Sava corridor as it has been recently referred to – at that time is reflected by another, more robust body of evidence comprising the Certosa V type fibulae, whose distribution area stretches from Etruria to the Iron Gates. By mapping the occurrences of such fibulae we can see that the Sava played a decisive role in the proliferation of these dress elements east of today’s Slovenia. It is, in fact, possible to estimate in terms of sheer numbers how essential the river, or more precisely, the communities living along this waterway

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32 Teržan 1977a, 375.
34 Jerem 1974.
35 Vasić 1999, 78.
36 This shows great similarity with the silver foil beads found among the items of the Kruševica assemblage (Sremska Mitrovica 1983, Tab. 4, 4–6.)
38 Vasić 1971, 1.
Fig. 1. Selection of the finds recovered from the Beremend burials. A: Grave 2; B: Grave 1. (No. 9: after Jerem 1973, Abb. 5,5)

1. kép. Válogatott tárgyak a beremendi sírok mellékletei közül. A: 2. sír; B: 1. sír. (No. 9: Jerem 1973, Abb. 5,5 után)
could have been in the distribution of Certosa V type fibulae. At the same time, through the geographical patterns of their distribution, these fibulae allow a slight glimpse into what the network of relations and interactions in which the elites of the communities in southern Pannonia maintained and participated in could have looked like.

Geographical distance could have been a severe constraint of interaction, and hence it is reasonable to assume that the distribution of products or ideas over large distances took place through interactions and exchanges between local intermediaries, in other words, through actors in close geographical proximity to one another. By applying proximal point analysis to the sites mapped, it is possible to construct with this baseline assumption a hypothetical route network through which the fibulae could have spread. In this model, the vertices are the sites of Certosa V brooches and every node is connected to its nearest neighbour (Fig. 3). I have chosen the smallest $k$ such that a network emerges that includes all sites ($k = 4$).

The significance of the vertices in a network is usually expressed with various centrality measures, among which betweenness centrality stands out as a way of quantifying the importance of the nodes in the communication between other pairs of nodes. As the table in the above figure suggests, among the nodes of the network, the vertex corresponding to the Sisak site has the largest betweenness centrality value, but this is certainly not the only site situated along the river Sava. Four of the ten largest betweenness centrality scores are associated with sites located along this waterway. Furthermore, two happen to be linked to sites between the Sava and the Danube.

Both of the latter are located in the vicinity of today’s Vinkovci. Unfortunately, the late Hallstatt-period items from these sites are without documented context and have to be considered stray finds, which might indicate certain weaknesses of this model. However, the area and the surroundings of Vinkovci have proven to be essential in understanding the cultural processes of the southern Pannonian region in the period between the late 6th century and the beginning of the 4th century BC. The burial with a rich set of dress elements found at the Vinkovci-Silos site, a similar assemblage near Novi Jankovci along with the grave finds near Vučedol made it clear that the eastern part of Slavonia shows strong cultural ties towards the Srem region as well as towards southern Transdanubia. It seems that these ties remained intact during the 5th century BC, indicated by the Vinkovci-Nama and Szentlőrinc cemeteries. The relatively large betweenness centrality value of the Vinkovci-Dren site,

45Newman 2010, 185; Estrada–Knight 2015, 152.
46Dizdar 2019.
49Majnarić-Pandžić 2003, 500.
or in other words, the significance of the surroundings of Vinkovci in this network, derives partly from the fact that the sites in eastern Slavonia constitute a bridge towards Transdanubia, as far as the network discussed here is considered.  

SIMILARITY NETWORKS OF LATE HALLSTATT-PERIOD COMMUNITIES

It must be acknowledged that the model discussed so far does not provide much more information than a simple distribution map. Although it can be seen that the most likely route for the eastern spread of Certosa V fibulae – and Certosa fibulae in general – followed the river Sava, the relationships depicted in the model presumably have a rather heterogeneous cultural and social background, as well as cultural, social, and probably transactional subject matter. The reason for this is that the model does not take the archaeological record into account apart from one group of objects and its geographical distribution. For example, it ignores the fact that Certosa V-type fibulae, like other Certosa types, have become defining elements of a characteristic, well-recognized, hybrid dress combination in the southern Pannonian region at the end of the 6th century BC.  

The latter assumption is proved by the artefacts from Grave 1 in Beremend, which include elements of the characteristic dress combination: astragal belt, Certosa fibulae (types Ib and 13), glass paste and amber beads (Fig. 1, B). 

The sites of eastern Slavonia and those of the Srem district seem to be hubs of East–West contacts not only in the latest stages of the Hallstatt period, but even earlier, in the Early Iron Age. This is clearly shown by the node concentration of the characteristic motifs of the Basarabi style in named regions (Eibner 2001).
One of the two above-mentioned burials found south of Beremend (Grave 2) contained grave goods that, taking into account the representative patterns of the Dolenjska group in Slovenia and the Central Balkans, suggest an outstanding social status of the deceased.\(^{53}\) The two burials in Beremend were located close to each other, with a strictly parallel orientation,\(^{54}\) implying that there may have been a close, yet difficult-to-determine social connection between the buried persons. More importantly, however, a silver bead with a granulated decoration has been found among the funerary equipment of Grave 1, the parallels of which can be recognized mainly among objects from the Balkan princely graves.\(^{55}\) An important example of a similar assumption is the Sremska Mitrovica burial, in which the combination of an astragal belt and Certosa V type fibulae was complemented by a necklace composed of gold wire coils and gold beads.\(^{56}\) Another example is an assemblage recently found during an illegal excavation, probably also from the Šzerémég region.\(^{57}\) According to the published photo, the ensemble of fibulae, beads and astragal belt segments was complemented by a chain with cylindrical elements made of silver wire, coiled in a characteristic pattern, the analogues of which are present among the objects of the Kruševica assemblage, considered a princely find in the Balkans.\(^{58}\)

While these examples may give the opposite impression, precious metal jewellery should not be considered a standard element of a characteristic costume or “Beremend-type” burials.\(^{59}\) The data listed in the table below confirm the previous statement that the essential elements of this costume are: Certosa fibulae, astragal belt, and glass paste beads. The sites listed in the table represent both the regions to the South and North of Beremend (Tab. 1).

The data listed in the table suggest that the recognized characteristics of the dress combination stem in part from the homogeneity of the cases. The composition of the grave goods containing the costume elements in question shows a high degree of similarity, almost a kind of standardized pattern in the region between the rivers Kapos and Sava, especially if we disregard the typological differences of the Certosa fibulae.\(^{60}\) The similarity of the assemblages found in the graves can be quantified using several similarity measures. In the present case, the composition of the funerary equipment is determined with the help of the so-called Jaccard Index, which is the quotient of the intersection and union of the sets of types found in the two graves.

Based on the sites presented, the characteristic “Beremend-type” dress combination appears at the end of the 6th century BC, in parallel with, and presumably not independently of, the emergence of the supposed elite behind the finds from Beremend and Sremska Mitrovica. It is uncertain, however, to speak of elites in cases when these easily identifiable, high-prestige objects are missing from the characteristic dress elements. Another question is how to identify the elite that organizes long-distance relations north of Beremend. Going further, can we tie to the prominent strata of local communities the individuals who were buried with this characteristic costume, and especially the astragal belts?

Regarding these issues, M. Dizdar and A. Tonc caution against individuals buried with astragal belts necessarily being counted among the elites of communities.\(^{61}\) Answers to these questions are also difficult to formulate because only a handful of grave finds came to light from the 6th–4th centuries BC in the area between Lake Balaton and the Sava, and most of them are known from a highly restricted context. No example can be mentioned in which it could reasonably be assumed that the entire cemetery was excavated.\(^{62}\)

Currently, the second largest excavated late Hallstatt-period cemetery north of the Drava is located at the Alsónyék site.\(^{63}\) Among the late Hallstatt burials identified in 2008 and 2009, two contained essential elements of the characteristic costume, giving an exceptional opportunity to examine the question raised in the context of a – partially excavated – cemetery, taking several factors into account (Fig. 5).

In the diagram showing the extent of the burials\(^{64}\) and the number of grave goods\(^{65}\) in the Alsónyék cemetery, two groups are distinguished based on the latter. In one group the number of objects does not exceed three, in contrast, there is a group of burials to which more than six objects appear.

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\(^{53}\)Evidence for this assumption is provided by the silver fibulae of the Novi Pazar type, usually associated with high status as far as the Iron Age communities of the Balkans are considered (Blečić Kavur–Mlčević-Capek 2011, 42); as well as by the so-called sceptre made of a bronze sheet which resembles those of which sceptres from Beremend and Sremska Mitrovica. It is uncertain, however, to speak of elites in cases when these easily identifiable, high-prestige objects are missing from the characteristic dress elements. Another question is how to identify the elite that organizes long-distance relations north of Beremend. Going further, can we tie to the prominent strata of local communities the individuals who were buried with this characteristic costume, and especially the astragal belts?

\(^{54}\)Jerem 1973, Abb. 2.

\(^{55}\)Палавестра 1984, 67; Potrebica–Dizdar 2014a, 156.

\(^{56}\)According to J. Brunšmid, it cannot be ruled out that the dress was complemented by some amber beads found somewhat later than the above listed items (Brunšmid 1902, 75).

\(^{57}\)Filipović–Vasić 2017, 339.

\(^{58}\)Сребрени–Вукадин 1988, Sl. 2.

\(^{59}\)Soós 2020, 417.

\(^{60}\)Based on well-documented graves with the characteristic attire, Certosa fibulae, even of different types, tend to be worn in similar numbers and in similar arrangement. Hence, it cannot be ruled out that the clothes they held together might have been fashioned similarly.

\(^{61}\)Dizdar–Tonc 2018, 58.

\(^{62}\)Currently, there is one entirely excavated cemetery in the region and period under consideration, in Szentlőrinc, Baranya County, Hungary. However, not one burial there contained the characteristic dress elements (Jerem 1968).

\(^{63}\)Soós 2021.

\(^{64}\)In addition to the grave goods, the dimensions, even the area of the graves, are also worth taking into account when dealing with the question of inequality based on funerary data (Yu et al. 2019).

\(^{65}\)The components of the belts and necklaces were recorded in the database on a case-by-case basis. In the case of urn burials, I also included the vessel containing the ashes among the grave goods.
## Tab. 1. Data about "Beremend-type" burials

<table>
<thead>
<tr>
<th>ID</th>
<th>Site</th>
<th>Grave no.</th>
<th>Age</th>
<th>Disturbance</th>
<th>Sex</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beremend</td>
<td>Grave 1</td>
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<td>N/A</td>
<td>N/A</td>
<td>János 1973</td>
</tr>
<tr>
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<td>Palę-Gyapa</td>
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<td>35–50 years</td>
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<td>N/A</td>
</tr>
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<td>Szezdár</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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<td>Alsó-Páty</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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</tr>
<tr>
<td>8</td>
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</tr>
<tr>
<td>14</td>
<td>Besojić</td>
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<td>N/A</td>
<td>N/A</td>
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</tr>
</tbody>
</table>

### Notes
- **ID**: Identification number
- **Site**: Name of the site
- **Grave no.**: Number of the grave
- **Age**: Age of the burial (if known)
- **Disturbance**: Presence or absence of disturbance (N/A for unknown)
- **Sex**: Sex of the burial (if known)
- **Reference**: Reference for the burial description
An example of the characteristic dress combination of an astragal belt, beaded necklace and Certosa fibulae in the Alsónyék cemetery is the assemblage of the Grave 2. The largest amount of metal objects in this cemetery has been found interred with this person, deceased at the age between 35 and 50. However, the largest number of grave goods is attributed to another burial, Grave 8. The *maturus*/*senium* individual in Grave 8 was buried with a remarkable number of jewels, including three Certosa V type fibulae, six penannular rings of thin bronze wire, and amber and glass paste beads, the latter in large quantities (Fig. 6). It is worth briefly mentioning the penannular rings with a decoration imitating twisting (Fig. 6, 6–7). Similar objects were found in Transdanubia from Grave 2 in Beremend, but bent from a twisted silver wire and a similar jewel also came to light in one of the burials in the Szentlőrinc cemetery. However, in large quantities, this jewellery is known south of the Drava and the Sava, especially in what is now Bosnia and Herzegovina.

Even disregarding the small size of the sample, we face the question of whether the separation of the two groups signals social inequalities alone, i.e., whether more equipped burials belonged to the elite members of the Alsónyék community or communities. The symbols in the lower-left corner of the diagram above indicate the burials of young children in several cases, thus the number of grave goods may correlate to some extent with the age of the deceased. The position of Alsónyék Graves 4 and 11 on the diagram, with *adultus/maturus* individuals, only seemingly contradicts this suggestion, because these interments were subjected to disturbance that could have led to the removal of a significant portion of the finds. The brightest example of this is Grave 11 (Fig. 7), where the entire upper body of the deceased was missing, only a glass bead and two Certosa V type fibulae remained, implying the original wealth of the burial. The graves of the adult population in Alsónyék justify Babić’s and Palavestra’s proposal that burials of the late Hallstatt communities in southern Pannonia are to some extent characterized by general affluence, except children’s graves and cremation burials, but the adverse effects of disturbances need to be reiterated.

Returning to the example of Grave 2 in Alsónyék, if we look for the most easily identifiable examples of the southern Pannonian elite based on burial data, Grave 2 with the characteristic costume attests only one way that a prominent member of the community could have been identified in their burial. Graves 1 and 2 in Beremend suggest the same heterogeneity of display. Thus, merely defining the southern Pannonian elite along individuals buried with astragal belt, Certosa fibulae, and strings of beads would be an erroneous approach.

Nevertheless, the examples from Beremend and Sremska Mitrovica still indicate a connection between members of the newly formed elite and individuals buried in characteristic costumes. A more recent example is Grave 58 in Tolna-Mőzs, containing four golden beads in addition to the usual costume elements, although these are lacking either granulation or other types of decoration, which presupposes connections with the Balkans. Therefore, if the network generated from the proximal point analysis of the distribution of Certosa V fibulae is thought to be somewhat suitable for depicting interactions between communities in the late 6th century and the first half of the 5th century BC, individuals buried with the characteristic costume can provide insight into the nature of the interactions that make up this network.

The spatial characteristics of the phenomenon of graves with the characteristic costume and their relation to the network based on the distribution of Certosa type V fibulae can be effectively represented by an (archaeological or general) similarity network. According to this approach, the degree of similarity found between specific attributes of archaeological contexts indicates the frequency and intensity of interactions between individuals and communities...
assumed by these contexts. This approach provides not binary but weighted networks, i.e., instead of presence/absence of relationships between archaeological contexts, the edges (links) between them are characterized by a similarity value calculated from the finds. The higher the similarity value, the greater the probability of real interactions between the communities associated with the archaeological contexts connected by a given edge. Filtering out edges with a lower weight, i.e. similarity value, from the network reduces the number of false positive edges, but not all of these can be eliminated. Thus, in an examination of these graphs, instead of individual edges, general trends in the system should be monitored and evaluated (Fig. 4).

In recent research, archaeological similarity networks are usually based on the ceramic and lithic finds of settlement sites but there are also examples of smaller spatial units forming the nodes of the investigated networks.

In the case of the late Hallstatt group in southern Pannonia, settlement sites provide little assistance in studying interactions between communities, as they are known only in negligible numbers and the intensity of their research varies. Thus, for the time being, we rely on the mortuary record, a source with great potential in the study of systems containing large-scale spatial connections, especially those related to the elite. A valuable basis for interpreting the phenomenon of burials with the characteristic dress combination is the archaeological similarity network (Fig. 8) created from assemblage data, in which similarity values calculated using the Jaccard Index presented above weigh the edges of the network.

In the figure above, only edges with a similarity value higher than 0.4 are shown, however, the density of the network, i.e. the ratio of the actual edges to the possible edges, is 44% even when using this relatively high threshold. This value indicates a remarkable homogeneity of the burials, even in cases where they are separated by a large geographical distance.

The homogeneity of the costume and the conservative and standardized design of its visually dominant element, the astragal belt (Osijek variant), suggest that this dress had a meaning that could be decoded by socially and also geographically distant communities, which contributed to the success of inter-community interactions, even in the long-term. If my conclusion above is correct about the strong association between the characteristic costume and the contemporary elite, then the design and use of the visual code represented by this costume was primarily related to those

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74 Hart 2012, 133; Mills et al. 2013, 185; Östborn–Gerding 2014.
77 Giomi–Peeples 2019; Mazzucato 2019.
78 Deicke 2020.
79 Filipović–Mladenović 2017, 160.
80 As Table 1 suggests, astragal belts tended to comprise more than one hundred segments. As a result, their length should have commonly measured well above 1 meter.
81 Arnold 2008, 380–381.
Fig. 6. Grave 8 of the Alsónyék cemetery, with selected finds associated with the burial

6. kép. Az alsónyeki temető 8. sírja, válogatás az előkerült leletekből
who had been explicitly interested in maintaining a relationship beyond everyday interactions and signalled their participation in the system with material signs. Given that the Szerémség region and eastern Slavonia where this characteristic “hybrid” costume probably had developed,82 we assume that the consolidating communities of southern Transdanubia increased their attempts to establish relations with the communities of these regions at the end of the 6th century BC. The individuals buried in the costume in question probably took part in this process, expressing a group identity or membership with their dress. Communities in the region between Kapos and Sava and their prominent members have been able to use this identity to signal and express their connectedness, especially on occasions of community reorganization,83 such as funerals. However, this approach is not entirely new.84

According to Marko Dizdar and Asja Tonc, astragal belts were worn primarily by adult women indicating their married status.85 Available physical anthropological studies are exceedingly rare, although they do not refute this proposal. Nor should my results necessarily contradict the views of these authors, insofar as marriages played an important role in regional and interregional relations,86 which is indicated in the archaeological record of the Central European Hallstatt period.87

The material of the Alsónyék cemetery in particular, but also the Beremend site,88 indicate that the graves with the characteristic dress combination were associated with relatively large, formal cemeteries, the use of which can be traced from the late 6th to the 4th century BC. Thus, we consider these communities to be stable groups for whom it may have been worthwhile to represent regional networks at the event of the funeral.

The similarity between Beremend-type burials applies not only to the composition of the finds but also to the ele-

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82Dizdar 2020, 206.
83Earle 2018, 163.
84Mainarić-Pandžić 2009, 237.
85Dizdar–Tonc 2018, 57–58.
86Earle 2018, 165.
87Teržan 1995, 100; Metzner-Nebelsick 2019, 369.
88Jerem 1973, 74.
ments of the funerary rite, as well as the design and location of the graves. Especially among the find-spots with a validated location in southern Transdanubia, the burials with the characteristic costume were placed along the region's larger rivers, at the edge of their floodplains. The assemblages found near Sremska Mitrovica were also linked to sites near the banks of the Sava. This observation is supported by the burials of Vučedol and Vinkovci, and perhaps Kuzmin as well, which was found between Kuzmin and Bosut, 2–5 km from the present-day river Sava. The Adaševci burial and the 1st burial of the 15th mound in Brezjak appear to be exceptions.

The spatial distribution of Beremend-type burials and their similarity connections suggest that the main axis of the social interactions to which the investigated phenomenon refers is designated by the rivers and, north of the Srem region, mainly the Danube. Since human communities have also been able to use constructed markers to highlight waterways settlements. In addition, flood events are recorded to have reached the northern environs of Adaševci (SavaGIS Geoportal, http://www.savagis.org/map, Access: May 1st 2021). In this way, the situation is quite similar to the case of the Beremend site.

This grave is dissimilar to the Beremend-type burials due to a number of other reasons. First, it proved to be a secondary burial in a Bronze Age tumulus. Second, it contained two massive bronze bracelets and two spindle whorls, items that do not appear among the grave goods of any other Beremend-type burials. In addition, the assemblage lacks any fibulae let alone of the Certosa type (Bulatović et al. 2017, 71–73).

89 Soós 2020, 414–415.
90 Brunšmid 1902, 69.
92 Brunšmid 1902, 71.
93 According to the information provided by M. Hoernes, the burial has been found between Šid and Adaševci, thus at least some 18 km from the present banks of the river Sava, and some 5 km from today’s course of the river Bosut (Hoernes 1901). However, the geomorphological boundary between the floodplains of the Sava and its tributary, the Bosut runs between the two modern
that are important to them,\textsuperscript{95} the location of cemeteries probably emphasizes the importance of rivers in these cases.

Besides Beremend-type burials with the characteristic costume, their similarity network, and Certosa V fibulae, the special significance of the Danube, presumably distorting the interactions between communities towards the north, and also the lower course of the Sava can be assumed based on a broader source base, the distribution of finds related to the Osijek-variant astragal belts (Fig. 9).

Here it is worth mentioning the weak points of Marko Dizdar’s and Asja Tonc’s assumption regarding the significance of wearing astragal belts. The burial rite and finds of the Stubarlija cemetery excavated on the Titel plateau fit well with burials from the 5th century BC in the region between the Kapos and Sava streams.\textsuperscript{96} It was the first cemetery in the region to contain graves dating back to the 5th century BC with Certosa V type fibulae under documented conditions. Among the individuals buried in the five recovered graves, physical anthropological studies identified three adult women, however, their grave assemblages lacked astragal belt elements, but not other jewellery of the characteristic costume (Certosa type V fibulae, various glass paste beads).\textsuperscript{97}

In addition, the Stubarlija cemetery is closely linked to the burial sites in eastern Slavonia and southern Transdanubia by the burial rite and other types of grave goods (such as the so-called kantharoi and cowrie shells). Consequently, it is reasonable to assume that in some respects they are part of the same system, which can be called either the Srem group\textsuperscript{98} or, rather, the late Hallstatt group in southern Pannonia.\textsuperscript{99}

However, only a very small part of this system of parallel, overlapping and subordinate networks is currently detected (Fig. 10).

**SPHERES OF INTERACTION IN LATE HALLSTATT-PERIOD SOUTHERN PANNONIA**

However, based on the available information, it can be assumed that the interaction and integration of the southern Transdanubian communities and their prominent members have been unequally influenced by the rivers in the late 6th and early 5th centuries BC, because waterways allow for fast traffic and transportation.\textsuperscript{100} An important recognition in this respect is that the amount of bronze placed in the graves of different cemeteries in the eastern half of the Bronze Age Carpathian Basin correlates with how important or central a given cemetery had been located in the Tisza drainage system. Thus, different locations offered different opportunities for the communities to access bronze raw materials through the waterways.\textsuperscript{101} For the communities in southern Transdanubia at the end of the 6th and the beginning of the 5th century BC, the proximity of the Danube may have been a distorting factor to the advantage of the communities in southern Transdanubia seeking contacts with the elite consolidating in the area between Beremend and Sremska Mitrovica.

Beremend deserves special attention in this case, where a close but difficult-to-determine relationship between the two excavated graves is assumed. The interpretation of the two burials points to different directions regarding the social networks of the region. Grave 1 yielded the characteristic costume (Fig. 1, B), which, according to my proposal, is a visual repertoire that fits into a regional system of relations between the communities that inhabited the area between the rivers Kapos and Sava. The presence of the costume can signal the integration of the Beremend community into that network, perhaps through the individual buried in Grave 1. This possibility is primarily reflected in the more spectacular elements of the costume. At the same time, the silver bead among the details that are difficult for socially distant observers to discern identifies the deceased as a member of a broader system.

The spectacular elements of the costume in Grave 2 can also be interpreted along the latter aspect (Fig. 1, A). Instead of an astragal belt, the deceased wore a composite belt of openwork plates and bronze spirals, presumably one of the latest pieces of its type.\textsuperscript{102} These belts spread mainly in the area between the rivers Velika Morava and Isker,\textsuperscript{103} but the nearest parallel of the specimen found in the Beremend burial is known from Donja Dolina.\textsuperscript{104} Another highlight of the tomb is a bent bronze plate wand or sceptre, a type primarily known from the elite graves of the Dolenjska group in Slovenia.\textsuperscript{105} In addition to these artefacts, Novi Pazar-type fibulae and twisted silver penannular rings also appear as part of the funerary attire. This distinctly unique, non-canonized composition indicates a system of relationships broader than the phenomenon indicated by the distribution of the graves with the characteristic costume. This funerary costume as a social diacritic, displaying seemingly archaic (composite belt) and specifically new elements (Certosa type V fibula)\textsuperscript{106} and both precious metal and bronze objects, is presumably intended to support uniqueness and social distinction.\textsuperscript{107}

Thus, in the similarity network created based on burials

\textsuperscript{95}O’Shea 2011, 162.
\textsuperscript{96}Medović 2007; Dizdar 2015, 53.
\textsuperscript{97}Medović 2007.
\textsuperscript{99}Γαπανιν 1977, 80; Teržan 1977b, 20; Dizdar 2010, 299; Kemenczei 2012, Abb. 2; Potrebica–Dizdar 2014b, 135; Dizdar 2015.
\textsuperscript{100}O’Shea 2011, 162.
\textsuperscript{101}Duffy 2020.
\textsuperscript{102}Dizdar 2020, 197.
\textsuperscript{103}Vasić 1971, 1.
\textsuperscript{104}Truhelka 1904, Taf. 40.
\textsuperscript{105}Schumann 2015, 228; Tecco Hvala 2012, 341.
\textsuperscript{106}Currently, Grave 2 is dated to the late 6th and early 5th centuries BC (Teržan 1990, 159; Metzner-Nebelsick 2002, 418; Potrebica–Dizdar 2014a), hence it is supposed to be among the earliest appearances of Certosa fibulae in the southern Pannonian region.
\textsuperscript{107}Schortman–Urban 1987, 71.
Fig. 9. The distribution of specimens of the Osijek variant of the astragal belts (after FILIPOVIC–MLADENOVIC 2017, with supplements)

containing Certosa type V fibulae (threshold = 0.4), the marker of Beremend Grave 2 remains without edges (Fig. 11). This burial helps to capture the extent to which the elites of southern Pannonia were integrated into a Prestige Good Network\(^\text{109}\) in the late 6th and early 5th centuries BC. A similar assumption is supported by the stray finds from the vicinity of Sremska Mitrovica. Based on the evidence, it can also be recognized that the dominant organizing axes of the relationship system based on the exchange of prestige objects have been the river Sava as a pivotal channel of communication in the era, and other north-south-oriented river valleys of the Balkans.\(^\text{110}\)

However, based on the graves examined, astragal belts, Certosa fibulae, and necklaces made of glass and amber beads appear to be elements of a canonized costume, implying that the Danube had been an important axis of a system based on more intense and presumably more frequent interactions in the period under discussion.\(^\text{111}\) The appearance of this costume from the lower reaches of the Sava up to the line of the Kapos stream indicates the development of a visually easily identifiable (well-noticeable) stylistic similarity in the clothing of certain members of the communities, which, due to its high visibility, underlines the importance of inter-community interaction, and implies the existence of

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\(^{108}\) The grave begins to have linkages when the threshold value is lowered, naturally, because all vertices have at least one common attribute, i.e., the Certosa fibulae of Type 5.

\(^{109}\) Chase-Dunn–Hall 1997, 52.

\(^{110}\) Potrebica 2008.

\(^{111}\) References to a similar phenomenon in the literature can be found in connection with the Late Bronze Age and the early Hallstatt period, due to the similarities in the find material of the sites in the area between Dunaföldvár and Dalj (Patek 1968, 24; Ložnjak Dizdar 2015, 38).
regional social identity.\textsuperscript{112} Although there are currently relatively few find types associated with this phenomenon, the limits of its distribution can be seen. As an example, both Certosa fibulae and bronze pegs belonging to astragal belts have been found during the excavations of the Donja Dolina cemetery in the early 20th century, but not together, in the same grave assemblages. The discussed phenomenon can be identified according to the model of Ch. Chase-Dunn and T. Hall as an archaeological residue of a Political / Military Network,\textsuperscript{113} which is of smaller scale than the aforementioned Prestige Goods Network, restricted mainly to the area along the Danube, bordered by the Kapos and Sava from the North and South, respectively.

\textsuperscript{113}Chase-Dunn–Hall 1997, 52–53.

\textbf{CONCLUSIONS}

The archaeological record of the 6th–5th centuries BC in southern Transdanubia, eastern Slavonia and the Szeremség regions is limited and mostly originates in excavations from the late 19th and early 20th centuries. Therefore, the applicability of network models used in this paper is also restricted. With the currently available find material, the network approach can be used to represent the spatial relationships of certain multidimensional phenomena of the finds\textsuperscript{114} rather than to analyze the phenomena. The most important obstacle is the small number of excavated settlements, especially in southern Transdanubia. For the time being, settlement material

\textsuperscript{114}Östborn–Gerding 2014.
from the site Szajk cannot be compared with other settle-
ment remains in this region. Thus, among other things, the
question has yet to be answered whether the communities
along the Danube were more likely to be integrated into the
system of relationships gravitating towards the Szerémség re-
gion, as the burial record suggests. Possibly, the question
itself is flawed, as the identities represented in the mortuary
context may have been different from those that were rele-
vant in the interactions within and between the settlements.

The finds of the Szajk settlement, about 10 km from the
present-day Danube riverbed, especially the oinochoe-type
jugs found there, suggest that the community had connecti-
tions to the South beyond the Drava-Sava area in the late 6th
and early 5th centuries BC, similar to the situation assumed
by the finds from the Beremend burials.\footnote{Gábor 2009; Gáti 2014, 118–119.}

The two burials discovered on the outskirts of Beremend
in the early 1960s yielded material from the same period.\footnote{Jerem 1973.}
The graves were found close to each other, presumably well
separated from the rest of the cemetery,\footnote{Jerem 1973, 72.} which suggest a
close association between the two buried individuals. Howev-
er, the grave goods still show significant differences, which,
in a broader sense, leads to the recognition of two systems of
relations among the consolidating communities of southern
Pannonia, based on different mechanisms and interactions.

The astragal belt, various types of Certosa fibulae, glass
paste and amber beads found in Grave 1 form a characteris-
tic dress combination, which is well documented along the
right bank of the Danube, from the Kapos stream in the
North down to the lower Sava in the South. The similar ap-
pearance of this costume and its visually dominant element,
the astragal belt throughout this relatively large area is strik-

ing. Based on the information exchange theory, this costume
probably did not play an important role in interactions
within a community, but in establishing and maintaining
contact between socially distant participants. As burials with
such costumes have been unearthed in close connection with
the larger rivers of the southern Pannonian region, there is a
possibility that proximity to waterways and especially the
Danube in the north may have affected the ability of com-

munities to integrate into this system differently.

In contrast, the attire from Grave 2 which blends high-
prestige objects of archaic appearance and also specifically
new, renders the Beremend community in a more encam-
passing but looser network of connections. One of the major
organizing axes of this system may have been the river Sava,
and as seems to be emphasized by the spread of different Certosa
types and the outstanding importance of the settlement and
cemetery of Donja Dolina.\footnote{Potrebica 2008, 196; Blecic Kavur-Jasarevic 2016, 226.}

Conversely to the network connecting the communities
in the area between the Kapos and the Sava, the distribution
of high and medium prestige objects is well attested in the
latter system, but these objects appear in different social
centers from region to region. Due to the scarcity of settle-
ment finds, these contexts can be identified mainly in the si-

milarities and differences in the burial record, the composi-
tion of funerary costumes and grave goods. In the regions of
eastern Slavonia and the Szerémség, these objects fit into a
new concept, a “new, hybrid costume.”\footnote{Dizdar 2020, 205–206.}

Remarkably, howe-
ver, this concept was able to spread successfully without re-
interpretations in the approximately 200 km long strip of
land between the Kapos and Sava streams at the end of the
6th and the first half of the 5th century BC, indicating a system
of relations based on intensive interactions. The rivers, espe-
cially the Danube, which the contemporary communities
highlighted by the location of their cemeteries and making
them part of their social landscape, certainly played an im-
portant role in this system.

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Folyók mentén?
Csoportidentitás, interakciók és a folyók szerepe a késő Hallstatt-kori dél-pannoniai régióban

Soós Bence

Nehezen vitatható, hogy a vaskori Észak-Balkánon a Száva völgye kiemelkedő jelentőségű kereskedelmi és kommunikációs útvonalat jelentett. A Kr. e. 6. század végének és Kr. e. 5. század elejének összefüggésében a Certosa fibulák elterjedése alapján alkothatunk képet arról, hogy a délkelet-alpi területek és az észak-balkáni vidékek közösségei milyen módon alakítottak ki és tartottak fenn nagy távolságokat átívelő kapcsolatokat. Az utóbbi évtizedekben látványosan bővülő dél-dunántúli forrásanyagnak köszönhetően lehetőség mutatkozik annak felderítésére, hogy a vélhetőleg hasonlóan fontos szereppel bíró Duna milyen szerepet játszhatott ugyanabban az időszakban. Jelen tanulmány célja annak vizsgálata, hogy a Kárpát-medence déli területeinek Kr. e. 6. század végé és Kr. e. 5. század eleji temetkezései alapján a térség közösségei között milyen kapcsolatok és interakciós hálózatok rajzolhatók fel.