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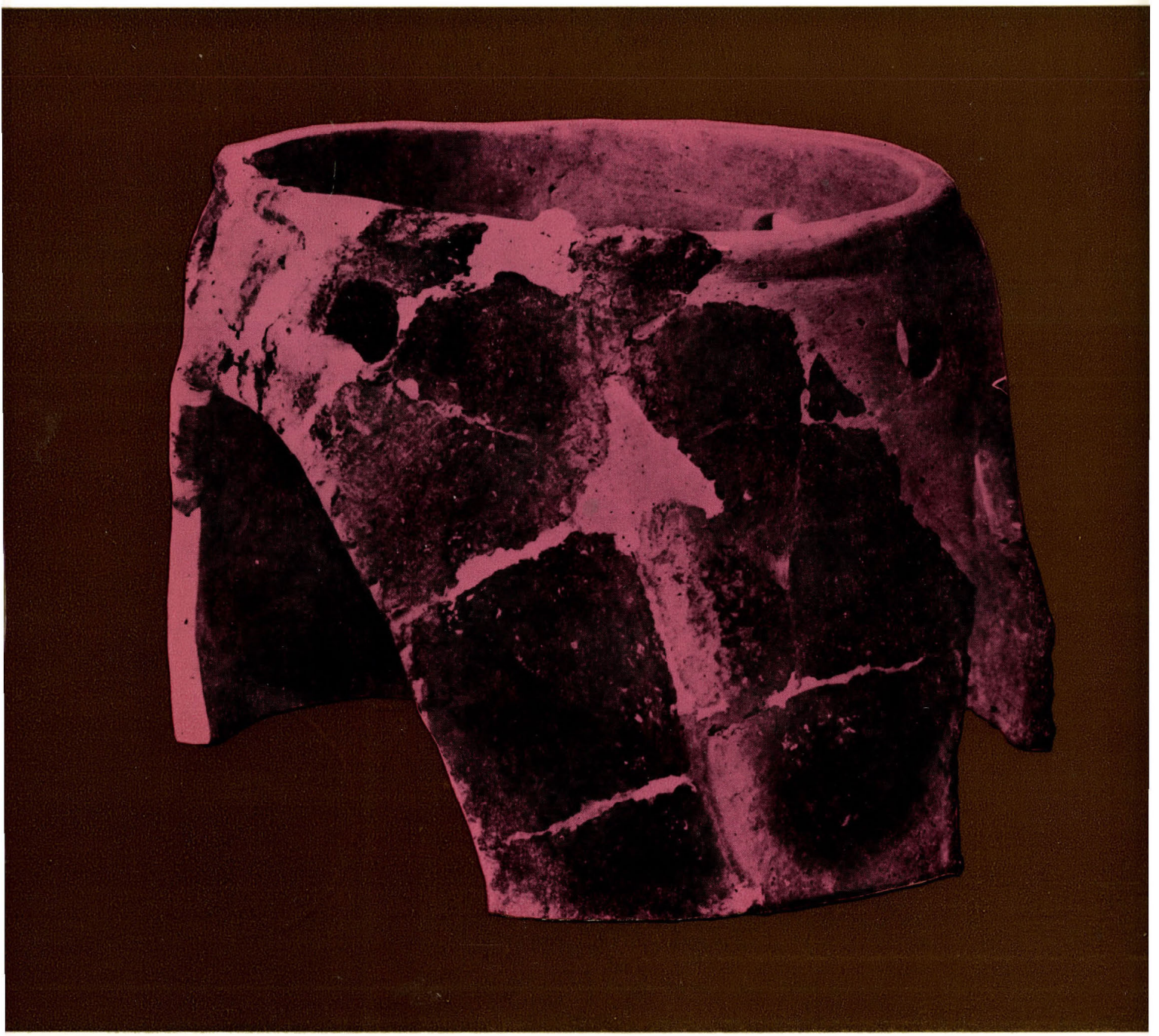
ISTVÁN ECSEDY

THE PEOPLE OF THE PIT-GRAVE KURGANS IN EASTERN HUNGARY



AKADÉMIAI KIADÓ, BUDAPEST

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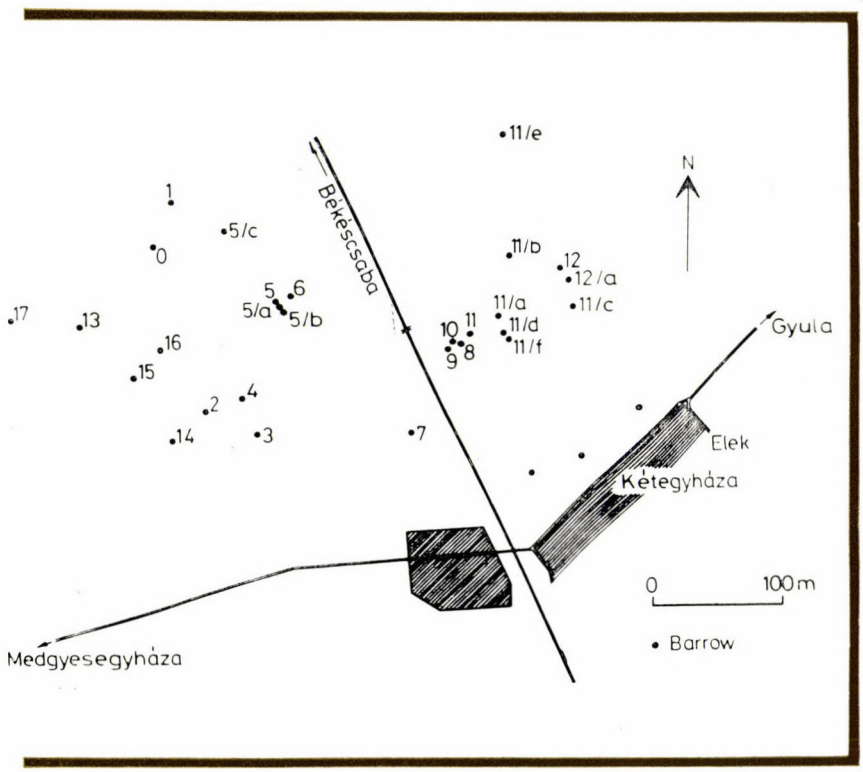
The present book discusses the relics of the ancient nomadic tribes of steppic origin in Eastern Hungary. These tribes were given different names like ochre-grave culture, pit-grave (Yamnaya) culture, kurgan culture, on the basis of the most striking features of the unearthed graves. The graves have been covered with barrows (kurgans) for four millennia. These so-called Cumanian barrows are characteristic of the landscape in the Tisza region. The analysis of the burials enables us to present some new viewpoints regarding the migration of the earliest Pontic nomadic tribes. Further it makes clear some historical problems and reveals the connections of the steppe people having decisive role on the development of their way of life.
The valuable contributions of experts of auxiliary sciences happily complete the volume.



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AEDES ACADEMIAE SCIENTIARUM HUNGARICAE
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ISTVÁN ECSEDY

THE PEOPLE OF THE PIT-GRAVE KURGANS IN EASTERN HUNGARY

With contributions by

SÁNDOR BÖKÖNYI, GYÖRGY DUMA, ANTÓNIA MARCSIK and DÉNES VIRÁGH

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To the memory of Gyula Gazdapusztai

CONTENTS

INTRODUCTION

The first excavations resulting in the characteristic graves of the Pit-Grave culture were preceded by a debate concerning the origin of the barrows and by a topographic and geographic investigation of the kurgans that are inseparable from the landscape of Eastern Hungary.[1] Because of the popular legends and beliefs about some of the barrows and also because some of these barrows have preserved old place-names, researchers of both ethnography and local history have dealt with their distribution.[2] Archaeological investigations have, from the very start, aimed at throwing light on the origin, and designation of the barrows. The results have soon disproved the view maintained by the geologist J. Szabó and his followers, who took the "korhányok" (= kurgans) on the Tisza–Körös region either for elevations of geological origin or specific relief forms which resulted from erosion.[3] The earliest, so-called central-pit method excavations that were restricted to the central part of the barrows are associated with the names of P. Frenyó, A. Jósa and L. Zoltai.[4] The reckoning and mapping of the "Cumanian barrows" of these regions also started in the first decades of our century.[5]

The burials, often found under several metres of earth, with modest grave furniture, contained in most cases a red paint clod of mineral origin and traces of some organic cover. Some of them were found below the remains of the wooden construction covering the grave. In the early phase of the archaeological investigations these burials were regarded as plundered graves of Migration Period chieftains.

Following the unearthing of several, apparently undisturbed burials, these kurgan-graves could be identified as a group having a uniform character but being of unknown origin.[6]

The most striking common elements of the ritual were the red pieces of ochre and traces of red paint, the placing of the dead on his back with the legs bent at the knee, their western orientation, and as established by Zoltai, the lack of grave furniture.[7] The latter phenomenon was especially surprising for the researchers because they took it for granted that the size of the "earth pyramid" had been designed to express and retain the social position of the deceased.[8]

The results of contemporary Russian kurgan excavations at the turn of the century led to the elucidation of the origins and undoubtedly prehistoric character of the "ochre graves".[9] The first prehistoric reconstruction, accepted as a basic concept even today, is attributed to V. G. Childe who connected the appearance of the "ochre grave" burials in Hungary with the westward invasion of the most ancient equestrian nomadic folk of Pontus.[10] In the course of the following three decades a number of studies were published on the relations between the steppe regions and the Central European Early Bronze Age. Their assumption of a significant migration which started from the east is based on the spreading of corded ware in Europe.[11] On the other hand, there was hardly any increase in the number of barrows unearthed in the Tisza region; and it was only in the 1960s that the study of the role played by the Hungarian "ochre graves" in prehistoric times began again, this time supported by the large amount of new data having been accumulated in international literature. It is F. Kőszegi who first called attention to the circum-

[1] For the early phase of the research of East Hungarian barrows see: Szabó 1859, pp. 175–187; Id. 1867, pp. 195–198; Rómer 1869, pp. 405–409; Id. 1878, pp. 103–159; Gyárfás 1870, pp. 33–42.
[2] Győrffy 1921, pp. 59–62.
[3] Frenyó 1889, pp. 53–57; Fenichel 1891a; Id. 1891b; Solymossy, 1895, pp. 417–419; Jósa 1897, pp. 318–325; Szeghalmi 1912, pp. 276–281; (Gárdonyi) G. Nagy, 1914, pp. 381–398, 452–453.
[4] Frenyó 1889; Jósa 1897; Zoltai 1907, pp. 24–29.
[5] Szeghalmi 1912; Zoltai 1938.
[6] See Kalicz 1968, p. 15
[7] Zoltai 1910, pp. 36–48.
[8] Tariczky 1906.
[9] Jankó 1896, pp. 134–137; Cf.: Kalicz 1968, p. 15.
[10] Childe 1929, pp. 138, 148–152.
[11] Their summary with further literature see: Kalicz 1968, pp. 15–16.

stance that from the end of the Bodrogkeresztúr culture until as late as the Hatvan culture a significant steppe influence could be traced in the Carpathian Basin, which in his opinion, was primarily due to the westward penetration of the "ochre grave" folk.[12] It is supposed by I. Bóna that the "ochre grave" folk of steppe origin reached the territory of Hungary after the burning up of the Cucuteni-Tripolye settlements, at the time of the prosperity of the Pécel culture; and, merging with the Pécel and later with the Zók population of southern origin, it took part in the formation of the Hatvan culture.[13] N. Kalicz in his monograph devotes a whole chapter to the steppe relationships of East Hungarian Early Bronze Age, and, on the basis of all available data, he renders a comprehensive study of pit-grave burials.[14] In his opinion, it was the penetration of the pit-grave folk (Yamnaya culture) that put an end to the Pécel culture in Hungary. On the basis of the barrow-building he attributes the significant social changes at the beginning of the Early Bronze Age to the impact of the new population of eastern origin. Accepting the view of Childe and Gimbutas he connects the Early Bronze Age corded ware, the Early Bronze Age tumulus graves in Eastern Slovakia, and the cremation burial of Szerbkeresztúr to the pit-grave burials, perhaps to the appearance of a steppe population directly following these.

It was Gy. Gazdapusztai who, with the starting of new barrow excavations continued to study the problem. (His untimely death prevented him from completing his excavations in Eastern Hungary.) In his studies on this subject he maintained that the first groups of the Pit-Grave culture arrived as early as the time of the Bodrogkeresztúr culture at the Tisza region with the bulk of the population following them later.[15] (In connection with the cord-pattern vessel of Szerbkeresztúr he pointed out that neither this nor the corded ware of Transylvania and Eastern Slovakia could be related to the typical pit-grave burials.[16]) In his opinion, the Pit-Grave culture in Hungary should undoubtedly be considered as a Copper Age culture, while the cord-pattern elements appear only as late as the Early Bronze Age.

On the basis of the results by the above-mentioned authors, the material obtained from the excavations (conducted partly by Gy. Gazdapusztai) we feel it necessary to sum up the problem once again. We have to remark that in many cases the material at our disposal allowed us mere assumptions only, the verification or modification of which can be expected from further excavation results.

[12] Kőszegi 1962, pp. 15–22.
[13] Bóna 1961, p. 10.
[14] Kalicz 1968, pp. 15–61.
[15] Gazdapusztai 1965a; Id. 1967a.
[16] Gazdapusztai 1965b, pp. 47–48.

THE EARLIEST ETHNIC GROUP OF STEPPE ORIGIN IN EASTERN HUNGARY

As already mentioned, according to Gy. Gazdapusztai the first groups of the Pit-Grave (Yamnaya) culture appeared in the Carpathian Basin as early as the Bodrogkeresztúr culture. This assumption was permitted by the grave found at the site Csongrád–Kettőshalom (halom = barrow in Hungarian) unearthed in 1962 by Katalin Nagy in the course of a rescue-excavation.[17] The grave was dug into a loess sand soil and there was no trace of an earth barrow. The pit shape and extension of the grave was indicated by a patch of ochre of E–W direction in the axis of which the man — oriented with his head towards West — was lying supine with the legs drawn up, in a sort of half-sedentary position. The arms, slightly flexed at the elbow, were placed near the body (Fig. 1 and Pl. 3.4–5). Between the upper arm and the ribs a 13.2 cm long obsidian blade with trapezoid cross section, around the drawn-up legs small copper beads made of curved copper plate and cylindrical shell beads, near the shoulder rather small disc-shaped limestone beads were found (Fig. 2). Near the left pelvis a major piece of ochre was found, placed on the ochre layer covering the grave bottom, in a pouch most possibly made of some leather or textile. Judging merely from the position of the body and the presence of ochre the burial cannot be regarded as a pit-grave one. In our opinion, it can be related only in a general sense to the steppe Copper Age. The elements of the rite and the *unit* of grave furniture described above can be found in the graves of the Marosdécse (Deçea-Mureşului) Copper Age cemetery; in a number of cases in the same position as those in the Csongrád grave.[18] The use of ochre different from that of the kurgans in the Tisza region also indicates the relationship of the two units.

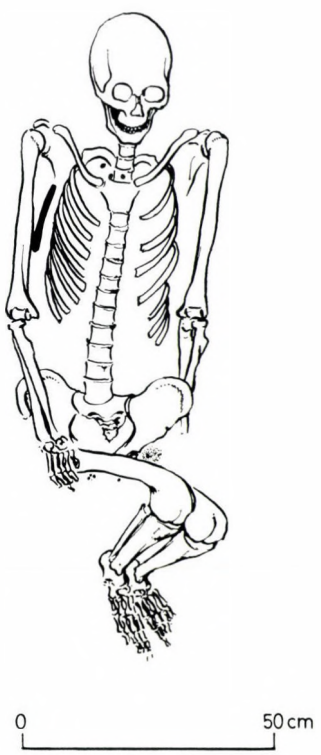

Fig. 1. Csongrád–Kettőshalom, grave 1

The most important prehistoric problem arising in connection with the Csongrád grave and the cemetery of Marosdécse is the relationship of the eastern part of Hungary with Moldavian and Ukrainian territories at the time of the Cucuteni–Tripolye cultures. The find units yielding the best parallels to the above-mentioned graves can be found in the Ukraine and are mostly to be put to the period called Srednii Stog II.[19] Thus, in the cemetery of Chapli and in the burials of Vinogradnii-Ostrov, in the case of the skeletons lying in a similar position, there occurred such characteristic elements as the string of beads made from Unio shells (found also in some Marosdécse graves).[20] It seems to be evident that the burial of Petro-Svistunovo[21] and the grave of Kainari dated by a Tripolye B-I vessel also belong to this group.[22] A number of studies mention the connections of the steppe cultures with the peasant cultures of the Balkans and Romania as proved by the Marosdécse cemetery, the horse head-shaped

[17] Gazdapusztai 1965a; Ecsedy 1973.
[18] Kovács 1944, pp. 7, 17–20.
[19] Garašanin 1961, pp. 24.
[20] Dobrovolskii 1954, pp. 106–108.
[21] Bodianskii 1968, pp. 117–118.
[22] Movsha-Tshebotarenko 1969, pp. 45–49.

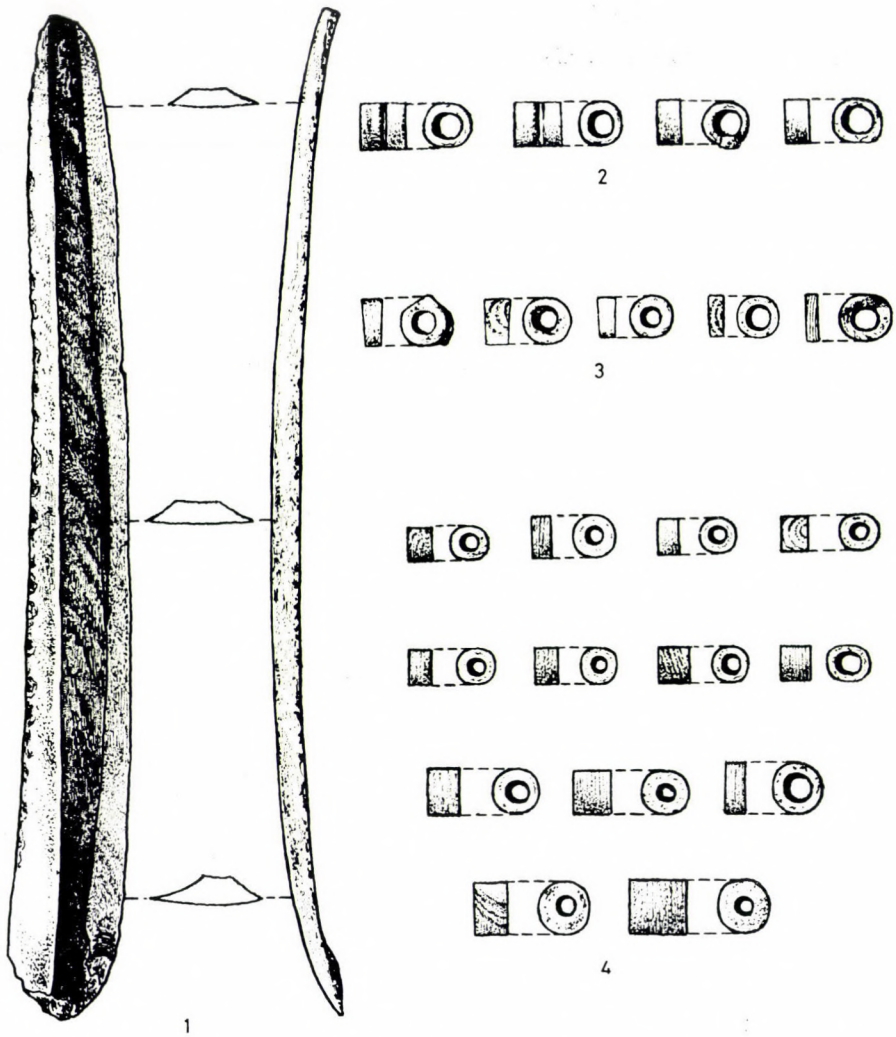

Fig. 2. Csongrád–Kettőshalom, grave goods of grave 1 (2, 4 : scale 2 : 1, 1, 3,3 : scale 1 : 1)

stone "sceptres" — the ochre grave of Casimçea — and the so-called Cucuteni "C" pottery.[23] These finds represent the early phase of the connection between the two economically and culturally different territories already present in the phase preceding the Usatovo culture, most possibly in Tripolye B-I (the end of Cucuteni A, or Cucuteni A-AB transition).[24] The burial unearthed near Suvorovo was similar in its rite (including the furniture) to the graves of Kainari, Petro-Svistunovo, Marosdécse and Csongrád. It is of great importance that a stone sceptre was also found in this grave.[25]

It should be mentioned, too, that from an anthropological point of view the Csongrád grave is related to the Srednii-Stog II–early Yamnaya material and it shows no affinity with either the Bodrogkeresztúr or the Baden culture. Some similarity can be observed between the material of the Tiszapolgár graves and the grave at Csongrád.[26]

On the basis of the above data, the prehistoric significance of the Csongrád grave can be summed up as follows. The burial has preserved the inheritage of a community of undoubtedly steppe origin that arrived at the Tisza region most probably at the very end of the Tiszapolgár culture or immediately after it. Its appearance is directly connected to the spread of "sceptres" dated from the end of the Cucuteni A period, to the appearance of type "C", Srednii-Stog II pottery in the Cucuteni settlements, and to the Marosdécse cemetery beginning at the same time and continuing in the Bodrogkeresztúr period. In our opinion this population cannot be identified with the early Pit-Grave culture in the Ukraine. Judging from the find material it should

[23] Comşa 1972, pp. 67–70; Danilenko–Shmaglii 1972, pp. 4–5, 12–13 (with further literature).
[24] Comşa 1972, pp. 67–70.
[25] Danilenko–Shmaglii 1972.
[26] Marcsik 1973.

be regarded as its direct, genetic precedent (Srednii-Stog II).[27] Consequently, its appearance in Hungary does not necessarily mean that the pit-grave population appeared in the Tisza region as early as the Bodrogkeresztúr period. The Csongrád grave can easily be distinguished from the group of pit-grave kurgans both typologically and chronologically.

The early migrations cannot be considered invasions. (The first penetration of the steppe population groups to Moldavia, to the Lower Danube region, Transylvania and the Tisza region took place at the time of the prosperity of the Copper Age cultures there.) Movements and minor migrations remained within the framework of interrelations and exchange of goods between the two economically different territories. This conclusion is justified by the Bodrogkeresztúr type copper axe-adzes of the Tripolye–Gumelnita cultures,[28] the Karbuna hoard,[29] the mutual occurrence of certain types of pottery,[30] the Tiszapolgár–Bodrogkeresztúr type grave-goods of Marosdécse and the fact, that the obsidian blade of the Csongrád grave is undoubtedly of Carpathian Basin origin. Thus, the process outlined here cannot be regarded as a short-lived penetration or invasion. This early movement starting from the steppe could not be so strong as to cause a break in local development. For the time being it cannot be proved that the hiding of some treasures belonging to the Tiszapolgár–Bodrogkeresztúr phase was in connection with these events. (The depot-finds of Karbuna,[31] Habasesti,[32] Erősd[33] and Hencida[34] are situated on territories that may be considered as having been in connection with the westward movement of Srednii-Stog II groups.) It can be assumed that it was metallurgy and the Transylvanian gold and copper quarries that induced the development of the relationship between the steppe and the Cntral European zones in the Early Copper Age. e

[27] Telegin 1970, pp. 3–21.
[28] Kutzián 1972, pp. 197–201.
[29] Serghe'ev 1963.
[30] Dumitrescu 1963, pp. 499–500.
[31] Serghe'ev 1963.
[32] Dumitrescu 1957.
[33] F. László: Háromszék megyei praemykénai jellegű telepek. (Stations de l'époque pré-mycénienne dans le comitat de Háromszék) Dolg. 2 (1911) 224–225.
[34] Gazdapusztai 1967b.

THE DISTRIBUTION OF PIT-GRAVE KURGANS AND THEIR BURIALS EXCAVATED IN HUNGARY

In Hungary all the pit-grave burials (Fig. 3) have been found in barrows. According to the data at our disposal their distribution is restricted to the region east of the Tisza; farther west they occur only on the stripe of the Great Hungarian Plain bordering the river Tisza. Despite the small number of burials excavated as yet, there must be a considerable number of undiscovered graves, since every barrow-excavation on the indicated territory resulted in the characteristic burials of the Pit-Grave culture. The only exceptions were the so-called "small tumuli" of the Hortobágy containing Sarmatian graves.[35] On the other hand, both the size of these and their distance from one another are definitely different from the characteristic "Cumanian barrows" and kurgan cemeteries hiding pit-graves.

The height of the majority of these latter ones is in the range between 1 m to 10 m. (Only those ploughed and strongly worn down are lower than 0.5 m.) Their diameter ranges accordingly between 20–70 m. Although there may occur 2–3 kurgans close to one another, they always belong to a larger kurgan cemetery within which the distance of the barrows from one another is sometimes several hundred metres. (The kurgan cemeteries in the vicinity of Kétegyháza and Dévaványa.) Their cartographic measuring verified by field surveys in several areas shows that in Eastern Hungary, even if cautiously estimated, there must be considerably more than 3000 such barrows situated in groups and constituting larger, adjoining kurgan fields. Most of the kurgan groups can be found in the central part of the

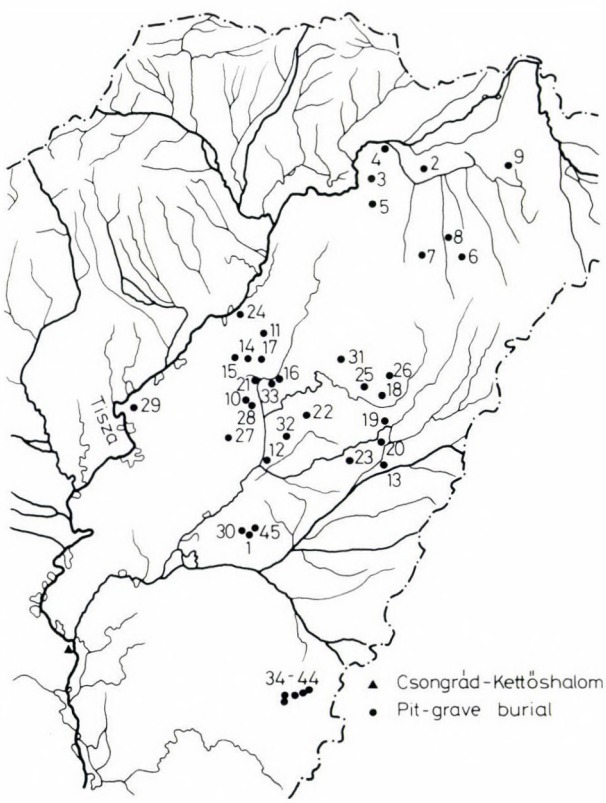

Fig. 3. The distribution of pit-grave kurgans in Hungary

[35] Zoltai 1938, p. 51; Zoltai 1941, pp. 269–308.

Tisza region; their distribution is especially heavy in Hortobágy, Nagykunság, in the regions of the Körös rivers and in the Tiszazug. They were built on ridges and riversides, thus, in the vicinity of the rivers Körös and Tisza it is the distribution of the barrows that outlines the one-time flooded areas.[36]

Burials

The number of kurgan excavations in Hungary is very small as compared to the distribution of the kurgan cemeteries. Excavation data are at our disposal from the following sites:[37]

1. Dévaványa–Templomdomb[38]

The description published by N. Kalicz can be completed, on the basis of the hand-written record kept by P. Frenyó, the excavator, by the following data:[39]

In the case of the first grave (encircled by a semicircular ditch) all Frenyó mentions concerning the orientation of the skeleton is that it is "facing east".[40] In our opinion this description means most possibly that the body was oriented W–E, and not E–W, as it was assumed by Kalicz. In the description the "pressed layer of ash" observed above the earth covering the skeleton was probably the remain of a grave cover (mat?) which had partly calcinated. Such remains resembling ashes have also come to light from a contemporary burial of the nearby Barcé-halom.[41]

According to the description of Kalicz the only find in the grave was the egg-shaped piece of ochre at the left side of the skull. Frenyó's observation seems to modify this: "At the right and left side of the skull, at the place corresponding to the ears, a hazel-nut sized grey clod with lilac stripes was found at each side". On the basis of the description, and judging from the position of the objects we may assume that these were the remains of multi-twisted spiralic earrings in very bad condition, possibly made of poor silver.

In the description of the third burial of the barrow the remark referring to the orientation is the same as that of the first grave. It may be presumed that this grave was also W–E oriented.[42]

2. Buj–Feketehalom[43]

Following Kalicz's detailed publication based on the description of A. Jósa, it can be taken for certain that the two graves — of the same rite and situated in the vertical axis of the barrow, above one another — were pit-grave (Yamnaya) burials.

The second grave with the silver earring was dug into the barrow built above the original burial. The upper part of the barrow was built on top of it.

The description of the burials of Tiszaeszlár–Potyhalom, Gáva–Katóhalom, Basahalom–Nagyhalom, Nagykálló–Nagykorhány, Császárszállás–Névtelen-halom, Oros-Nyírjes–Névtelen-halom, Nyírkarász–Gara-halom is given by Kalicz (**3**–**9**)[44] based on the information by A. Jósa.

10. Debrecen (Hortobágy) Pipáshalom No. 2[45]

Besides the data published by Kalicz we have to turn our attention to the coloured imprints observed by Zoltai, which preserved the pattern of the grave-cover. According to the original description the grave-cover was patterned with white and red stripes of alternating width. The imprints of these could be observed both on the grave bottom and around the skeleton.[46]

11. Debrecen–Papegyháza[47]

Besides the piece of red paint, the grave bottom was covered all over with white, red and brown imprints. They are possibly the remains of a cover made from the same material as the one described at Pipáshalom, No. 2.

12. Sárrétudvari–Balázshalom[48]

Here too it is worth citing Zoltai's detailed description:[49] "At a depth of 50 cm some wide, striped imprints can be observed. These were the same as the ones found in the burials of the barrow of Pipás-

[36] See D. Virágh's study in this volume.
[37] Cf.: Kalicz 1968, pp. 15–61. Of the data yielded by the sites mentioned by Kalicz we render here only those not published by Kalicz. Instead of re-publication in these cases we refer to the work cited; our data are of a completing character.
[38] Kalicz 1968, pp. 16–17.
[39] Frenyó 1887.
[40] Ibid.: "The skeleton oriented towards the East was covered by thick, mud-like soil. The skull was lying somewhat raised on a clay cushion. The grave was covered by a 1–2 cm thick pressed layer of ashes."
[41] Ecsedy 1971, p. 46.
[42] Frenyó 1887.
[43] Kalicz 1968, p. 18.
[44] Ibid.
[45] Ibid, p. 20.
[46] Ibid, note 29.
[47] Ibid, note 20; Zoltai 1910a, p. 39.
[48] Kalicz 1968, p. 20.
[49] Zoltai 1910b.

halom, No. 2, and the barrow near Debrecen–Papegyháza. On an area of 3.10 m by 2.60 m, white, black and russet stripes were found. These stripes were 30–40 cm wide and on the eastern side some narrow red and brown stripes could be discerned. In the N–W section on a small part of the surface, in a thin layer of 1–2 cm, the charred remains of some burnt wood were lying on the clay. The rest of the coloured imprints suggests that the coloured stripes were caused by the paint material of the carpet covering the grave. Below, under the striped layer, some tar-coloured, strikingly soft and sticky soil could be found. Further below, at a depth of 50 cm, white imprints appeared again and under these red-coloured shin bones were unearthed. In the opened grave the skeleton was lying supine with its skull oriented west and its legs east, here too, between layers showing white, russet, and brown stripes. Below it, the *coloured* grave bottom was slightly bulging. The skull was facing south."

From the description given by Zoltai — the grave-pit was 190×130 cm — it appeared that the grave was covered by a large blanket after it had been filled in. On the photo (Archives of the Déri Museum, Debrecen) it is well discernible that the skeleton was lying with drawn-up legs, in a supine position.

13. Szepespuszta – the barrows of Miklós Szabó[50]

A more detailed description of the excavation is not rendered by Kalicz; again, it is worth citing Zoltai's hand-written notes.[51] The barrow was high, with a diameter of 46–48 m, the excavation was carried out with a 10 × 10 m "central shaft". "The grave patches and decomposed wood on the virgin soil revealed the presence of three graves. First these graves were dug, then they were topped up with earth." Zoltai renders the description of only one grave. "The size of the grave-pit is 70×150 cm. Among thin decomposed pieces of wood a badly preserved skeleton was lying in a contracted position with the right leg slightly drawn up and the shin placed on the left leg."

The drawing representing the grave has been lost. Zoltai did not pay much attention to the thin layer of decomposed wood. At the right shoulder and the left arm some crumbling, red paint (a piece of ochre) was found.

The assessing of the other two graves was not possible because of the poor condition of the skeletons.

14. Debrecen–Ludashalom[52]

15. Debrecen–Dunahalom[53]

On the basis of Zoltai's information Kalicz, when giving an exact description of the burial mentioned that the grave was unearthed at a depth of 205 cm from the highest point of the barrow "in the vicinity of a hearth". Making use of the note kept in the inventory of the Déri Museum in Debrecen we can rather precisely reconstruct the relationship of the original burial and the above-mentioned hearth. According to the inventory the skull (Inv. No. IV/1923.105.1) has come to light "from the bowels of the 230 cm high Dunahalom." (It is supposed that the 230 cm referred to is the highest point of the barrow and denotes its approximate distance from the grave bottom.) The site of the pottery sherd (Inv. No. IV/1923.105.3–6) is also recorded in the inventory: "Decorated sherds from the inside of Dunahalom, slightly above the contracted skeleton, from the hearth found near it, at a depth of 170 cm". On the basis of these data it is clear that the hearth was situated near the grave, on the original surface into which the 50–60 cm deep grave-pit was dug. The patch of the grave-pit was possibly separated only after the 30–40 cm thick layer of the original humus.

It seems very likely that the hearth in question is connected to the central burial of the barrow. On the hearth there was a broken vessel and several sherds showing the typical forms of the Baden culture. The inventory has preserved Zoltai's original drawings and we also render the photo of the remaining sherds (Pls 1.2–8 and 2).

16. Debrecen–Halászlaponyag[54]

The vessel found in a tumbled condition by Zoltai, according to the note of the inventory, at a depth of 140 cm must be the remains of a sacrifice similar to the one represented by the hearth of Debrecen–Dunahalom. (The burial was unearthed at a depth of 170 cm; the vessel was possibly standing on the original surface close to the grave.) It is a dark grey, 27 cm high vessel with a toothed rim, badly burnt and roughly smoothed. Unfortunately it has been lost; it can be reproduced only after the sketch made by Zoltai in the inventory (Pl. 1.9). Its inventory number is DM.IV.1924: 119a.

[50] Kalicz 1968, p. 20.
[51] Zoltai 1907b.
[52] Kalicz 1968, p. 20.
[53] Ibid.
[54] Ibid.

17—18. Debrecen–Mátai telekhalom, Debrecen–Szántay-halom[55]

19. Debrecen–László-halom[56]

The perforated bead made of a flexed copper or bronze plate was found near the right shoulder, and it is shown here after Zoltai's drawing preserved in the inventory (Pl. 1.1). Inventory No. DM 1927. 91. 4.[57]

The description of Debrecen–Basahalom, Debrecen–Bajnokhalom, Debrecen–Heverőlaponyag, Debrecen–Dinnyéshalom, Debrecen–Fenehalom, Debrecen–Ormóshalom **(20–25)** has been published by Kalicz after the records made by Zoltai.[58]

We confirm his observation according to which the material of the latter four sites (**22–25**) cannot be placed among those of the Pit-Grave culture with absolute certainty.

26. Balmazújváros–Kárhozott-halom[59]

Kalicz does not mention Csalog's remark who, observing the cross section of the kurgan, concluded that the enormous kurgan was built in several stages although, in his opinion, the time between any two construction periods must have been very short.[60]

On examining the extremely accurate description by J. Csalog, we have supposed that this kurgan, too, contained several burials. We must reckon with the central burial of the first kurgan. It is possible that it was the base burial of the huge kurgan that Csalog discovered — the presence of the "steps" does not necessarily contradict it, although, the combined presence of the steps and the lines "a—b" and "o—d" makes it rather dubious.[61]

The careful and detailed observation concerning the structure of the burial vault yields extremely valuable data ("floor", "side wall", "roof construction", filt and hedge roof on it, and, finally, the double line of planks protecting and covering the whole structure). From the point of view of rite the observations referring to the garments and position of the body are of similar importance.[62]

27. Karcag–Bugyogó-halom[63]

28. Debrecen – "Pipások" (kurgan group) – southern kurgan[64]

The burial excavated by Zoltai in 1908 can most likely be placed among our group. In the 2 m high kurgan, among decomposed pieces of wood, the remains of a "strongly moulding" skeleton were found.

29. Tiszaroff–Nagyhalom[65]

According to the report of László Selmeczi, on removing the earth barrow, the burial was destroyed and only the skull with traces of bronze or copper patina and "a large quantity of ochre" could be saved.[66] The barrow was located on a natural loess ridge.

30. Dévaványa–Barcé-halom[67]

In the course of the sounding excavation restricted to a minor surface of the site with reliable stratigraphic observations, it was possible to establish that the kurgan had been built in several stages. The height of the first built kurgan was about 2 m. Its central burial, that is, the earliest grave, was not opened in the course of the excavation. But the burial, dug into the base of the kurgan through the earth of the first barrow, has come to light. From the top of the barrow a shaft of 3.6 m diameter, of irregular circular shape was dug into the earth, as deep as the original surface. The digging of the rectangular 1.57 × 1 m grave-pit oriented W–E was begun at this depth. The body was lying in a supine position facing W, with drawn up knees, and the bottom of the grave-pit was covered by a spread made of some organic material. The only grave-find was the piece of ochre found near the left shoulder. Judging from the position of the mat remains bending inwards into the grave-pit and the postholes observed near the corners of the grave, it can be assumed that before the filling up of the pit a temporary tent plaited from the mat was set up above it[68]

[55] Ibid.
[56] Ibid.
[57] According to the inventory the object was unearthed in the Szántay barrow, still, taking the original grave description for granted we must regard the record of the inventory wrong.
[58] Kalicz 1968, p. 21.
[59] Csalogh 1954, pp. 38–44.
[60] Ibid, pp. 39–40.
[61] Ibid, p. 40.
[62] Ibid, p. 41–43.
[63] Kalicz 1968, p. 22.
[64] Zoltai 1908.
[65] Selmeczi 1967.
[66] Analyzing the remaining paint sample it appeared that it was not the ochre customary in pit-grave burials but a brick-red burnt earth clod which may be the remnant of a fire made in the grave or in the close vicinity of the grave. The burial belonged, in all possibility, to the circle in question.
[67] Ecsedy 1971, pp. 45–50, Pls 20–21.
[68] For the botanical determination of the reed ("Typha sp.") I owe thanks to Emőke Valkó.

(Pl. 3.1–3). The building of the kurgan may only have continued after the filling up of the pit.

Before giving a survey of new excavation results, as yet unpublished, we would like to call attention to two data from the first years of this century.

Ulma, the kurgan of Arzen Ittebeácz

The site is situated in Banat. In 1901 an excavation was carried out here by B. Milleker, in the course of which a "coffin" burial came to light roughly from the centre of the 3.2 m high barrow. According to Milleker's description the oak coffin was 1.90 m long, 1.50 m wide and 0.55 m high. On the remains of the wood, some longitudinal, red painted stripes could be observed. The skeleton was lying on its left side in a contracted position, with the head oriented towards NW; it also showed traces of red paint. Its right arm was placed straight close to the body, while its left hand was in a flexed position before the face. A fraction of the jaw of another individual was found near its skull. A 9 mm long, 1.5 mm thick 4 times twisted spiral pendant made of circular gold wire of 8 mm inner diameter was found under it. On the sides of the skull, two smaller gold earrings were found. At certain sections of the bottom of the coffin remains of leather were found among which the remains of small nails (?) made of copper or bronze could be observed. Milleker noted that under the coffin the bottom of the grave-pit was "burnt hard". This suggests that the grave-pit was first plastered and then dried with fire.[69]

The fractions of the stele found in the southern part of the outskirts of Szamosújvár in the summer 1903 may be considered as belonging to the monuments of the Pit-Grave culture.[70] We can recognize in it the remaining upper part of a possibly Yamnaya type grave stele broken in the middle. It is only its style that suggests the Yamnaya type because its connections cannot be directly studied.[71]

31. Nagyhegyes–Elep, Mikelapos[72]

A brief article in *Archeologiai Értesítő* reports on a rescue excavation carried out south of the Debrecen–Tiszafüred main road in 1955. According to this "in the lower layer a grave with a skeleton in contracted position belonging to the Ochre-Grave culture was unearthed".

It was a report by I. Balogh, director of the Déri Museum in Debrecen, calling attention to the site. Upon receiving a notice he went to the spot — the neighbourhood of the village Elep — and established that during a construction project a cemetery from the age of the Hungarian Conquest had been unearthed. The cemetery was situated on a minor elevation of 91 m above sea level.[73]

The excavation resulted in the discovery of a Hungarian Conquest Period cemetery, some Sarmatian graves and the above-mentioned "ochre-grave" burial. From the records in the excavation diary it can be concluded that the Sarmatian and Middle Ages graves of 40–80 cm depth were dug into a minor artificial barrow the possible original burial of which can be found in grave 34. (Judging from the map, the grave was at least near the centre of the minor elevation.)

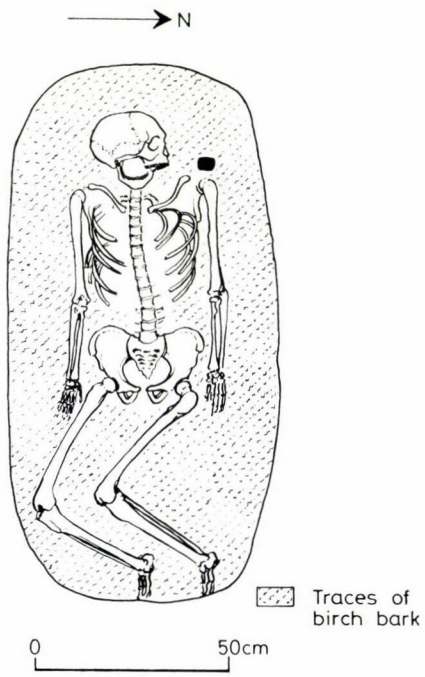

Fig. 4. Nagyhegyes–Elep–Mikelapos, pit-grave burial

The grave was situated deeper than those of the Middle Ages cemetery, at a depth of 150 cm under the rounded corners (70 × 145 cm).

Directly above it a coherent burnt layer was found containing some charcoal pieces. In the grave a W–E oriented, badly preserved skeleton was

[69] Milleker 1906, pp. 148–150. (It is perhaps the upper level of the undisturbed virgin soil that we should mean by the term "surface of the original soil" may indicate.

[70] Orosz 1904, pp. 405–408.

[71] Terenoshkin 1952; Formozov 1965a, p. 181; Id. 1969, p. 173; Zlatkovskaia 1963, p. 81–83.

[72] Bónis–Burger 1957, p. 90.

[73] Balogh 1955.

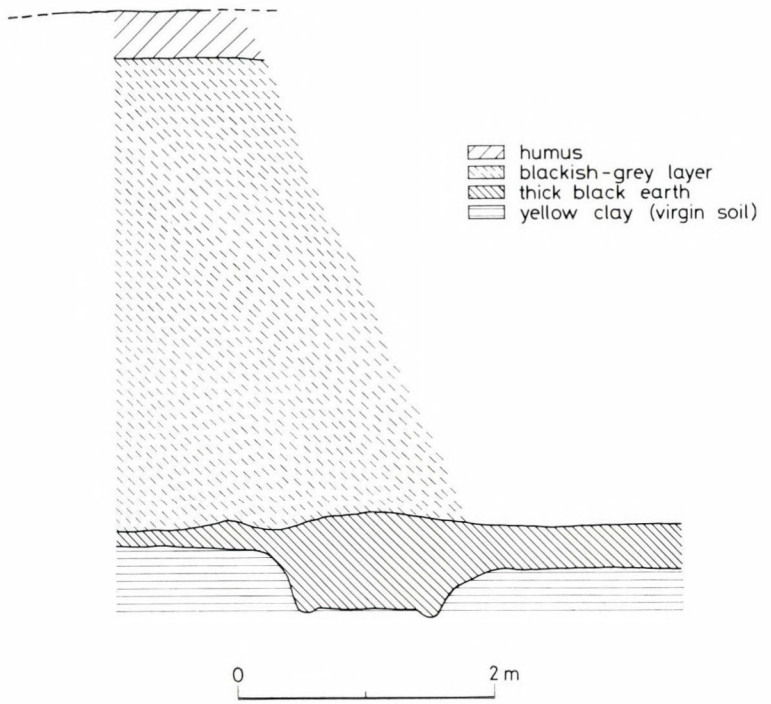

Fig. 5. Hortobágy–Árkus–Kettőshalom. E–W section of the remaining earth of the grave-pit and the barrow

lying supine with the legs drawn up. The skull was turned left, the arms were placed slightly flexed beside the body. Under the skeleton, the traces of birch (?) bark were found spread on the basin of the grave bottom. The bottom of the grave was plastered, and the bark spread was placed on it.

Some traces and pieces of red paint were found under the body, while a large red paint clod was discovered near the left shoulder in front of the face (Fig.4).[74]

32. Püspökladány–Kincsesdomb[75]

In 1969 in the course of the rescue excavation carried out by Ibolya M. Nepper (Déri Museum, Debrecen), a large kurgan was unearthed that had been built in several stages. In the original burial of the kurgan (grave 3) the skeleton was lying in a rectangular pit-grave, in a contracted position, on its left side. Its orientation was NE–SW. The grave was surrounded by a semicircular ditch. Some pieces of ochre were found in the ditch encircling the grave and some remains of leather were around the skeleton. The next grave was dug into the highest part of the kurgan raised above the burial (grave 1). In it there was a W–E oriented skeleton lying supine with legs drawn up and covered by a mat spread. On the mat yellow and black painted stripes were observed. The building of the next earth filling of the kurgan began after the burial of this grave.[76]

33. Balmazújváros–Árkusmajor (Hortobágy)-Kettőshalom[77]

In July, 1964, an excavation was carried out here by Gy. Gazdapusztai. The kurgan was situated along the brooklet Árkus (close to the Western Hortobágy-channel). The major part of the earth of the barrow was levelled. Its one-time centre was denoted by a 6.5 m diameter and 3.2 m high earth cone. It was at a depth of 4.3–4.5 m measured from its highest point in the yellow virgin soil where the E–W oriented rectangular patch of the original burial with rounded corners was found (Fig. 5). In the grave the skeleton of a W–E oriented, strongly built man lying supine was found; the legs, originally drawn up, tumbled to the right. The arms were straight, the hands were placed near the pelvis. The face was oriented towards E. The traces of the grave cover made of some organic substance were preserved near the legs and the pelvis. The skeleton was lying on a small postament-like clay-bench covered with traces of red paint. On this red groundwork there were narrow black stripes of 1–2 cm diam-

[74] Csallány–Erdélyi–Szabó 1955.
[75] Nepper 1973.

[76] See ibid. The latest assumed burial of the barrow and the tunnel-system dug into the barrow later and dated by 18–19th century find material have nothing to do with the pit-grave burials at issue.
[77] Gazdapusztai 1965a, p. 35.

eter running parallel with the longer side of the postament. It can be supposed that the paint substance of the spread was preserved on the plastered grave bottom (Fig. 6). Near the left shin there was a small piece of ochre. At the level of the original surface, over the grave a small mug with handle and, two metres from it, an animal bone was found. (The mug was lost after the discovery.) The grave was covered by a double layer of vegetable mould: some kind of reed or grass. The grave bottom was at a depth of 460 cm measured from the highest point of the earth cone, which is roughly the original height of the barrow.

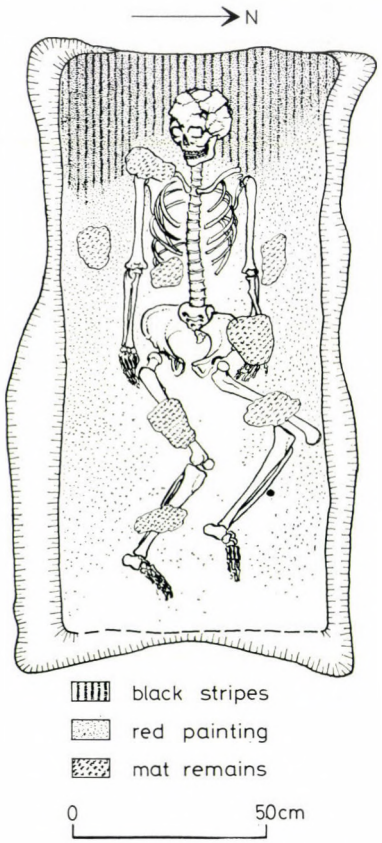

Fig. 6. Hortobágy–Árkus–Kettőshalom, grave 1

34—44. Kétegyháza[78]

The excavation of the kurgan field on the pasture and the surrounding plough lands north of the village Kétegyháza (Békés County, Gyula District) was carried out by Gy. Gazdapusztai from the autumn of 1966 until his death in the autumn of 1968. In the course of the excavations the kurgan field yielded several pit-grave burials, traces of an Early Baden (Černavoda III–Boleráz type) settlement, a settlement of the Bodrogkeresztúr culture, an Early Iron Age grave, Sarmatian burials and traces of a settlement from the Late Middle Ages. In the present paper we try to make a survey of the excavated pit-grave burials and the material of the Copper Age settlements.[79]

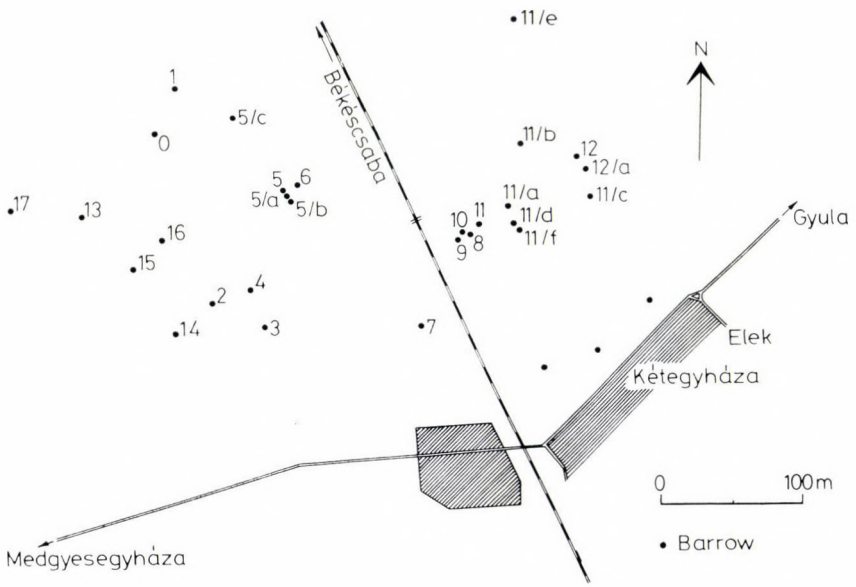

Fig. 7. Map of the kurgan field in the vicinity of Kétegyháza

[78] After the death of Gy. Gazdapusztai the material was arranged on the basis of the excavation diaries and documentation deposited in the Archives of the Hungarian National Museum, the find material in the possession of the Munkácsy Mihály Museum, Békéscsaba and on the basis of personal observations made in the course of the excavations.

[79] For the sake of easier survey, the objects excavated during several seasons are shown with their original signature instead of ranging them into groups according to the order of unearthing.

Beginning from the NW border of the village along both sides of the Békéscsaba–Lökösháza railway line the kurgans are projecting from a sodic pasture at a height of about 90—91 m above sea level (Pl. 4.1). The kurgan-group is situated on an area of 3.5 km E–W and 1.6 km N–S diameter (Fig. 7). Of the 33 barrows 11 were unearthed. These are kurgans Nos 3 (Törökhalom), 3/a, 3/b (the latter two are not indicated on the map, both were in the vicinity of No.3), 4, 5, 5/a, 6, 8, 9, 10 and 11. Their excavation was carried out partly by traditional methods and partly by machines.

34. Kétegyháza, kurgan No. 3 (Török-halom). Date of excavation: 1967.

This kurgan, together with kurgans 3/a and 3/b in its vicinity, was built on a low, natural earth bulge. The height of this bulge is 95.6 m above sea level, while the height of the kurgan was 7.08 m. (Estimated from the distance between the surface of the original humus and the highest point of the barrow (Fig. 8).) The SE part of the kurgan had been removed during earthworks (Pl. 4.2).

The excavation of the kurgan was carried out with a scraper-type machine. In its centre, in N–S direction, a 10 m wide cut was marked. The cut ran through the highest point of the kurgan and it extended in a width of 4 m to the E and 6 m to the W. The scrapers first removed 30, then 20, later 10 cm thick layers from the earth of the barrow. The trimming was consequently done horizontally, under continuous control.[80]

Of the graves unearthed Nos 1, 2 and 3 were secondary burials of the Sarmatian Period.

Grave 4. Found in the vertical axis of the tumulus at a depth of 2.75 m from the highest point. The grave was covered by a beam construction. Its framework consisted of four thick, rectangularly planed pieces. The pieces were joined by tenon and mortise. This framework was covered with a lid of thin planks in poor condition and hardly discernible pieces of leather. The roof construction of the grave crumbled over the skeleton, evidently as a result of the deposition in the loose, filled-up earth of the barrow. Some thin planks and traces of a leather spread were also observable under the skeleton. The W–E oriented skeleton must have been that of a tall, older individual. It was lying supine with drawn up legs, tumbled to the left. The arms were placed parallel with the body (Fig. 9 and Pl. 4.4). The bones were covered with a thick white layer (white paint, lime, perhaps the remains of a mat calcinated

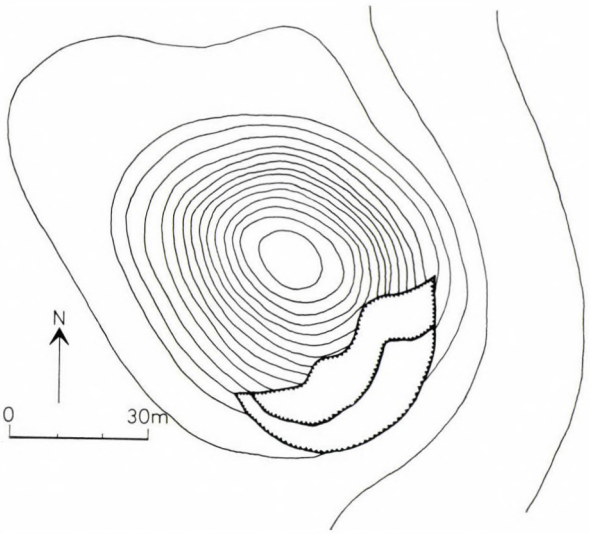

Fig. 8. General plan with contour intervals, Kétegyháza, kurgan 3 (Török-halom)

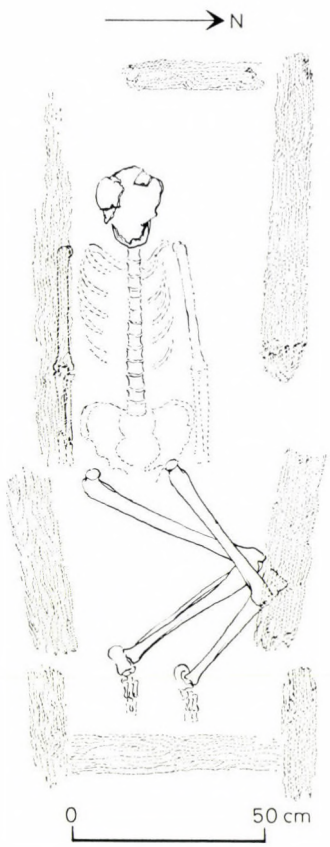

Fig. 9. Kétegyháza, kurgan 3, grave 4

[80] The employment of "scraper" type power machines in the excavation of kurgans was first introduced in the Soviet Union. With proper control and continuous observation the possible damages caused in the finds of the earth filling can be avoided. See: Stoliar 1958, p. 416.

as a result of some microorganisms(?)) and, over it, there was a mouldy leather layer.

A large piece of ochre was found near the left shoulder and some white paint (?) clod was discovered on the left collar bone. A pair of strongly oxidized poor silver hairrings was found on both sides of the head, near the temples. (One was entirely mouldered, the other is shown in Fig.16.3 and Pl. 6.3).

Grave 5. Found 10 m S of the vertical axis of the barrow, at a depth of 1.70 m from the surface and 3.36 m from the highest point of the barrow. In the grave the remains of a coffin covered with leather were found. The remains of the leather cover appeared as light brown and reddish-brown, well separable patches. The length of the grave was 1.05 m, its width was 0.54 m, and its thickness measured in side section was 0.20–0.25 m. It was W–E oriented. As observed in the site, the grave was a pit-grave burial and most possibly contained the skeleton of a child (Pl.4.5). The grave was not opened in the course of the excavation but was transported "in situ". Unfortunately, the leather and wood remains were in such a poor condition that it was impossible to save them and the child skeleton was entirely deteriorated, thus the whole material was lost.

Grave 6. (Grave "No 11" in the excavation diary.[81]) It was found near the vertical axis of the tumulus, at a depth of 4.5 m. No grave patch could be observed. The grave was covered with a wooden construction the framework of which was built similarly to the one in grave 4. Large beams fitted together by joining. Over the skeleton there were narrow, about 2 cm thick planks. The skeleton lying supine was W–E oriented, and the legs, originally drawn up, tumbled to both sides ("Froschstellung"). The hands were placed on the pelvis. The skeleton was covered with leather and some traces of a leather spread could also be discerned under it. (Since there were three layers of leather traceable in the grave with the edges running to the beams constituting the wooden construction, moreover, in some cases they even overlapped it, it can be supposed that the grave was originally lined with leather (furs).The body too was possibly wrapped in leather, finally, it was covered with leather.) On each side of the shoulders, 15–15 cm from them towards the edges of the grave, a piece of ochre was placed (Fig. 10 and Pl. 5.1–2).

Grave 7. The original burial of the kurgan. It was found in the centre of the tumulus and its presence was indicated by an irregular yellow clay patch originating from the virgin soil dug from the grave-pit and was situated on the N side of the grave. After its removal, the edges of the strongly calcinated remains of the wooden construction came to light. It could be observed that first there had been four beams placed over the grave-pit longitudinally (W–E). The 11 cross beams were placed on these. The beams were not of equal thickness, they were made of roughly worked, thick branches longitudinally split in two, or of the trunks of young trees (Fig. 11 and Pl. 5.3–4). Apart from pruning and splitting no traces of (joining or fitting) other working could be observed. Less than 2 m N of the grave the original surface was covered on an area of 5 m² with the remains of twigs and bark. It was possibly the place where the roofs of the grave had been constructed. This solid roof construction was placed on the grave without the grave-pit having been filled up with earth. The wooden construction could, for a long time, resist the weight of the earth barrow built over it, thus the grave-pit was almost completely filled with earth falling through the gaps when, finally, the already mouldered roof construc-

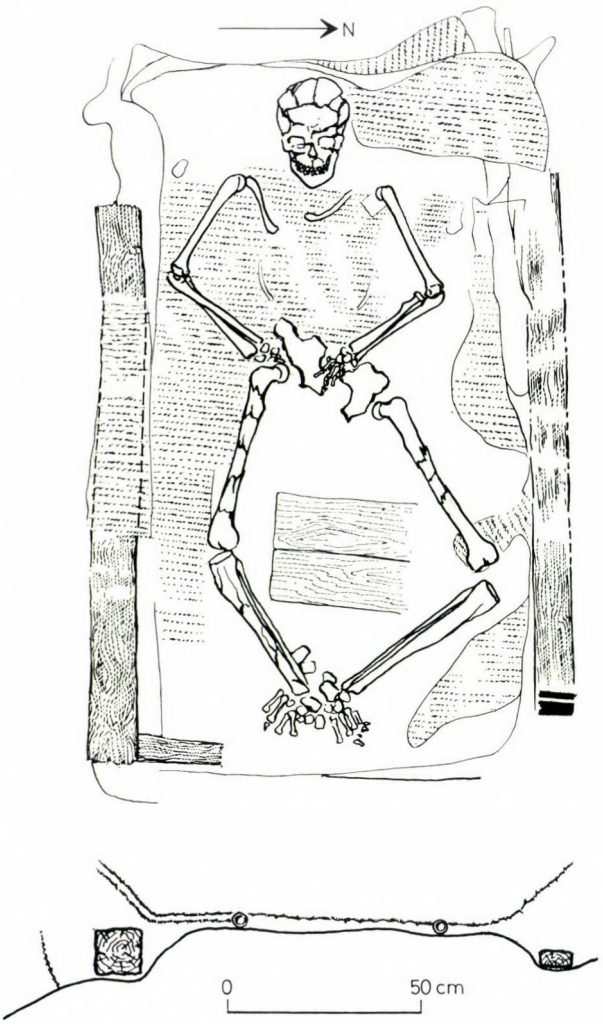

Fig. 10. Kétegyháza, kurgan 3, grave 6

[81] In the original diary the burials of the near-by barrow 3/a got the numbers 6–10, for these were unearthed parallel with barrow 3.

tion slightly sunk in. Thus the slightly raised skull found in the oval-shaped grave-pit 48 cm under the beam construction remained in its original place without having cracked or been filled with earth. The skeleton was lying supine and the legs originally drawn up later tumbled to the right. It was W–E oriented. The skull was slightly propped up, thus the face was turned towards the E. The arms were placed parallel with the trunk, the hands were placed straight on the earth. On the breast and the skull, with the exception of the face, traces of poor condition leather could be found (Fig. 12 and Pl. 5.5).

Near the temple bones, on both sides, a pair of poor silver hair-rings were found (Pl. 6.1–2, Fig. 16. 1–2). On the neck there was a row of beads made of 43 animal teeth pierced through the root. The beads were primarily found on the breast (Fig. 16.4 and Pl. 6.5). Close to the right shoulder there was a piece of red ochre which may have originally been in a small leather pouch as shown by the hollows and the small pieces of leather fastened around it (Fig. 16.6 and Pl. 6.4). Near the upper arm three sheep astragals were found (Pl. 6.6–7).

The excavation, even though it was restricted to a part of the kurgan, supported the assumption that the large kurgan was built in the period of the Pit-Grave culture, possibly in 3 phases. The first kurgan was built over grave No. 7, and was possibly 3 m high. Grave No. 6 was dug into this kurgan, which was later covered with a 2–2.5 m high earth filling. Afterwards graves 4 and 5 were dug, above which the last earth layer amounted to another 2–2.5 m. This is why the barrow was originally higher than 7.08 m, which is the height measured at the time of the excavation (Fig. 14.). The vertical profile formed in the course of the excavation clearly shows at some places that the earth layers carried onto the graves in the different phases are not of the same quality. The light-coloured sodic stripes indicating the surfaces of the earlier barrows could clearly be observed (Fig. 13). (They had probably been formed by erosion caused by rain.)

35. Kétegyháza, kurgan 3/a. Date of excavation: 1967.

Situated 150 m E to kurgan 3, a small, hardly projecting kurgan, strongly worn off. Its height is only 0.2–0.25 m, its diameter 20 m.

Graves 1, 2 and 3 (in the original excavation diary numbered together with the graves of kurgan No. 3 as graves 6, 7, 8 and 9) were Sarmatian Period secondary burials.

Grave 5. (Grave 10 in the original excavation diary.)

The original burial of the kurgan. It was found at a depth of 30–35 cm from the surface. The grave had been disturbed and it was only the pelvis and fractions of the skull that remained. The skeleton was possibly W–E oriented. Close to the bones a piece of red ochre was found (Pl. 4.6).

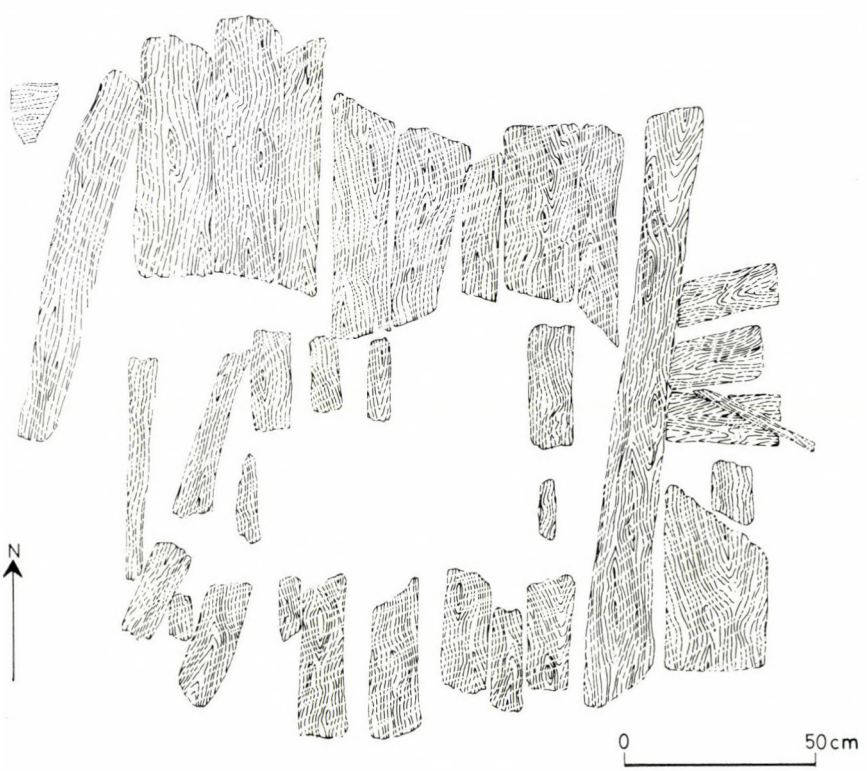

Fig. 11. Kétegyháza, kurgan 3, grave 7 – remains of the beam construction

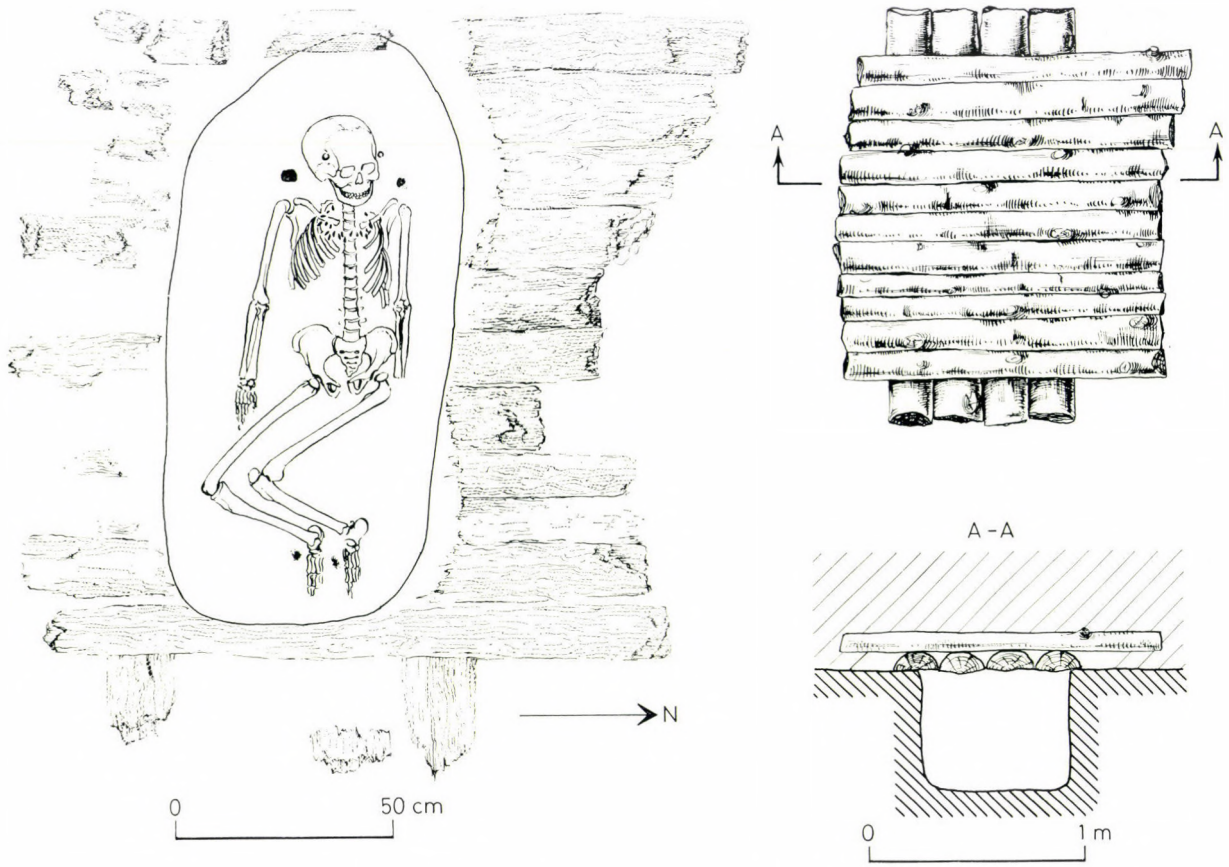

Fig. 12. Kétegyháza, kurgan 3, grave 1, top view and reconstruction

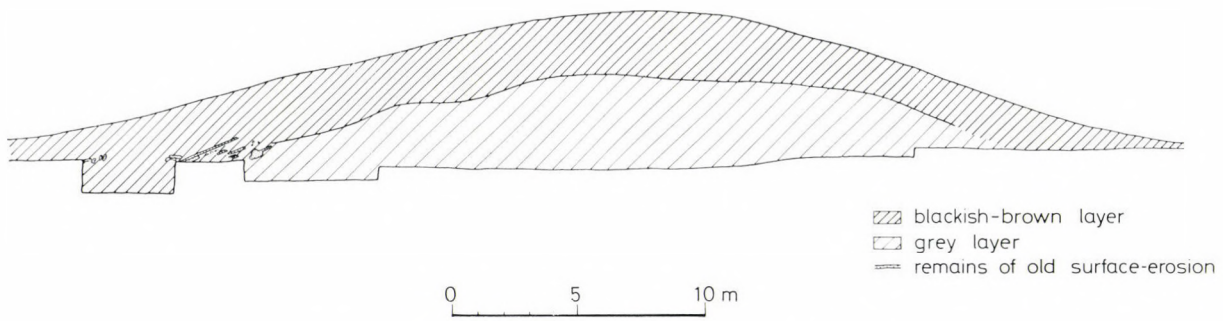

Fig. 13. Kétegyháza, kurgan 3, N–S section of the barrow

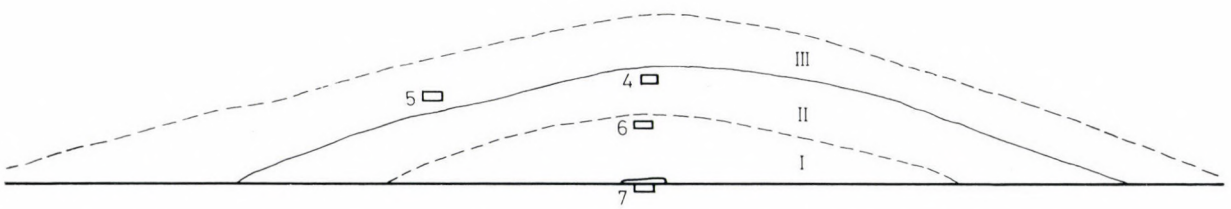

Fig. 14. Kétegyháza, kurgan 3. Reconstruction of the building stages of the barrow

36. Kétegyháza, kurgan 3/b. Date of excavation: 1967.

A small kurgan of 0.75 m height, 34 m diameter, about 150 m W to kurgan 3.

Grave 1. (In the original excavation diary numbered together with the graves of kurgan 3 and 3/a as grave 12.) The original burial of the kurgan. Its irregular, trapezoid-shaped grave-pit was easily observable in the virgin soil at a depth of 145 cm from the surface. The grave had been disturbed, and on its N side a wedge-shaped projection indicated the shaft of plunderers. There were only fractions left from the skeleton. It was only the right arm, slightly bending inwards, that remained in its original position. Some fractions of the skull and some teeth pointed to a young individual. It was possibly W–E orientated. Close to the right shoulder several rows of sheep astragals were placed (Fig. 15 and Pls 4.7–8, 6.9–10). Near the left shoulder some grains of red ochre, under the skull bones 4 animal teeth pierced through at the root were found. They are analogous to those found in grave 7 of kurgan 3 (Fig. 17.4–5 and Pl. 6.8).

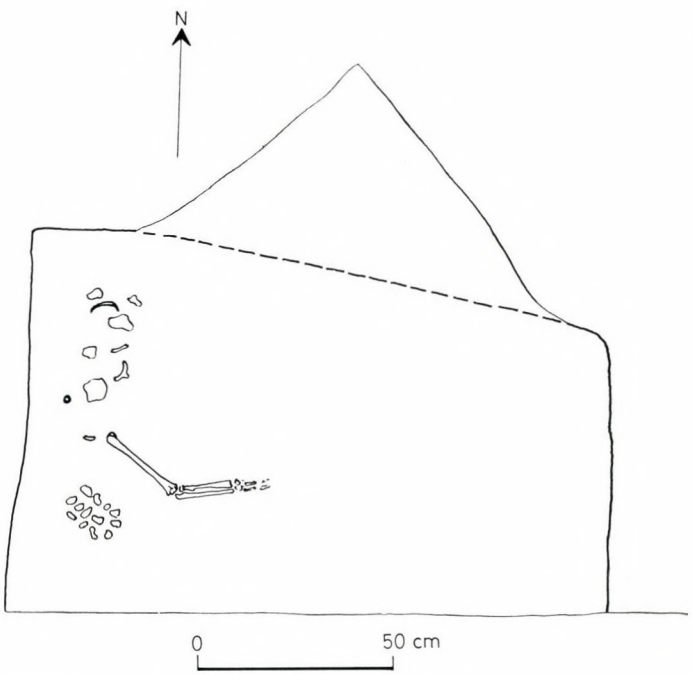

Fig. 15. Kétegyháza, kurgan 3/b, grave 1

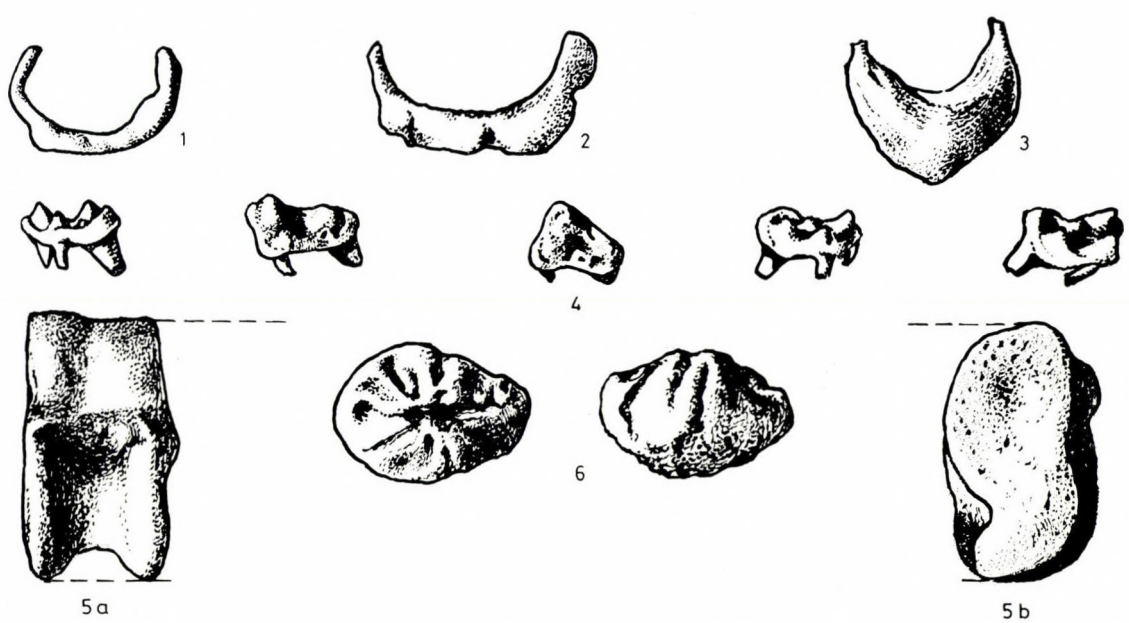

Fig. 16. Kétegyháza, kurgan 3. Grave goods of pit-grave burials. (scale : 1–3 = 2 : 1; 4–6 = 1 : 1)

37. Kétegyháza, kurgan 4. Date of excavation: 1967–1968 (Pl. 4.3).

From the small, 60 cm high kurgan two disturbed pit-grave burials came to light. Here the graves were dug into a minor rise formed by the cultural layer of an abandoned settlement of the Bodrogkeresztúr type. From the cultural layer situated under the kurgan and from the earth top a large number of Bodrogkeresztúr type finds were found.

Grave 1. The original burial of the kurgan. It was found in the Bodrogkeresztúr layer at a depth of 1 m measured from the highest point. The grave had been destroyed, only some scattered bones belonging most possibly to a child remained. Among them, small pieces of ochre were found.

Grave 2. Secondary burial. Another destroyed grave of a child. It was found at a depth of 0.72 m in the Bodrogkeresztúr layer. The skeleton which was in an extremely poor condition could not be saved. It was W–E orientated. Near the skull a clay bead was found (lost after the excavation). Among the bones grains of red ochre could be traced.

On the site of the kurgan, while investigating the Bodrogkeresztúr type settlement, an area of about 100 m^2 consisting of 4 adjoining surfaces was excavated. The primary cultural layer situated under the earth filling of the kurgan was 50–60 cm thick. In the 1st section the remains of a plastered hearth were found. No other such remains of the settlement — house or pit — were found in the homogenous layer. The restored vessels and the characteristic sherds show the typical forms of the Bodrogkeresztúr culture.

Finds:

Two milk jug-shaped vessels (Pl. 9.4–5). The whole surface of the vessels is decorated with an incised net motif arranged into a meander-like pattern and with rows of punctures following the incised, parallelly arranged bundles of lines. In the incised decorations the traces of incrustation could be observed. The analogies of both these and other similar vessels found in sherds (Pl. 7.1–4) can be recognized in the material of the Tarnabod settlement published by N. Kalicz.[82] These motifs and especially the spirals accompanied by adjoining, pressed dots occur very frequently in Baile-Herculane–Pestera Hoţilor, in the C_1–C_2 layers (Herculane, stage II in P. Roman's system).[83] The handle sherds of the "milk jugs" and other undecorated strap handles are very frequent (Pl. 7.5–7). The semispherical cup decorated with four knobs either directly over the bottom or at the belly of the vessel is very characteristic (Pls 7–8, and 9.1–3).[84] The more roughly worked pots sometimes with a horizontal strap handle or storage jars decorated with knobs occur in a great number (Pl. 7.9–11 and 13).[85]

The fractions of dippers with a pointed rim are also frequent (Pl. 8.5–9).[86] Fractions of perforated tubular supports with round or rhombic perforations also occur.[87] A typical relict of the Bodrogkeresztúr culture can be recognized in the fraction of the "depas amphikypellon" (Pl. 8.6).[88] There are also several fractions hinting at the presence of rectangular upwards widening vases standing on four short legs, their edges decorated with impressions (Pl. 8.2 and 7).[89] Their analogies are widely known in the culture.[90] Another usual type is the fraction of the large flower pot-like vessel and the cup decorated with a pierced knob at the support (Pls 7.12, 8.10). The sherds of the graphite dish with drawn-in rim and the sharp profiled dish with drawn-in rim may indicate the impact of the Salcuţa–Gumelniţa circle (Pl. 8.8,11.). An interesting handle, probably broken off a rim, was found here. It must have been the handle of a dipper or a spoon (Pl. 8.3).

In the excavation record of Gy. Gazdapusztai mention is made of the discovery of a handle with disc-shaped plastic ornament ("Scheibenhenkel"). This find is worth mentioning in spite of the fact, that it has unfortunately been lost.

[82] Kalicz 1966, p. 8, Fig. 2. The same motifs can be found in the Bodrogkeresztur layer of Székely–Zöldtelek. See: Kalicz 1958, pp. 20–23 Pl. III.

[83] Roman 1971, pp. 53–82, Taf. IX. 7, Taf. XII–XIV. In the find material of the cemeteries it is the most common type and a recurring ornamentation. Cf.: Bognár-Kutzián 1963, Pls CIII. 4, CXII. 3; Hillebrand 1929, Pl. V. 2; Patay 1945, Pl. VI. 9.

[84] A similarly customary form in the burials of the culture beside the "milk-jug" type. Cf.: Bognár-Kutzián 1963, Pl. CXXXIX. L. 1_1–2_2; Patay 1958, p. 148, Pl. I, 3, 12, 16–17, Pl. II. 3–4, 8.

[85] The same motifs occur very frequently in the material of the Tarnabod settlement as well. See Kalicz 1966, p. 4, Fig. 1 : 8, 14–15, 19–20, 23.

[86] Ibid, Fig. 3 : 22—26.

[87] Ibid, Fig. 6 : 4–5; Roman 1971, p. 66, Abb. 20–21.

[88] Hillebrand 1929, Plate II. 1; Bognár-Kutzián 1963, p. 548.; Bognár-Kutzián 1971, p. 142.

[89] Cf.: Kalicz 1966, p. 6, Fig. 4 : 16–19, 21–23. This vessel type is analyzed in detail Id.: Rézkori lelet Paszab községben (Une trouvaille de l'âge du cuivre dans la commune Paszab) NyMÉ I (1950) 9–17 (18–20.) Pál Patay found the same type on the site Tiszavalk–Tetes together with Hunyadi-halom type finds. See Patay 1971a, pp. 9–10.

[90] Bognár-Kutzián 1969a, p. 34. Patay (see note 89) and Bognár-Kutzián unanimously stress that it is a frequent form to be found in typical Bodrogkeresztúr units, and it is especially common in the later phase. From this aspect some finds of the Romanesti cave as well as the material coming rom the Torda cleft are especially remarkable. Cf.: Roman 1971, p. 83, Abb. 33–38, p. 98, Abb. 39. 7; Székely 1964, p. 122, Figs. 2–8, pp. 123–126.

The substance of the pottery is dark grey, reddish brown and a number of fractions show the traces of secondary burning. In the substance of the sherds fine sand and small pebbles can be observed.

Besides the pottery sherds some stone implements were found such as fractions of whetstone and blades.

38. Kétegyháza, kurgan 5. Date of excavation: 1967.

Together with kurgans 5/a, 5/b and 6 it constitutes a closed group (Fig. 17). The height of the kurgan was 2 m; it was slightly sunk in the middle. The earth filling of the kurgan yielded few prehistoric

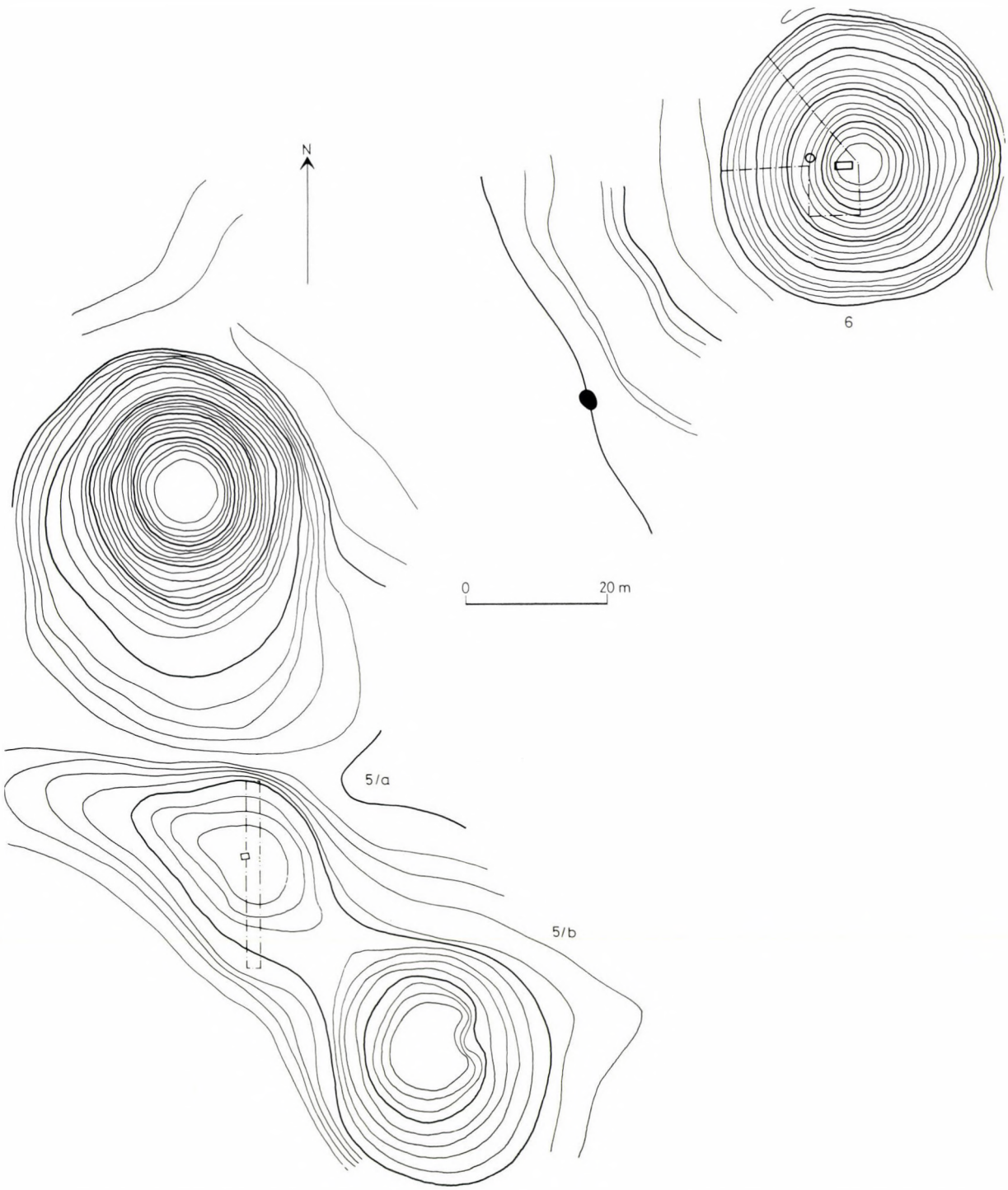

Fig. 17. Kétegyháza — the group of kurgans 5, 5/a, 5/b and 6. General plan with contour intervals

sherds, while the original surface under the earth of the barrow yielded a large number of them. (Černavoda III–Boleráz type.) In the course of the excavation the whole bulk of the kurgan was searched.

Grave 1. It was a SW–NE oriented pit-grave type original burial; it had been plundered. Near the centre of the kurgan from a depth of 1 m, scattered human bones were found in the earth of the shaft of the plunderers. The calcinated beams covering the grave were found 1.9 m deep; these were placed on the original surface above the mouth of the grave, similarly to those of kurgan No. 3, grave 7. The shaft of the plunderers reached down to the grave from the N. The plunderers had pushed the beams aside which were found partly heaped on one another near the S side of the grave. The beams were apparently tree-trunks longitudinally split in two. At the side of the rectangular grave-pit with rounded corners, the traces of the sunk-in cross beams could be easily recognized (Pl. 10.1,3.).

The fractions of the skeleton were thrown together in the S–W corner of the grave-pit. The long bones were not found. At the bottom of the pit the remains of a mat with the traces of red paint could be observed. The grave was 0.80 m deep, measured from the beams indicating the original surface.

The finds and objects found on the original surface under the earth of the barrow deserve attention. Under the central part of the barrow, around the disturbed original burial the traces of five hearths could be recognized. These formed an irregular circle around the centre of the barrow the radius of which was 6–8 m. On the original surface under the barrow it was only in the central part encircled by the hearths that the Černavoda III–Boleráz type material appeared (Fig. 18). The hearths must have been used for a short time, there are only traces of a thin, burnt and strongly broken coat of mud on them; they have an irregular circular shape. The place of hearths Nos 2 and 3 (T_2, T_3) was preserved only by a 3–4 cm thick, circularly burnt patch. A number of carefully positioned animal bones were found on the E and W side of hearth No. 1 (Pl. 10.4). In the vicinity of the hearths some Černavoda III–Boleráz-type pottery sherds and some animal bones were unearthed. On hearth No. 4 (T_4) the coherent skeleton of an ox was placed, without its head and extremities (Pl. 10.5).[91]

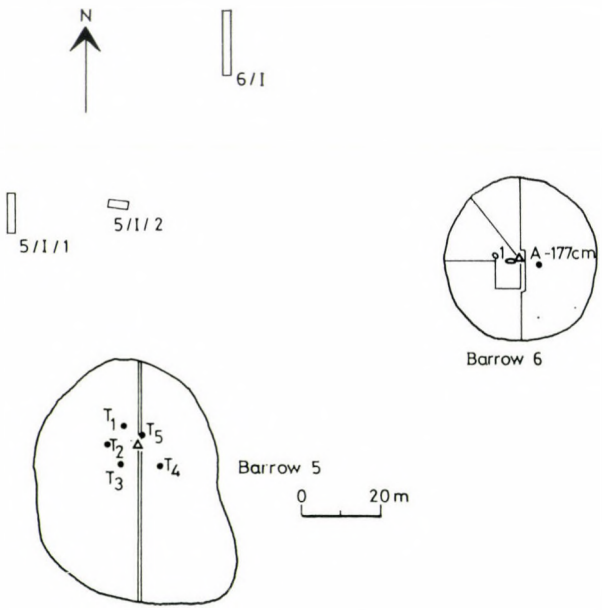

Fig. 18. General plan of kurgans 5 and 6 with the Late Copper Age (Černavoda III–Boleráz group) objects of the original surface

39. Kétegyháza, kurgan 5/a. Date of excavation: 1966.[92]

A low, worn-off barrow S of kurgan 5 (Fig.17). It is 0.6 m high. It was searched through a 2 m wide ditch running across its middle in N–S direction.

Grave 1. It is the destroyed original burial of the barrow. It was found near the centre, 1.1 m deep. The bones left suggest an extremely strongly built man. The shin bones and the bones of the left forearm were found in the original position. Judging from this it is very likely that the body was W–E oriented and was lying supine with the legs drawn up in the knees. The drawn-up legs tumbled to both sides ("Froschstellung"). The shaft of the plunderers damaged the grave-pit as well; possibly it had been rectangular with rounded corners.

40. Kétegyháza, kurgan 6. Date of excavation: 1966–1967.

The relative height of the almost regular circle-based barrow was 1.5 m (Fig. 17). It yielded two pit-grave burials.

[91] Objects similar to the hearths described here were unearthed on the original surface of barrow No. 6 (see below). The material agrees with that of settlement remains excavated on the area of the earth rise constituting the base of the barrow group. Therefore, after the survey of the conditions of discovery the material of the settlement will be evaluated as a whole.

[92] Gazdapusztai 1967a, pp. 93, 96.

Grave 1. The original burial of the barrow. It was found near the centre; the rectangular-shaped grave-pit with rounded corners was found in the virgin soil, at a depth of 1.95 m. The grave bottom was 2 m deep measured from the highest point of the barrow. The skeleton was lying supine with legs drawn up in the knee, the head directed towards W. His arms were placed close to the body, slightly bent at the elbow. The right was placed near the pelvis and the left on the femoral neck. Near the side of the grave, beside the right shoulder a large piece of ochre was found. (The chemical examination of the latter is shown in the paper by Gy. Duma in the present volume.) The bones were covered all over with the traces of red ochre. Under the skeleton, on the bottom of the grave a coherent brownish layer of mould preserved the leather spread under the skeleton (Fig. 19).

A large number of pottery sherds and hearths analogous to those under kurgan 5 were found on the original surface, while in the earth of the barrow they occurred sporadically. Hearth 1 was found 7.2 m to the centre at a depth of 1.53 m measured from the highest point of the barrow. Originally it was a plastered, circular hearth. Under the burnt plaster the soil was also burnt in a 8–10 cm thick layer (Fig. 20). Around it pottery sherds and animal bones were scattered (Pl. 11.1). Hearth 2 was similar to Hearth 1; it was situated 4 m N to the centre. It was also surrounded by animal bones and pottery sherds. The hearth had an irregular shape. It was strongly damaged and its use had probably been restricted to a short period. Under the earth barrow, object "A" was found on the original surface. This large storage vessel had been standing 5 m E of the centre of the kurgan before it cracked. Its sherds were lying on one another in several layers. The vessel was broken as a result of a pressure from above: the weight of the earth of the barrow. Thus some of the neck fractions turned upwards with their inner parts. Near the broken vessel the lower jaw of an ox and the sherds of some smaller pottery were scattered (Pl. 11.2). Under the straight rim of the large vessel a doubly applied, raised band is running, its upper part is slightly arched, strongly bulging and the diameter of the bottom is relatively small. Its surface is roughly worked, its colour is reddish. On its largest bulge two large strap handles are placed (Pl. 12.1). It can be assumed that the two hearths found on the original surface and especially vessel "A" were placed here in connection with the

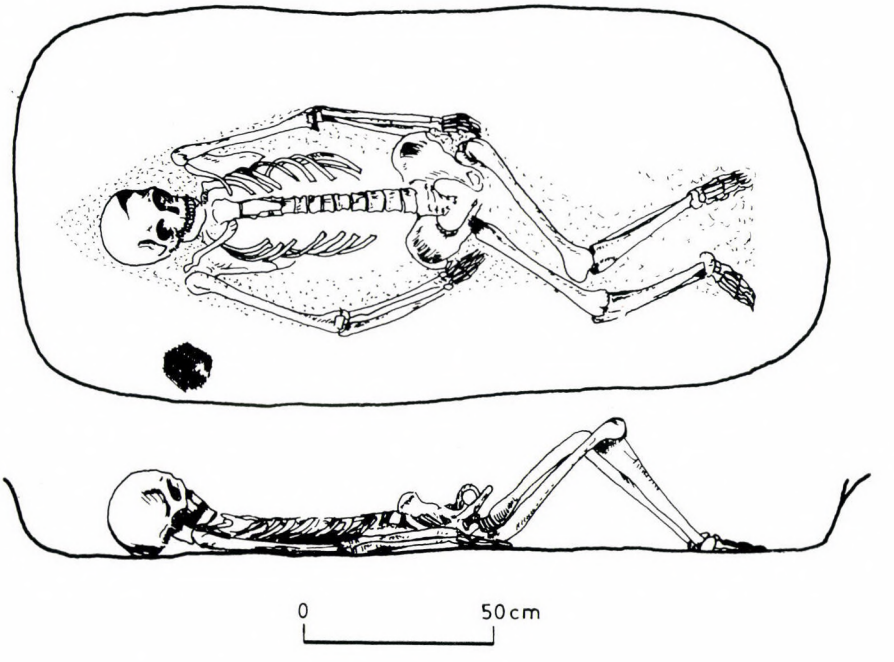

Fig. 19. Kétegyháza, kurgan 6, grave 1

Grave 2. was a peripheric Early Iron Age secondary burial.

Grave 3. A pit-grave-type secondary burial dug into the earth of the barrow. It was found under the highest point of the barrow, 0.8 m deep. The grave-pit could not be traced. The skeleton was lying supine with drawn-up legs, tumbled to both sides ("Froschstellung"). It was W–E oriented. The shin was not found on its anatomically proper place but was lying, together with the heel-bones, about 30 cm from the right elbow. Everywhere under the bones brown leather imprints could be observed; the layer was the thickest under the skull. On and around the bones grains of yellow ochre could be traced (Pl. 10.2).

central, 1st grave of the barrow, that is, directly preceding the building of the kurgan. Among pit-grave kurgans it is a rather general phenomenon that the cultic relics related to the particular graves (traces of sacrifice, grave furniture) can be found in the close vicinity of the graves, on the original surface, and under the earth of the barrow and not in the grave itself. The corresponding objects found in kurgan 5 also point to relationships with the central grave.

The sounding excavation in the course of which further Černavoda III-type finds were unearthed took place on the site N of kurgans 5 and 6. (Ditches 5/I.1 and 5/I.2 and sections 6/I, 6/II, 6/III and 6/IV were opened, too. They were not consistently recorded on the map (Fig. 18))

There were but a few pottery sherds unearthed from trial trench 5/I.1. While opening the other surfaces at a depth of 60 cm, an extremely hard, sodic layer was found into which only few pits had been dug. In section 6/II, above the layer mentioned, about 35–40 cm deep, sherds of broken vessels were lying in a pile. These were the following: 6/2–1 (A): broken large bowl; 6/2–2(B): sherds of a lid decorated with spiral ribs; 6/2–3(C): the sherds of a bowl similar in its shape and substance to 6/2–1(A), although somewhat smaller. Near them, the sherds of a pyraunos, a portable hearth made of clay were found. In addition to the above-mentioned vessels, a large number of animal bones and pottery sherds have come to light. The latter — both as to their substance and ornaments — are analogous to the scattered pottery material found close to the hearths of the near-by barrows, and to the stray finds of the earth of the barrows. Given the above facts, our assumption is that this earth ridge was inhabited but for a short time.

Finds:

The large storage vessel with its characteristic decoration of rough rippling and pock-marked raised band below the incised rim (Pl. 12.1) can be best related to the Černavoda III material known from Romania.[93] Each unearthed settlement yielded vessel rims of similar fabric and raised hands both applied and ornamented with incisions or with lines of impressed pock-marks (Pl. 13.3–4).[94] A rather characteristic sherd has a decoration of impressed holes and pock-marking on a raised plastic band below the incised rim and with roughly incised herringbone pattern below the plastic band (Pl. 13.17).[95] Both for its fabric and decoration, the pyraunos, the rims of which are decorated with similar pock-marking should be connected to these. The rough rippling of the surface of the vessels is also frequent (Pls 13.14 and 14.8–10).[96] The two bowls on Plate 16 are dark grey, have a smooth surface with slightly drawn-in rims. The forming of the handle and the pointed knob near the handle below the drawn-in rim deserve special attention (Pls 15.3 and 16.1).

Similar objects can be found on the territories S–E of Hungary.[97] Bowls of this type have as yet not been found in the Hungarian Boleráz material.[98] The same applies to the sherd with its rim much thickened and decorated with incisions on the inner side. This type also points to the Ezero–Černavoda complex (Pl. 13.4).[99]

Both in the Černavoda III materials and on the territory of the Boleráz group, the sharp profiled dish with its rim slightly bending outward can be considered a leading type.[100] In Northern-Yugoslavia, Transdanubia and Slovakia it is mostly ornamented with fluting on the inside. In the Černavoda III material the fluting is less marked, more roughly worked and can be found only under the rim.[101] The finds from Kétegyháza are nearer, in this respect too, to those from Černavoda III. Traces of fluting can be observed only sporadically on the inner side of these dishes in hardly recognizable vertical flooting. The sherds of the above-mentioned bowl type are shown in Pls 14.5–7, 11 and 13.6, 8, 12; Fig. 21.3–4. A similarly frequent type is represented by the sherds of the vessels with projecting, often buccero-like knobby or fluted bellies separated from the neck by a sharp line. They have vertical, "subcutaneous" holes for suspension. These vessel types appeared already in the Hunyadi-halom type units (Pls 14.3 and 13.7, 9).[102] In the Hunyadi-halom type material the shape with everted rim shown on Pl. 13.13 can also be found.[103]

[93] Morintz–Roman 1968, p. 93, Abb. 36, 15. A similar, intact vessel is published from Slovakia by Pavukova 1964, Taf. I. 10.

[94] Characteristic types of the Ezero–Černavoda III–Boleráz circle. Cf.: Berciu 1964, Figs 4.1, 5.9, 8.1–2, 15, 18.

[95] A frequent type in the earlier layers of Ezero (Kind information by R. V. Katintsharov). See: Batsova-Kostova 1971, pp. 61–66, 63, Fig. 3.

[96] This kind of surface appears as early as the Hunyadi-halom type material. See: Bognár-Kutzián 1969a, p. 51, Abb. 11; Roman 1971, pp. 82–83.

[97] Jovanovič 1969, p. 159, Fig. 3. Here, too, the comparison with the early material of Ezero-Dipsiska is justified. Cf.: Georgiev 1961, Pl. XXIX. 4–6.

[98] On the basis of István Torma's kind information.

[99] A recurring form in the material of Ezero-Dipsiska and Early Troy. See: Blegen 1964, Pl. 16; Kalicz 1963. Vergleichsabbildungen 11a–21; Jovanovič 1969, p. 162, Fig. 5.

[100] Torma 1969a, p. 5; Morintz–Roman 1968, p. 88, Abb. 3.1—8. Pavukova 1964, p. 132, Taf. I. 4–6.

[101] Morintz–Roman 1968, p. 82, Abb. 27–10.; Torma 1969a, pp. 9–10.

[102] They were unearthed from a pit at Tiszavalk–Tetes contaning Hunyadi-halom type material. See: Patay 1971a, p. 10.

[103] Bognár-Kutzián 1969a, pp. 10–11 Abb. 3.

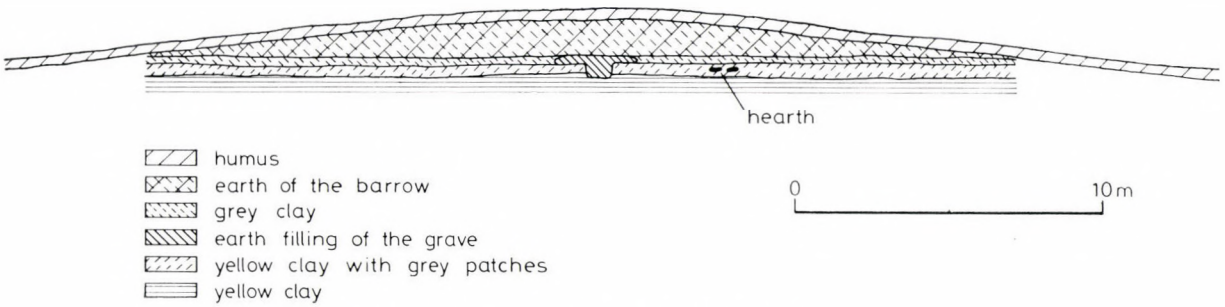

Fig. 20. Kétegyháza, kurgan 6, N–S central section

Apart from the above-mentioned "subcutaneous" holes for suspension, all the vessel handles were simple strap handles (Pl. 13.1). The sherds of some vessels were decorated with flat knobs under the rim (Pl. 13.2).

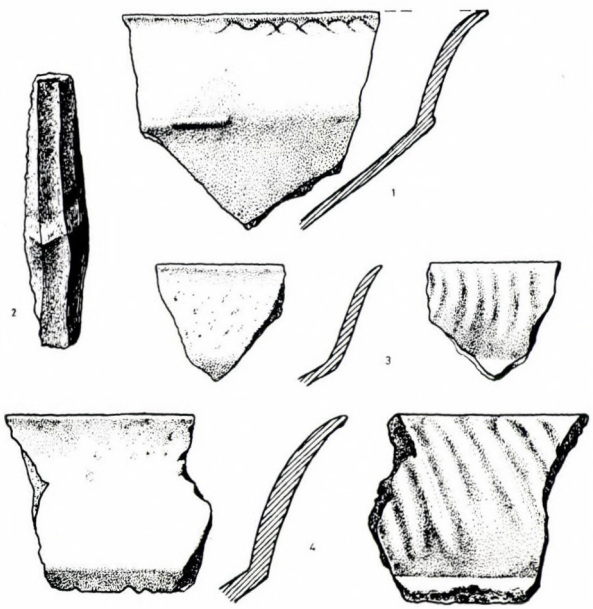

Fig. 21. Kétegyháza, section 6/I, Černavoda III–Boleráz-type sherds

The characteristic bowl sherd found in section 6/I deserves special attention. Under its rim some traces of a black painted pattern of two undulating lines crossing each other can be observed (Fig. 15.1).

Most of the pottery find of the settlement is reddish brown and light or dark grey. The substance of the sherds contains thin mica-plates, ground shells or snail-shells, while that of the rough pottery contains small pebbles. The material of rough rippling is often poorly burnt while the smoothed surface pottery is of remarkably good quality, and it is evenly burnt.

In the animal bone material of the settlement it is noticeable that the proportion of sheep and goat is larger than in the Bodrogkeresztúr settlement; another remarkable circumstance is the appearance of horse bones together with Černavoda III–Boleráz type material. So far, this is the earliest, authentically recovered evidence of the appearance of the horse in Hungary.[104] (Their contemporaneity with the settlement is undoubted since two of the bones came to light from the second pit of ditch I, surface 6/I, from the undisturbed cultural layer and the others were around the central grave of kurgan 5, in the circle of the hearths, on the original surface situated under the earth of the barrow.)

41. Kétegyháza, kurgan 8. Date of excavation: 1968.

Together with kurgans 9, 10, and 11 it constitutes a common group (Fig. 22).

Grave 1. The destroyed original burial of the kurgan. In the centre there was a NE–SW oriented grave-pit with rounded corners damaged by later digging. A pile of human bones appeared over the level of the pit.

42. Kétegyháza, kurgan 9. Date of excavation: 1968.

It was 1.18 m high, its diameter was about 30 m (Fig. 22).

Grave 1. Pit-grave type secondary burial. It was found 5 m W of the centre of the barrow, at a depth of 0.85 m measured from its highest point. The skeleton was lying supine and the originally drawn-up legs tumbled to the right. It was NW–SE oriented. The pelvis and the ribs were incomplete and the bones of the upper arm were not found. 30 cm from the skull, near the right shoulder a piece of red ochre was found.

[104] See Sándor Bökönyi's paper in the present volume.

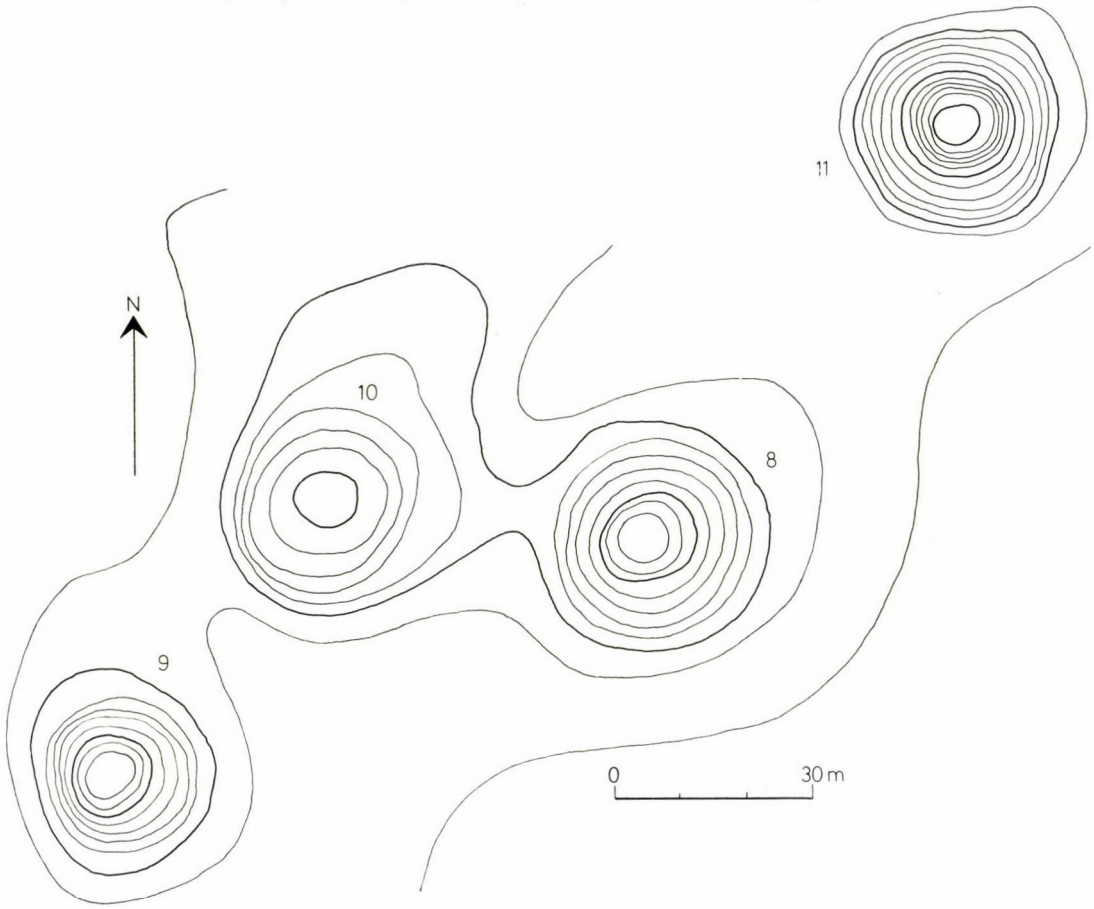

Fig. 22. Kétegyháza, the group of kurgans 8, 9, 10 and 11. General plan with level lines

Grave 2. was a Sarmatian Period secondary burial.

Grave 3. The entirely plundered original burial of the kurgan. The shaft of the plunderers destroyed even the outlines of the grave-pit.

43. Kétegyháza, kurgan 10. Date of excavation: 1968.

Height: 1 m (Fig. 22).

Grave 1. Disturbed pit-grave type secondary burial. It was found near the centre, 0.4 m deep. No grave patch was discernible. Only some skull fractions, a piece of the lower jaw and some long bone fractions were on their original place. Near the long bones, pieces of red ochre and minor pieces of leather could be observed. Judging from the bone fractions, the individual buried in the grave was a strongly built adult (Pl. 10.6).

Grave 2. Disturbed original burial. From the earth filling of the shaft of the plunderers remains of a deteriorated copper (?) wire (bracelet?) and the fraction of a small copper (?) ring came to light. These finds have been lost.

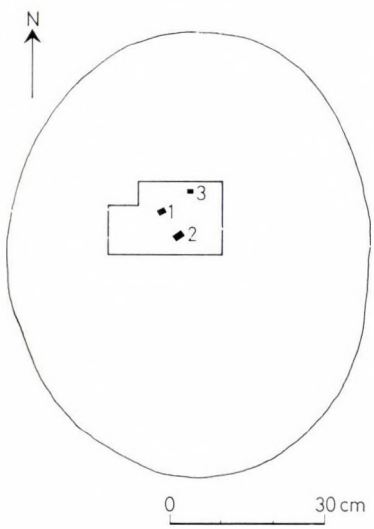

Fig. 23. Dévaványa–Csordajárás kurgan. The situation of burials unearthed near the centre

44. Kétegyháza, kurgan 11. Date of excavation: 1968.

Its height was 1.1 m.

Graves 1 and 2 were Sarmatian Period secondary burials.

Grave 3. The wholly destroyed original burial of the kurgan. The shaft of the plunderers had destroyed the grave-pit as well; its earth yielded only a digital bone.

45. Dévaványa–Csordajárás

The earth of the kurgan was levelled in the course of earthworks. During rescue excavations the central part of the basis of the barrow was searched and three graves were found (Fig. 23 and Pl. 11.5–6). (The map of the kurgan field is shown in the paper by D. Virágh in the present volume.)

Grave 1. A W–E-oriented child skeleton lying in an irregular rectangular grave-pit with rounded corners. It was lying supine, the legs had originally been drawn up at the knee and the arms flexed at the elbow. The skeleton is placed on a postament-like projection formed inside the grave, and beside the bones traces of a mat were observed. The body had probably been wrapped in this mat. Near the right shoulder, a piece of red ochre of 3 cm diameter was placed. On the surface of the paint-clod some remains of an organic substance could be discerned in a thin, fine layer. In the level of the left pelvis a Unio-shell was found on the edge of the postament (Fig. 24 and Pl. 17.1, 4, 6).

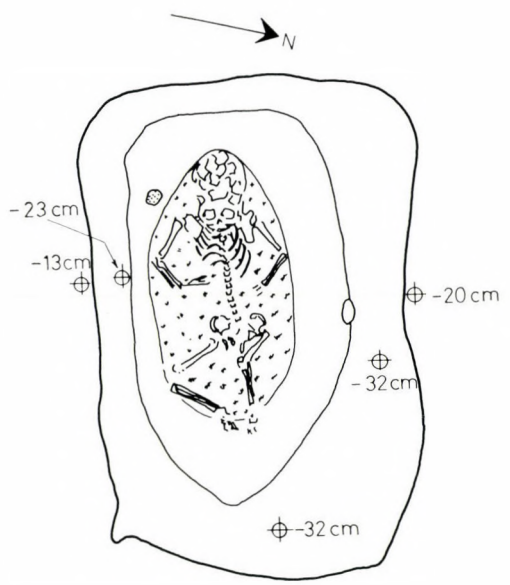

Fig. 24. Dévaványa–Csordajárás, grave 1

Fig. 25. Dévaványa–Csordajárás, grave 2

Grave 2. The skeleton of a W–E-oriented adolescent in an irregular, rectangular grave with rounded corners. The skeleton was lying supine and its originally drawn-up legs tumbled to the right. It may have been laid on a bark spread, the traces of which could be recognized. The arms were flexed and the hands were placed on the belly. The slightly raised skull showed traces of red paint, which could be observed in easily discernible stripes. Near the left shoulder some red paint was found (Fig. 25 and Pl. 17.2, 7).

Grave 3. A W–E-oriented child skeleton lying supine in a rectangular grave-pit. The right arm was placed straight beside the body while the left arm was flexed at the elbow and the left hand was placed

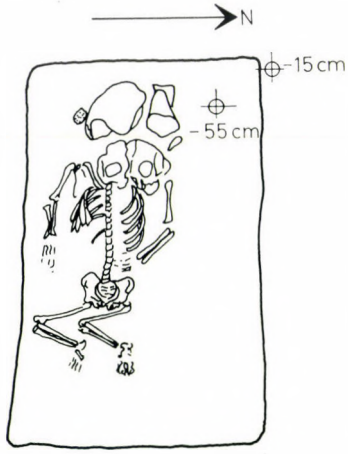

Fig. 26. Dévaványa–Csordajárás, grave 3

on the pelvis. To the right of the skull a piece of red paint was found. On the bottom of the grave, the traces of a spread, possibly made of leather, could be observed (Fig. 26 and Pl. 17.3, 5).

The succession of the burials unearthed at the central part of the basis of the barrow could not be determined because, as a result of the above-mentioned earthworks, not only the entire earth of the barrow but also a part of the original surface was levelled. Judging from the rites being identical it can be assumed that all three graves were dug before the building of the barrow.

THE DISTRIBUTION AND CULTURAL RELATIONS OF THE HUNGARIAN FINDS

BURIALS IN THE CARPATHIAN BASIN

Hungarian experts of this period all agree that significant elements of the burials excavated in Hungary show basic relationships with the Yamnaya culture.[105] Based mostly on a topographic distinction, Kalicz distinguished two types of East-Hungarian kurgans, as the rites of the "large barrows of Szabolcs type" and the "ochre-graves of Hortobágy" are essentially the same.[106] Pit-grave kurgans — as shown by the Dévaványa and Kétegyháza excavations and by the observations concerning the barrows of Békés County and the Maros region — were distributed all over the Tisza region (Fig. 3).

In a number of cases Hungarian excavations show that the larger kurgans were generally built in several stages (Balmazújváros–Kárhozott-halom, Dévaványa–Barcé-halom, Püspökladány–Kincsesdomb, Kétegyháza, kurgan 3). There belonged generally one and sometimes two secondary burials to an earth barrow. These burials situated over one another were within the group mostly characterized by the same grave construction, orientation and grave furniture.[107] The same does not apply to the burials of Püspökladány–Kincsesdomb where these characteristics were quite different.[108]

Most of the pit-grave type burials discovered in Hungary were W–E-oriented with only slight directional modifications. Exceptions are the original burial of Püspökladány–Kincsesdomb and the grave of the barrow excavated by A. Jósa in the vicinity of Oros–Nyírjes (NE–SW and N–S-oriented, respectively).

Most part of the data concerning the position of the skeletons is missing as a consequence of grave robbery and wrong observation. However, it is apparent that most of the skeletons were lying supine with legs drawn up.

Two major grave types are known. One is where the grave is covered by a wooden construction, while in the other type this is replaced by a grave cover made of mat, some textile or grass; the latter are simple pit-graves.[109] Some of the burials with wooden construction show the "house-character" also in their appearance. (Debrecen–Basahalom, Balmazújváros–Kárhozott-halom). Of the latter we have but very few data at our disposal, because, due to the insufficiency of earlier records the "burial vault" or "coffin" is in many cases impossible to reconstruct. Detailed description exists of the constructions of the Balmazújváros–Kárhozott-halom graves. It is the wooden "floor" and roof construction unearthed at Kárhozott-halom that hints most directly at this building character even in its details.[110]

The wooden construction of the grave (e.g., Ulma), the carpet or mat covering the grave, and the spread on which the body was laid have preserved in most cases some traces of paint. It is striking that while the remains of hearths frequently occur in the vicinity of the grave, the graves themselves generally yield a minimum of grave furniture; implements and pottery are not found at all. Of the grave furniture it is the pieces of ochre that are the most significant from a ritual aspect. These are generally found at the shoulder or near the skull. The finest specimen has come to light from grave 7 of Kétegyháza, kurgan 3 (Török-halom).

Apart from the burial excavated at Csongrád–Kettőshalom, all the burials should be considered to belong to the same cultural unit. Their relationship to the majority of the Romanian — mostly Olte-

[105] Kőszegi 1962, p. 20; Kalicz 1968, pp. 27–28; Gazdapusztai 1965a, pp. 36–37.

[106] Kalicz 1968, pp. 28–29.

[107] See the burials of Buj–Feketehalom, Kétegyháza, barrow No. 3.

[108] Cf.: Kőszegi 1962; Gazdapusztai 1965a. To use the data relating to the position of the skeleton as an evidence for relative chronology was suggested by the authors referred to. The stratigraphy of Püspökladány showed, however, the inapplicability of the method.

[109] Gazdapusztai 1965a, pp. 36–37.

[110] It is worth noting that the layers of "hedge" and "filt" found in the grave are the elements of a structure carried perhaps by a cart used by the nomadic tribes. In this respect the sites of Storozhevaia Moghila, where the pieces of a two-wheeled cart were found and the Tri Brata kurgan in the vicinity of Elista where the model of a sort of covered wagon, has come to light from the earth above the grave, are informative. See Csalogh 1954, pp. 34–44; Terenoshkin 1951, pp. 117–120; Sinitsyn 1948, pp. 148–160; Pigott 1968, p. 311.

nian — and Bulgarian pit-graves mentioned by Kalicz is apparent.

It is not true in the case of the East-Slovakian and Transylvanian tumulus graves mentioned by Kalicz and does not hold at all in the case of the cremation burial of Szerbkeresztúr. From a ritual aspect the tumulus graves of East-Slovakia do not represent a unified group. On the basis of the characteristics of their pottery finds, we can connect them with the early corded-ware groups of Little-Poland. There are no traces of ochre paint in them. As for the position of the skeletons some graves (Lesné, barrows 1, 2) agree with pit-grave burials; however, the laying of the dead in this position is rather frequent among the peoples of the forest steppe and the corded-ware populations of the forest zone as well.[111] East Slovakian barrows cannot be related to the Yamnaya culture.[112]

It was I. Bóna who called the attention to the fact that the barrows unearthed in Transylvania in the region of Vládháza and Bedellő cannot be related to the burials of steppe origin.[113] On the other hand, a burial wholly analogous with the pit-graves of the Tisza region has come to light in Transylvania pointing to the undoubted presence of pit-grave groups at least in the river valleys.[114] In the vicinity of Aranyosgyéres (Çimpia Turzii) three kurgans are situated on the lower terrace of the river Aranyos. The kurgan field was originally larger, its major part is now occupied by a village. It was there that I. Ferenczy, from the Historical Museum of Cluj, found a steplike grave-pit containing a W–E oriented skeleton lying supine with drawn up legs. The cover of the grave was analogous to the beam-construction covering the original burial of the Kétegyháza kurgan 3.[115] It seems evident that the burial belonged to the Tisza–Olt region group.

Neither for its rite nor for its grave furniture is the grave of Szerbkeresztúr to be connected with this group; from a chronological point of view it seems to be of later date.

Consequently, the vessel from Szerbkeresztúr, the tumulus graves of East Slovakia and Transylvanian corded ware do not help to determine the relative chronology of the pit-grave burials. This conclusion is based on the grave construction, the differences in burial rites, the lack of grave goods in pit-grave burials and their presence in the other units already mentioned.[116] The exclusion of the latter units enables us to study the ritually unified group of pit-grave burials described above. The eastern origin of this group is known, but its relative chronology, prehistoric significance and the circumstances of its migration are questions yet to be answered.

THE CHARACTERISTICS AND DISTRIBUTION OF BURIAL RITES

The burial rites of the Pit-Grave culture, which remained almost unchanged for several centuries, and the scarce occurrence of pottery make the determination of its relative chronology difficult.

From a methodological aspect it is important to identify the characteristics of the burials which enable us to compare the particular burials or grave groups regarding their similarities of ritual and ethnic affinity. N. Kalicz deals with the similarities of the general features of the kurgans without a thorough examination of the details concerning the ritual and the stratigraphical position of the graves.

The wooden and stone grave structure, the material placed as a spread under the body and the grave cover, the presence of red and white paint, the traces of fire and the frequency of sacrifical places are all significant features of the rite.

However, their general summing up is not suitable for elucidating actual relationships.[117] Among the "analogous" features of the South-Russian kurgans and those of South-East Europe established by Kalicz are the following:

(a) The size of the barrow. It often depends on the number of secondary burials and even on the social position of the buried person, thus, it is wholly incidental.

(b) The number of burials found in the barrow. It is also wholly incidental considering the possibility of secondary burials or the varied volume of the excavations. In this respect N. Kalicz states that the "group" burials undoubtedly took place contemporaneously in the later phase of the Yamnaya culture.

[111] Budinsky-Krička 1967, pp. 361–363.

[112] Machnik 1970, pp. 274–276.

[113] Bóna 1965, pp. 58–60. The "en block" concept of the different kurgan burials was criticized by I. Nestor: Der Stand der Vorgeschichtsforschung in Rumänien. BRGK. 22 (1932) 67–68.

[114] About the role of the geographical factors see Ehrich 1970, pp. 229–230.

[115] Ferenczi 1974, pp. 127–131.

[116] See note 113. In the tumuli with stone packing at Vládháza and Bedellő skeletons were found contracted, lying on their sides. On the basis of their grave goods consisting of vessels and implements they can be set to the end of the Cotofeni and the period of the Schneckenberg cultures. The placing of the dead being different from that of the pit-grave kurgans, the lack of ochre paint and the grave furniture mentioned unanimously seem to represent a unit later and culturally different from the Pit-Grave culture. Cf.: Herepey 1901, pp. 18–22, Pls II–III; Fenichel 1891a–b; Schroller 1932, Taf. 28–29; Prox 1941, Taf. VIII. 5, IX. 7, X. 6, XXXV. See also: Székely 1970, pp. 205–208, Fig. 3/2–7.

[117] Kalicz 1968, pp. 31–32.

This is justifiable in a great number of cases where several persons were buried in the same grave-pit, especially if we consider the graves where the mother and the infant were buried together. V. A. Gorodzov, and later others as M. Gimbutas and N. Kalicz assumed these to be the relics of human sacrifice suggesting patriarchal nomadic society.[118] For us it seems to be more acceptable to suggest that due to epidemics or some disease the deaths occurred simultaneously, and this may have been the reason for the double burials.[119] We have knowledge of graves containing the skeletons of two or more persons that were definitely not ritually sacrificed, nor were they buried simultaneously for any other reason.

Human sacrifice is not to be supposed in the case of secondary burials sunken through the earth of the barrow near the central grave.[120] It is due to this phenomenon that several burials can be found on the same level.[121] The human bones found scattered in the earth of the barrow cannot be regarded as the remains of human sacrifice because the people of the Yamnaya culture often buried their dead after having destroyed earlier burials. This happened in the case of the Usatovo original burials situated between the rivers Danube and Dniester, over which the burials of the Yamnaya culture are intact. It can be taken for granted that the original burials were destroyed by the people of the Yamnaya culture.[122]

The barrows that have yielded the burials of the Yamnaya culture and show the same or almost the same rites should be considered as the common burial place of minor communities — families or clans. This seems to be especially likely in the case of kurgans that are members of a kurgan cemetery the other explored original burials of which can be related to the Yamnaya culture, too.[123] In Hungary, the Kétegyháza kurgans Nos 3 and 6, Dévaványa–Templomdomb, Tiszaeszlár–Potyhalom and Buj–Feketehalom belong undoubtedly to such groups. The same can be assumed in the case of the original burials of Valea Lupului where three minor kurgans were covered with a common earth barrow similarly to the case of the burials of Gurbanești mentioned above. In Bulgaria the kurgan known from early excavations by Popov and the 1st kurgan excavated by B. Nikolov near Glavcheska Mogila possibly belong to this type.[124] (Although one of the graves dug into the ground of the latter kurgan and encircled by stones shows a different rite, their position undoubtedly suggests that they contained individuals of the same community.)

When studying the particular elements of the rite, it is the forming of the grave-pit and the burial vault that deserve attention. The grave-pits are rectangular with rounded corners and sometimes they are oval. In almost every case the forming of the grave and the grave structure was done very carefully. In Hungary this is especially true of the already mentioned burial of Balmazújváros–Kárhozott-halom. The employment of wooden constructions, of the mat, the carpet, of the baldachin or tent covering the burial shows that the grave was prepared and protected as a house or a hut for the dead. While excavating the burials of the Yamnaya culture it was V. A. Gorodtsov who observed the roof-shaped beam construction over the grave. He also mentions that this construction was often covered with reed or mat; in one case the traces of mat could be observed both on the walls and on the bottom of the grave. (Hutor Spakovka grave 11/2. According to Gorodtsov the mat was painted yellow around the skeleton.) The tent-like formation of the grave resembles the burial of Dévaványa–Barcé-halom. Another pit-grave burial, excavated by Gorodtsov is similar to grave 1 at Barcé-halom. A wide pit was dug into the ground of the barrow and the grave was dug into the centre of this shaft. Here, too, the shaft running across the barrow was indicated by pieces and grains of loess.[125]

The mat-covered burial of Storozhevaia Mogila yielding the remains of the famous two-wheeled cart is of the very same type.[126] The custom of covering the grave with wood, mat or stones dates back to the very beginning of the Yamnaya culture. Thus, the child grave unearthed by A. A. Stoliar near Hutor Popova (Krasnij Yar, Lower Don region) was also covered with a painted mat. This grave was, as indicated by the neolithic type vessel found in it, one of the earliest Yamnaya burials.[127] The majority

[118] Gimbutas 1956, p. 74. Supposes the sacrifice of the members of the family if the head of the family dies.

[119] Shmaglii–Tsherniakov 1970a, p. 99.

[120] Sorokin 1959, pp. 10–18. The 11/a–b graves of the barrow unearthed near Gurbanesti 2 are of this character. One of them contained a male, the other a female skeleton. See: Rosetti 1959, p. 860; Terenoshkin 1951, pp. 117–118.

[121] Kalicz 1968, p. 31. (In the central part of the base of the Dévaványa-Csordajárás barrow dealt with above the graves of two infants and an adolescent buried with exactly the same rite were found !)

[122] Kalicz 1968, p. 32. Cf.: Klein 1971, pp. 287–288.; Shmaglii–Tsherniakov 1970a, pp. 91–92.

[123] Cf.: Krivtsova–Grakova 1962, pp. 6–8; Shults–Stoliar 1958, pp. 53–63; Smirnov 1960, p. 269; Terenoshkin 1951.

[124] Dinu 1959 (cf. note 120); Kalicz 1968, pp. 26–27; Popov 1931, pp. 113–116; For the information concerning the site of Glavtshovska Moghila I owe thanks to excavator Bogdan Nikolov.

[125] Gorodtsov 1905, p. 319; Rau 1927, pp. 68–70.

[126] Terenoshkin 1951.

[127] Stoliar 1958, Fig. 27; Merpert 1961, pp. 60–67.

of the graves excavated near Novochernomorye are also covered with wood or stones.[128] P. Rykov observed the traces of posts leaning towards the centre around two Yamnaya burials in the outskirts of Elista. In his explanation he uses "the grave is the house of the dead" concept that had prevailed among the nomadic peoples for a long time.[129] While surveying the kurgan cemetery of Nikopolie, O. A. Krivtsova-Grakova mentions the presence of wood covering the earliest burials. In the early phase the use of the mat cover is very frequent; the original burial of kurgan 3 excavated in 1937 was covered only with a mat. Concerning the grave structure, she also considers the possibility of the imitation of tents.[130]

Since in the earliest phase of the Yamnaya culture as well as in the later graves the hut characteristics are present, in our opinion the terminology used by M. Gimbutas relating either to the early or the late phases is not relevant. (Early phase = pit-grave; late phase = hut-grave.) Such a distinction is also contradicted by the Hungarian find material, as no significant chronological difference can be supposed between the "pit-graves" of kurgan 6 and the "hut-graves" of kurgan 3 or 5 at Kétegyháza. The terminology used by Gimbutas suggests some kind of gradual pit-hut-catacomb "development", a very unlikely assumption.[131]

In the majority of pit-grave burials the traces of a spread can be found on the bottom of the grave. They were mostly made of mat, or leather, but wood or bark is also commonly used. Carpets were also used as a spread.[132] Similarly to the plastered, carefully smoothed grave bottom this lining of the grave expressed a "living place" character.[133] This idea is reflected by the kurgan itself, especially taking into consideration the fact that in certain cases the dead buried in one and the same kurgan belonged to one family. We have to recognize the possible validity of the concept that considers the kurgan as a symbolic imitation of some building.[134]

One of the best examples of the house-like structure of the kurgans is the barrow excavated near Berbovka (Dnieper region) at the beginning of this century. It is thoroughly dealt with by A. A. Formosov. In the kurgan the remains of a building with a circular ground-plan were found; its walls were made of vertically placed, decorated stone slabs and it was covered with a decorated wooden roof construction. In the kurgan there were Yamnaya graves. This kurgan and the other two, similarly-built ones in its vicinity are put by Formosov to the end of the IIIrd millennium, to the late phase of the Yamnaya culture, contemporaneous with the early Catacomb culture.[135]

Certain details of the furniture found in the grave undoubtedly contain the elements of the houses or tents used by certain communities.[136] In the case of the already mentioned cart burial found at Storozhevaia Mogila and the cart models of the Tri Brata kurgans we find in the symbolic imitation of the house on wheels the typical representation of the mobile way of life of the steppe peoples.[137] The tent-like mat covers seem to suggest the same. (The above-mentioned burial of Dévaványa–Barcé-halom was also covered with a mat tent.) The use of plaited carpets and mats is interesting, especially since these elements, besides the use of leathers (furs) can be found in Hungarian pit-graves as well (Sárrét-udvari–Balázshalom, Hortobágy–Pipások, Hortobágy–Halászlaponyag). Gimbutas mentions these in connection with catacomb-graves, however, they are also known from demonstrably earlier burials from the Soviet Union and from Romania.[138] A. N. Melentiev, on unearthing burial 7 in kurgan 7 near Novocherkask, observed the imprint of the red-ochre painted geometric pattern of the grave cover close to the shin of the skeleton.[139]

It was in the course of the excavations carried out in the kurgan fields between the rivers Danube and Dniester that a pit-grave burial covered with a coloured carpet came to light (Bashtanovka, kurgan 4, grave 24.). The woven motifs were black and white stripes running longitudinally across the W–SW-oriented grave. The grave was protected by two stone slabs placed over the carpet.[140] Rough carpets are mentioned also in connection with the oldest burials of the Holboca kurgan with skeletons lying

[128] Kovpanenko–Katshalova–Sharafutbirova 1967 pp. 60–67; Leskov 1967, p. 7.
[129] Rikov 1933, p. 203; Id. 1927, pp. 68–69.
[130] Kritsova-Grakova 1962, p. 9.
[131] Gimbutas 1956, pp. 70–80.
[132] Leskov 1957, p. 115.
[133] Cf.: Shevtshenko Kurgan 1, grave 15; Shirokoie Kurgan 6, grave 1 — Tshernenko–Iakorenko–Korpusova 1967, p. 22; Bikovo Kurgan 26, grave 9; kurgan 21, grave 12; Stiepan Rasin Hutor Kurgan 1, grave 16 — Merpert 1967, pp. 85, 90; Novotshernomorie Kurgan 6, graves 4, 5 — Kovpanenko–Katshalova–Sharafutbinova 1967, p. 66; Kurgan in the vicinity of Koghilniik, Moldavia, grave 14 — Obolduieva 1955, p. 40.
[134] Griasnov 1961, pp. 22–25.
[135] Formosov 1955, pp. 71–94; Id. 1969, pp. 156–159.
[136] Artemenko 1967, p. 119.
[137] Pigott 1968, pp. 295–301.
[138] Gimbutas 1956, p. 80. Cf.: notes 127, 132.
[139] Melentiev 1966, p. 98.
[140] Shmaglii–Tsherniakov 1970a, p. 75.

supine in contracted position.[141] The analogy of the Bashtanovka grave can be found, besides those in Hungary, in burials 7 and 12, of kurgan 2 at Gurbanești (No 12 is an original burial while grave No 7 is possibly a burial dug into the ground secondarily). Grave 7 was dug step-like, and the grave-pit was protected by beam constructions resting on the two steps. The black and white stripe imprints were observed on the step of the grave, under the upper beam construction.[142] Grave 12 preserved the remains of a baldachin-like tent. The post-holes were found in the corners along the central line of the grave while on the edge of the pit textile remains in poor condition were observed. According to the textile analysis they were made of camel's hair.[143]

Beside the above burials containing painted covers and tent-like remains, the burials of the Krim Yamnaya and Kemi-Oba cultures are especially important. Here the painting of burial-vaults is a frequent phenomenon observed in Banat by B. Milleker (near Ulma). As far as the present paper is concerned, it is the ochre-painted sun representations and the other painted decorations of the coffins that are of special interest. The most frequent paints were ochre and coal but white paint also occurred. On the sides of the coffin red and black, sometimes red and white stripes can be found in the pattern of rhomboids, triangles, concentric circles or straight, parallel stripes.[144] Their detailed description is given by Formosov, who mentions that painted wooden burial vaults were also unearthed on this territory.[145]

Shepinskii relates these motifs to the sun cult, a justifiable approach, especially if considering the sun symbols expressed by the motifs in question.[146] Formosov states that the geometric decoration cut into the stone slabs of the cromlech of the Berbovka kurgan goes back to the local Upper Palaeolithic roots. The incised motifs of the kurgan of Berbovka correspond to the signs characterized by Miller as ancient sun symbols. The patterns of parallel, straight or zig-zag stripes and diagonal rhomboids belong to these symbols.[147]

A feature much more general than the above-mentioned painting is the ochre painting observed in almost every pit-grave burial either on the skull or in the form of a piece of ochre as grave furniture.

THE SIGNIFICANCE OF RED OCHRE IN PIT-GRAVE BURIALS

Our assumption is that ochre painting should be regarded by all means as a ritual phenomenon even if its use was not restricted to the funeral ceremony. This red paint meant in the course of the whole prehistoric period the colour of life (blood) and, therefore, it had a very important role in ceremonies connected with fertility. The aspect of fertility cannot be excluded even when ochre was used at burials. On the other hand, here we must consider the direct meaning of the paint, i.e. the imitation of the colour of life. Consequently, ochre painting is one of the most ancient magic ceremonies at burials and its role is to emphasize the basically communal character of burials. Its use is so widely spread that in pit-grave kurgans it is by no means a specific feature. Therefore, the term "Ochre-Grave" cannot be accepted. However, there are indications that this motif has a special significance for the pit-graves.[148] Such is the piece of ochre frequently placed into the grave as grave furniture. The employment of the piece of red ochre as the only grave good in many cases is characteristic of the Yamnaya and the Catacomb cultures. It represents one of the most significant elements of the burial rites of these cultures.[149]

In Hungarian pit-graves the piece of red ochre can usually be found near the head. At Kétegyháza in the original burial of kurgan 3 the piece of ochre preserving the imprint of the deteriorated leather pouch was found near the shoulder. The piece of ochre found on the chest of a child skeleton in a burial unearthed by Gorodtsov should be considered to be analogy of the former burial. In both graves ochre paint was found only in pouches.[150] On the territory of the Soviet Union and Romania ochre was often placed into the grave in a vessel.[151] The half-sedentary position of the body with the head propped up was arranged in a number of cases with a large piece of ochre placed under the head.[152]

The question arises how this special form emerged besides the general practice of the use of ochre. The special form is expressed in the employment of the piece of ochre as a "sacred" object having magic power. We assume that this motif of the rite emerged

[141] Similarly, in the early graves of the kurgan unearthed near Holboca traces of a carpet were observed. Zirra 1960, pp. 99, 127.

[142] Rosetti 1959, pp. 797–798, Fig. 10.

[143] Ibid, pp. 800–803, Fig. 17; Zirra 1960, p. 103.

[144] The best preserved painted coffin was unearthed in the vicinity of Simferopol. Its coloured illustration is given by Romantshenko 1891, pp. 72–73.

[145] Shepinskii 1963; Formosov 1969, pp. 161–168.

[146] Shepinskii 1961, pp. 227–232.

[147] Formosov 1955, pp. 71–74; Miller 1933, pp. 125–157.

[148] Cf.: Ebert 1921, pp. 39–40.

[149] The clod of ochre near the skull is a general, very frequently occurring piece of grave furniture. See Tshernenko–Iakorenko–Korpusova 1967, p. 30.; Gorodtsov 1905, p. 293; Beresovets 1960; Krivtsova–Grakova 1962, pp. 11–12; Smirnov 1960, pp. 234–235.

[150] Gorodtsov 1905, p. 183.

[151] Ibid.; Tshernenko–Iakorenko–Korpusova 1967, pp. 31–32.; Shmaglii–Tsherniakov 1970a, pp. 18–20; Dumitrescu 1944, p. 43; Kalicz 1968, p. 24, note 60.

[152] Beresovets–Pokrovska–Furmanska 1960, pp 104–105.

in the society of the already developed Yamnaya culture, the special custom is very frequent in west-oriented graves, in the burials of Moldavia, in the Olt region and in Hungary. In the Neolithic preceding the Yamnaya culture this kind of employment of ochre never occurred although the practice of ochre painting was widely spread.[153]

It should be mentioned that Soviet researchers have not analysed the specific role of ochre painting in the pit-grave burials, although they recognize its importance.[154]

The chemical analysis of the pieces of ochre from the original burial of kurgan 6 and from grave 6 of kurgan 3 at Kétegyháza produced an interesting result.[155]

As a result of the analysis it was concluded that the two pieces of "ochre" at issue are not paint clods but simple soil-clods painted red. The paint substance had possibly been brought from a large distance. It can be assumed that the clods moulded from mud or clay symbolize ceremonies the aim of which is to act against death through the symbolic representation of rebirth. With this act the burying community so to say reinitiates the deceased among its members thus preventing his total annihilation.[156]

Our assumption may be supported by the observation that in one of the graves of the Catacomb culture a piece of red ochre was found representing a small, realistically formed human head.[157] The find proves that the grave furniture is not a simple paint clod. It is a sacred object most possibly made for playing a role in a ceremony, referring to the re-creation securing the relationship of the deceased with the community. (It is all the more likely since earth paints — ochres — cannot be formed plastically. Consequently, in this case there must have been a previously formed figurine which was later painted. Mention should be made of the interesting grave-like pit to be related to the burials of the Yamnaya culture, in which 44 egg-sized and egg-shaped pieces of red ochre were found by O. A. Krivtsova-Grakova while excavating the kurgan cemetery of Nikopolie. The author supposes that the role of the pieces of red ochre buried in the cemetery of the community was to recall the memory of the members of the clan or the tribe either having moved away or disappeared.[158]

It may be assumed that this find represents a communal ceremony in the course of which the burial magic was repeated.

The red paint substance of the "ochre clods" of Kétegyháza was hematite (Fe_2O_3). All the other analyzed "pieces of ochre" were hematite, too.[159] Hematite is a very common iron ore even though it does not occur in the Great Hungarian Plain and was brought to Hungary by the population of the Pit-Grave culture. Its characteristic use, its employment as an item of grave goods in small pouches, reflects the belief that magic force is concentrated in red paint.

THE DEPOSITION OF THE DEAD

A characteristic feature of the burial rite is the placing of the body supine in a contracted position, as observed in the majority of pit-grave burial. (The term "Froschstellung" denoting this position refers to the fact that the legs drawn up at the knees were frequently tumbled to both sides and formed a characteristic "rhomboid" shape on the grave bottom.) Most of the original burials in Hungary and in Romania show this skeleton position. In original burials straight position occurs rather rarely and skeletons on their sides in contracted position occur mostly in secondary burials. Straight position is more frequent in the region of the Lower Volga (kurgan field of Bikovo). In K. F. Smirnov's opinion this position preserved local neolithic traditions, significant as to the area of the initial phase of the culture.[160] He agrees with N. Y. Merpert, who thinks that the most ancient Yamnaya culture started on this very territory and the burials of the first phase in the Dnieper–Don region also show this "Pre-Yamnaya" position.[161]

Interesting data were rendered by D. Y. Telegin concerning the distribution of the straight and contracted positions when surveying the Aeneolithic settlement of Alexandria. Here the comb-pattern pottery of the Doniec type was followed by a pottery of early steppe (Srednii-Stog II) character with shells in the substance of the pottery. As a continuation of the latter, there appears a highly developed, typical Yamnaya pottery. Both straight and contracted skeletons were unearthed in the

[153] Makarenko 1933, p. 14; Häusler 1962, p. 1174; Telegin 1967, pp. 191–194.

[154] Popova 1955, p. 144; Krivtsova-Grakova 1962, pp. 11–12.

[155] Investigation by Gy. Duma. His results see in the present volume.

[156] The frequent complete lack of other grave furniture can be explained perhaps by the circumstance that the red paint clod as a general life symbol made all food or drink grave furniture customary in other cults unnecessary.

[157] Artamonov 1937, p. 108, Fig. 25.

[158] Krivtsova-Grakova 1962, pp. 11–12.

[159] See Gy. Duma's paper in the present volume.

[160] Smirnov 1960, p. 235.

[161] Merpert 1960, pp. 105–117.

territory of the settlement. The grave furniture consisting of ochre and stone implements — the stone blades and arrow points found here also occur in the Yamnaya barrow burials — proves the temporary contemporaneity of the two types. Telegin states that the skeletons lying supine in contracted position can be related to the Srednii-Stog II layer of the settlement. Their grave pottery is the analogy of the Bikovo vessel, regarded by Merpert as the earliest.[162]

If we consider the fact that both the early Yamnaya grave excavated near Kainari and the very early Yamnaya child burial unearthed by A. D. Stoliar (at Hutor Popova) fall to Srednii-Stog period II and to the last phase of the Dnieper-Doniec Neolithic, it seems evident that this period is parallel with the emergence of the "Yamnaya ethnic-cultural territory". It was the period when at certain places a number of kurgan burials had already appeared. (The first steppe relationships — Brailiţa, Casimčea, Marosdécse, Csongrád — are from the beginning of the Cucuteni AB period, starting from the end of the Tiszapolgár culture.)

Since in the Yamnaya culture skeletons lying supine were characteristic, their position in the grave is very important as to the determination of the different phases of the culture, as emphasized by Krivtsova-Grakova. Her opinion is based primarily on the observations made on the above-mentioned kurgan field of Nikopolie where original burials of the kurgans yielded skeletons lying supine, while the skeletons dug into the earth of the barrow were found on their sides in contracted position. Thus, it is very likely, that the dead buried on their sides in contracted position did not belong to the earliest period of the culture.[163] Furthermore, it is highly possible that the custom of placing the dead in contracted position on the side became widespread in a later phase probably as a result of connections with other, neighbouring cultures. However, none of these observations exclude the possibility that in the later period, too, this position of the dead — characteristic in Krivtsova-Grakova's opinion only of the first period — continued to be prevalent. The huge extension of the territory and the numerous, partially studied groups of the culture only supports this possibility. When generalizing the phenomenon observed at Nikopolie, the author was doubtlessly influenced by her opinion previously formed about the relationship of the Yamnaya and Catacomb cultures.[164] According to S. S. Berezenskaia different skeleton positions indicate chronological differences between the burials of two nearby kurgans.[165] A. M. Leskov, on the basis of the affinity of the grave goods and grave structures found in closely situated kurgans, and in single ones, points out that from the position of the skeleton one cannot suppose chronological differences.[166]

As to the western peripheries cultural connections resulted in the differences of the position of the skeleton. There occur pit-graves with skeletons lying supine in contracted positions that are not older than the Usatovo burials characterized by skeletons lying on their side in contracted position. The original burials of the Valea Lupului kurgan with skeletons lying supine in contracted position were followed by burials — some of them dated by Foltesti II type grave goods — with skeletons lying contracted on their sides.[167] Similar is the case with the burials found at Holboca, while skeletons in the Baldovinesti kurgan, contracted on the side, represent the level of the secondary burials of the Valea Lupului kurgan.[168] The original burial of Püspökladány–Kincsesdomb contracted on the side with the head oriented towards NE and surrounded by a semicircular ditch can be related to the Usatovo culture,[169] while the next grave with the skeleton lying supine in contracted position is an analogy of the graves unearthed at Hortobágy and at Kétegyháza. Consequently, the simultaneous occurrence of the two positions in the late phase of the Yamnaya culture does not involve any essential change in the rite.[170]

THE SIGNIFICANCE OF THE CONSISTENT WESTERN ORIENTATION

The similarity of the pit-graves of the Tisza region, Oltenia and Bulgaria manifests itself most strikingly besides the above-mentioned characteristics, in the strong dominance of the uniform western orientation. The question is raised whether this custom developed only as a local feature on the territories west of the Lower Danube, in the — specific — Banat and Tisza groups,[171] or it can also be found in the eastern regions. Gy. Gazdapusztai considered the W orientation a local feature and mentioned its absence in the Pontic area.[172]

[162] Telegin 1960, pp. 15–16.
[163] Krivtsova-Grakova 1962, pp. 9–10.
[164] Krivtsova-Grakova 1938.
[165] Beresenskaia 1959, p. 60.
[166] Leskov 1967, p. 8.
[167] Dinu 1959, p. 202.
[168] Hartuche-Anastasiu 1968, p. 41; Zirra 1960, p 101.
[169] Häusler 1964, pp. 774–775.
[170] Häusler 1962, pp. 1141–42, 1156–67; Hancar 1937, p. 260.
[171] Merpert 1961, p. 164.
[172] Gazdapusztai 1967, pp. 94–95.

The orientation of the Yamnaya type burials is not uniform, even within the same kurgan group.[173] In most places NE orientation dominates.[174] However, in the Lower Don region and west of it W orientation occurs more frequently, in fact, in several closed groupes it is exclusive.[175] The partly regional and partly stratigraphic separation, and the fact that the westernmost representatives of the culture show only W orientation allow us the conclusion that certain population groups representing a closer unity within the ethnic frame of the culture insisted on this particular orientation. The mobile, possibly nomadic way of life of the whole population of the culture precludes an accurate description of these groups.

It was Melentiev who recognized that in the Lower Don region W oriented graves are highly dominant. In this area between Rostov and Novocherkask five pit-grave kurgans were unearthed by Kaposhina. The 14 Yamnaya burials found in them were, without exception W oriented. The kurgan first excavated had three layers of earth. The first tvo heaps of earth were piled upon pit-graves of the same rite while the third one was above the later catacomb burial.[176] On the left bank of the Don, near Bagaievskii Melentiev found W oriented burials in two pit-grave kurgans. The original burial of kurgan 2 should probably be placed in the local late Yamnaya–early Catacomb period represented by bone pins with hammer heads in the graves of the Yamnaya culture.[177] The original burials were covered with wood or reed and the roof was supported by short posts. In these graves the dead were lying supine in a contracted position while the skeletons in the Yamnaya secondary burials were contracted, lying on their sides. (The change in the rite must have been the result of connections with the Catacomb culture.) In the same area near Novii Aksai, a W oriented Yamnaya grave came to light with a skeleton lying supine in a contracted position without any grave furniture. The later secondary burials were those of the Catacomb culture of the Doniec region. Near Donskoi (District of Novocherkask) two kurgans yielded W oriented pit-graves; in one of them a bone pin with hammer head was also found.[178] In the steppes of the Azovian Sea,[179] in the Krim[180] and in the Lower Dnieper[181] region W orientation occurred quite frequently. In the vicinity of Pervomaievka W oriented original burials were found covered with stone slabs and wood. The excavators mention that while these were lacking grave furniture, the NE oriented graves yielded more grave goods.[182] The W oriented graves situated on the left bank of the river Orel excavated at the beginning of this century were similarly lacking any grave goods.[183] S. S. Berezenskaia in the Lower Dnieper region excavated five Yamnaya burials from two kurgans, all of them W or SW oriented. The earlier ones were contracted in a supine position while the later ones were lying on their sides. Grave 2 of kurgan I was a step-like burial dug into the virgin soil, the grave bottom was plastered with clay and painted with ochre.[184] In the vicinity of Dniepropetrovsk, near the village Kut, W oriented graves were unearthed by D. T. Beresovets. No grave furniture was found and on the basis of the shape of the grave, the position of the dead and the piece of ochre placed near the shoulder they are closely related to original burials in Hungary. Here too, some W oriented graves situated over one another were found. In one of the later, N oriented graves a hammer-headed bone pin and a vessel of later type with flat support were found.[185] In a kurgan near Kruglik, Bukovina, a pit-grave type W oriented original burial was unearthed by Smirnova. The grave was covered with wood and the spread on the grave bottom was painted with ochre. In the vicinity of the burial, on the original surface the traces of fire burnt during the funeral ceremony were found. Smirnova remarks that the W oriented Yamnaya burials of Podolia (Dniester region) are closely related to the group of Romanian and Bulgarian pit-graves.[186]

In Moldavia, on the bank of the river Kogilnik the original burial was also a W oriented Yamnaya type grave. It was covered with a wooden construction and it had remains of bark on the bottom. In the same kurgan the child burial dug afterwards into the ground was of similar orientation and position; the latter yielded an egg-shaped Yamnaya type vessel. The graves dug into the earth of the barrow were NE oriented.[187] In the same area, in the course of the excavations carried out by Dergatshev, a pit-grave original burial surrounded by a

[173] Krivtsova-Grakova 1962, pp. 8–9; Sinitsyn 1960, pp. 11–19; Zirra 1960, p. 111.
[174] Gorodtsov 1905, p. 185; Id. 1907, pp. 215–218; Rau 1927, pp. 56–57; Leskov 1967, p. 28.
[175] Melentiev 1969, p. 91.
[176] Kaposhina 1962, p. 40–41.
[177] Melentiev 1965, pp. 44–45; Merpert 1961, pp. 168–169; Latinin 1967, p. 28.
[178] Melentiev 1966, pp. 94–95.
[179] Klein 1960b, p. 150.
[180] Shults–Stoliar 1958; Shepinskii 1962; Dashevskaia 1969, pp. 62–69.
[181] Beresovets–Pokrovska–Furmanska 1960, pp. 104–105.
[182] Evarnitskii 1907, pp. 118; 154–155.
[183] Beresenskaia 1959, pp. 59–60.
[184] Beresovets 1960, pp. 47–49.; Latinin 1967, p. 22.
[185] Smirnova 1968, pp. 20–21.
[186] Oboldueva 1955, pp. 40–43.
[187] Dergatshev 1973, pp. 23–26. (The completely destroyed original burial of the kurgan near Tshimishliia is of the Usatovo period, while its undisturbed secondary burial was of pit-grave character. V. Dergatshev's kind information).

semicircular ditch came to light. The position of the skeleton, just as the one excavated by Oboldueva, agrees with the characteristic position of the skeleton in Barcé-halom and in other undisturbed burials in Hungary. Some of the pit-graves unearthed by Dergatshev cut into earlier Usatovo type graves. Among the grave furniture of the pit-graves, the so-called "thick crescent" shaped pendant and the multi-twisted copper and poor silver hair rings occurred, well known also from Hungarian burials.[188]

The W oriented Yamnaya-type burials of the kurgans recently excavated between the rivers Dniester and Danube — mentioned above in connection with the painted grave cover — are particularly significant.[189] Here it was possible to make correct stratigraphic observations concerning the connections of the Yamnaya and Usatovo type graves from different periods. This territory is most important from the point of view of interactions between the Late Tripolye, Cucuten B, Černavoda, Usatovo and Yamnaya cultures. The observations by the excavators render useful contribution to the relative chronology. The Yamnaya burials unearthed here can be divided — from the point of view of relative chronology — into three groups. The earliest are contemporaneous with the Usatovo graves or are of slightly later origin. The burials of the second group are chronologically very near to those of the first. These two groups show a number of common features; their grave furniture is poor and mostly W oriented. The majority of the burials of the third group are provided with grave furniture. In the opinion of the excavators, these can be dated to the end of the IInd layer in Mihailovka settlement, i.e. they can be parallelled with the layer of Mihailovka III already manifesting catacomb features; in Merpert's system they represent Yamnaya 3rd and 4th groups.[190]

The earliest Yamnaya burials of the Dniester–Danube area are parallelled with the burial unearthed by Oboldueva and with the earliest Romanian pit-graves. The synchronization can be extended to the earliest pit-graves in the Tisza region and at Aranyosgyéres, Transylvania. Besides the W orientation this is supported by the uniform occurrence of the coloured carpets, the wooden construction and the mat covers of the graves, the position of the skeletons, the striking lack of grave furniture (with the exception of one silver earring), and the ritual hearths also containing cow and horse bones found on the original level around certain original burials. On the basis of the Mihailovka I–II type pottery found in one of the graves and on other considerations the horizon of these burials can be related to the end of the earliest Yamnaya phase and to the first group of the SW variant of the developed Yamnaya cultural-historical area. The fact that even some burials of this group are demonstrably younger than the *earliest* Usatovo graves is very important as to the emergence and chronology of the Usatovo culture.

The burials of the earliest and second Yamnaya group closely following it were dug with the same method as the one observed in the case of Barcé-halom, Storozhevaia Mogila, Kárhozott-halom, Gurbanesti, etc. The covering of the grave with woven material is also the same. The authors emphasize that the digging of the secondary graves into the hard virgin soil, the lining of the grave bottom and the cover all suggest that the strengthening of the grave-pit had a special significance in the rite of the Yamnaya people.[191]

GRAVE FURNITURE

The grave furniture of the Hungarian graves is remarkably poor.

(1) Earrings made of poor silves or electrum(?). Some simple, ring-shaped earrings made of wire with circular cross section, open at the end (Kétegyháza–Török-halom); one-and-a-half-twisted spiral-shaped earrings made of wire of circular cross section (Balmazújváros–Kárhozott-halom) and "thick-crescent" shaped ones, i.e. earrings thickening towards the middle and open at both ends (Buj–Feketehalom, Tiszaeszlár–Potyhalom, Kétegyháza–Török-halom).

I. Bóna and N. Kalicz emphasize that these represent the earliest objects made of silver in the Carpathian Basin.[192]

Kalicz is dealing in detail with the relationship of silver and electrum earrings. He establishes that the jewelry types at issue occur above all in the late period of the Yamnaya culture and in the period following it.[193] As indicated by the above-mentioned silver earring found in grave 14, kurgan 1 at Nerushai, the appearance of this jewelry precedes the later Yamnaya period characterized by the hammer-headed bone pins.[194]

On the other hand the form with open ends, thickening towards the middle occurs primarily in Moldavia and in the region west of it, almost always

[188] Dergatshev 1973, pp. 16–17, Fig. 2. 2, 6.
[189] See note 140.
[190] Shmaglii-Tsherniakov 1970a, pp. 105–107.
[191] Ibid, pp. 96–98.
[192] Bóna 1961, p. 10; Kalicz 1968, p. 35.
[193] Cf.: Kalicz 1968, pp. 35–37.
[194] Cf.: Krivtsova-Grakova 1962, pp. 9–10; Leskov 1967, 8.

in secondary burials.[195] In the same area they were also made of gold; the Early Bronze Age, and even Middle Bronze Age survival of the form can also be supposed on the basis of similar Bronze Age gold jewelry.[196]

(2) Cylindric bead curved from copper plate (Debrecen–László-halom). This jewelry type appears at a very early time: Karbuna;[197] it also occurred in period II of Srednii Stog: Petro-Svistuncvo.[198] However, it also occurred as late as the Late Yamnaya burials.[199]

(3) Dog teeth pierced at the root (Kétegyháza–Török-halom). The special feature of the necklace remains found in the graves of Kétegyháza is that they are made of masticatory teeth pierced at the root, while in the graves of the steppe region the employment of incisor teeth is general.

(4) Sheep or goat astragals (Kétegyháza–Török-halom, kurgan 3/a). Very frequent as grave furniture in the steppe region. At Kétegyháza they came to light from children's-graves; the same concerns those from Ukraine. They were probably toys.[200]

(5) Remains of blankets, spreads made of some organic substance. These were already mentioned in connection with grave furniture; it is especially the painted ones that should be considered characteristic grave goods of the culture.

(6) Pieces of ochre. (The consequent employment of red ochre is such a characteristic feature of the burials in this culture that before the accumulation of a larger find material for a more exact cultural definition, the term "ochre grave culture" had been used.)

SPIRITUAL LIFE AND RELIGION

Among the general characteristics of funeral rites we can find but a few data reflecting the specific features of spiritual life. Besides the special employment of ochre paint and the idea that "the grave is the house of the dead" it is the cultic character of the kurgan that should be taken into consideration.[201] It is very likely that in the case of the pit-grave kurgans we can also speak of the ancient view according to which the person buried in his "house" in resting position continues to be the member of his community. The "large family" kurgans unearthed in the Nikopolie kurgan cemetery and the object mentioned in connection with the pieces of ochre fit well into this general picture.[202] Especially dominant is the feature of nomadic cultures — also observed in the Hungarian Copper Age — namely, that the magic symbolization of the survival of communal affinity and stability is reflected in the cemeteries, in communal burial places.[203]

The appearance of domestic animals in different ceremonies is a general phenomenon. The cattle and horse bones, ram-horns found in graves and at hearths preserving the remains of the funeral supper are proofs of this.[204]

The stone maces ending in horse or bull head serving possibly as power symbols point to the significance of the latter animals.[205] A bull skeleton was found at the end of the last century in the vicinity of Simferopol close to a central grave on the original surface.[206] A similar phenomenon was observed by I. V. Sinitsyn at the sacrificial place situated over one of the original burials of the famous Tri Brata kurgans where the well-known clay cart model was found.[207]

In a stone-covered minor pit of one of the kurgans in the Salgir valley, a simple Yamnaya vessel was found. The excavators are probably justified when they consider it the remain of a sacrificial ceremony.[208] On similar sacrificial places animal bones and vessels can frequently be found.[209]

The cromlech encircling the central grave is generally brought in connection with the sun cult.[210] It seems more probable, however, that instead of the sun cult we should rather suppose a "protecting" building symbolizing the living place. In the SW part of the cromlech of one of the largest Usatovo kurgans a stone slab came to light with human figures, horses and deer. In the SW part of another cromlech three stone slabs were placed, one of them with a dog on it.[211] These stone slabs denoted perhaps the entrance also indicated by the watchdog representation. It is striking that on one of the

[195] Kind information by B. Nikolov.
[196] Kalicz 1968, pp. 36–37.
[197] Sergeiev 1963.
[198] Bodianskii 1968, pp. 117–118.
[199] Melentiev 1966, p. 106.
[200] Gorodtsov 1907, pp. 339–340; Leskov 1967, p. 8; Merpert 1967, p. 82; Beresovets–Pokrovska–Furmanska 1960, pp. 104–105.
[201] Sierksma 1963, pp. 219, 233; cf.: Hancar 1937, p. 260.
[202] Krivtsova-Grakova 1962, pp. 11–12.
[203] Kalicz 1969, p. 22.
[204] Terenoshkin 1956, p. 70; Shepinskii 1962.
[205] Shepinskii 1959, p. 68; cf.: Iessen 1946. See also Comşa 1972, pp. 66–67; Danilenko–Shmaglii 1972, pp. 3–20.
[206] Shepinskii 1959, pp. 68–69; Steven 1891, pp. 147–153.
[207] Sinitsyn 1948, pp. 144–145.
[208] Shults–Stoliar 1958.
[209] Cf.: Evarniitskii 1907, p. 144.
[210] Miller 1933, pp. 150–157; Shepinskii 1961, pp. 227–229. Shepinskii 1963, pp. 38–40.
[211] Shepinskii 1959, pp. 68–70.; Patokova 1957, pp. 35–36.

cromlechs we can find a deer, also known as a sacrificial animal.

The remains of ritual deer burials were observed in the two nearby kurgans situated in the vicinity of Simferopol. Near the original burial of kurgan 3, on the original surface, an intact deer skeleton was lying with the head oriented towards the grave. The original burial of kurgan 13 yielded only the skull of a deer. The grave was surrounded by a stone circle and the first earth filling into which the Yamnaya graves were dug was built on this. Shepinskii assumes that the deer buried in the central grave was perhaps a totem animal.[212]

The apparent presence of the deer cult together with phenomena suggesting sun cult shows features of the spiritual life known from later nomadic cultures, too.[213] The occurrence of serpents in graves can perhaps be related to this circle, especially east of the Dnieper in the region nearer to the Caucasus.[214] The motif of a serpent winding on a tree can be observed on hammer-headed bone pins.[215]

The "Pan's whistles" and bird bones occurring in graves with richer grave furniture as observed in the Mariupol cemetery deserve special attention.[216]

The grave stelae hint possibly at the ancestors' cult.[217] Three such stelae belonged to the furniture of a rich grave in the district of Glubokoie.[218] In one of the burials of Gurbanesti a pipe-oven came to light with roasted hempseeds in it.[219] The inhalation of the drug to be found in hempseed must have caused a trancelike state. Similarly, hempseeds were placed into a vessel near the dead in one of the Early Bronze burials of the North Caucasus.[220]

The continuity of the basic elements of spiritual life can also be assumed from the doubtless survival of certain elements of grave rite and costume. The female grave at Oroszvár, the breast plate from which was reconstructed by I. Bóna is, on the basis of its grave furniture, of a later origin than the pit-grave culture; its eastern connection, through the forest steppe zone, are highly probable.[221] Beside the piece from Nalchik, an early example of this costume decoration was found near Eruslan in a Yamnaya grave. In grave 16 (female) near Berezhnovka, 40 cylindric shell beads and 117 small, decorated sheep bone tubes were unearthed.[222] The more direct analogies of one of the latest "ochre graves" near Ploești-Triage, being chronologically closer to the Oroszvár grave, have already been mentioned.[223]

The trepanation of the skulls occurring in strikingly "rich" burials should also be related perhaps to cultic, shamanistic beliefs. (In the 5th, double burial of Berezhnovka, in kurgan 9 both the grown-up and the adolescent had trepanated skulls.[224] One of the rich Late Yamnaya graves, the 6th burial of kurgan 7, near Donskoi is especially interesting. Near the skull 13 bird bones ("Pan's pipes"), four teeth of predatory animals and a piece of flint, at the left temple a one-and-a-half-twisted poor silver hair-ring and at the left shoulder two bone harpunes were found. A hammer-headed pin made of antlers and, close to it a copper or bronze plate decorated with punching were placed near the body. Further, there were three beads twisted from a similar plate the analogy of which had been found by L. Zoltai in László-halom, Hortobágy. The skull was trepanated.[225]

The bone implements placed into the grave must have had a significance to indicate the dignity of the deceased. Harpunes and hooks occur especially in Late Yamnaya graves and in Usatovo burials. In the grave near Glubokoye yielding the three stelae and gold grave furniture, 10 bone hooks were found. Gorodtsov also mentions the recovery of several harpunes and hooks.[226]

On the basis of these graves the trepanated skulls and the richer than average grave furniture could possibly be brought in connection; the assumption could be strengthened by further lucky finds.

[212] Shepinskii 1959, p. 67; Shults–Stoliar 1958, pp. 53–63.

[213] Shepinskii 1959, p. 70; Cf.: K. Bakay: Scythian Rattles in the Carpathian Basin and their Eastern Connections. Amsterdam 1971. 112 p. (with further literature).

[214] Melentiev 1965, p. 54; Sinitsyn 1948, pp. 144–145.

[215] Latinin 1967, pp. 51, 64, 87.

[216] Sinitsyn 1956, pp. 78–79, Id.: 1957, p. 15; Melentiev 1956, pp. 54–55.; Rosetti 1959, pp. 797–798; Shepinskii 1960.

[217] Concerning this issue see: Formosov 1965a, p. 181; Id. 1969, pp. 170–190; Dashevskaia 1969, pp. 62–63; Zlatkovskaia 1963, pp. 81–83; Id. 1965, p. 183. Kanivets 1955, pp. 75–77; Dergatshev 1968, pp. 169–172.

[218] Shmaglii–Tsherniakov 1970a, pp. 39–40, 100–102.

[219] Rosetti 1959, pp. 800–802, 805.

[220] Markovin 1963, p. 98.

[221] Bóna 1960, pp. 198–201, 203.

[222] Sinitsyn 1957, p. 17.

[223] Rosetti 1959, p. 810.

[224] Sinitsyn 1957, pp. 11–13, 144.

[225] Melentiev 1966, pp. 95–98.

[226] See note 218; Cf.: Gorodtsov 1905, p. 186; It can also be assumed that the role of the arrow put into the hand was to denote the dignity of the deceased. See: Klejn 1967, pp. 226–227.

The analogies described so far are in our opinion sufficient to prove that the builders of the East Hungarian kurgans were a group from the population of the W areas of the Yamnaya culture. It seems to be evident that the route of these people was the same as the one mentioned in connection with the Csongrád–Marosdécse complex where the western relations of the steppe cultures had a chain-like sequence after the end of the Tiszapolgár culture.

The above-mentioned ethnic affinity is also supported by anthropological data in the case of the Csongrád grave.[227] The anthropological evidence of the pit-grave kurgans reflects the same direct connections. On the other hand, besides the strikingly marked type solely characteristic of the steppean Pit-Grave culture there appears, as already observed in Romania, the gracile type, too, especially in female burials, suggesting possible local population elements.[228]

[227] Marcsik 1973, pp. 19–27.

[228] See Antónia Marcsik's paper in the present volume.

Burials in Hungary are lacking grave-goods elucidating their relationship with local, non-steppe populations.[229] As far as the whole unit of the Tisza region kurgans is concerned we cannot accept the chronology, probable in the case of the original burial of Kétegyháza kurgans 5–6 (Černavoda III–Boleráz period), especially since certain analogous burials in Oltenia suggest a later chronology.[230] On the other hand, from a methodological point of view we cannot agree with the opinion of N. Kalicz. He dates the pit-grave kurgans with poor grave furniture to the Early Bronze Age. His assumption is erroneously based on the appearance of corded ware generally showing "eastern" influence, "eastern type hatchets" and *catacomb* type vessels not found in the pit-graves.[231] He is right in his basic observation that the earliest pit-grave kurgans appeared in Romania after the Cucuteni B period and a part of them were contemporaneous with the Usatovo culture (Brailita, Odessa kurgans). However, accepting the low chronology of the Usatovo culture (2000–1700 B. C.) he also dates these early pit-graves to the period of the Folteşti II–Protoglina–Schneckenberg material, while he wrongly parallels the Hungarian Baden culture and the early phase of Coţofeni with the Cucuteni B phase. Consequently, in his concept the appearance of pit-grave burials, the ceasing of Cucuteni B and Baden coincide with the appearing of the corded ware of different origins and with the emergence of the strongly differentiated Early Bronze Age social order as impact of the steppe conquerors.[232] This concept needs to be modified by recent developments, as it is hard to imagine that all the kurgans of the Tisza region were built during the short period of a century, even if the definitely altered relative chronology is not taken into consideration. Furthermore, we have no right to assume that the relationships, apparently existing at the time of the emergence of the Yamnaya culture, i.e. in the Tiszapolgár–Bodrogkeresztúr period, did not continue until the final phase of the Baden culture, nor do we have the right to assume a flood-like, enormous penetration overwhelming the local Copper Age population.

Above all, it is important to study the stratigraphic situation of the burials and their analogies. In the territory of the Soviet Union the *terminus post quem* is the Tripoly B I–II–Kainari–Srednii Stog II– end of the Dnieper-Doniec culture – Mihailovka level I.[233] The *terminus ante quem* is represented by Early Catacomb and contemporaneous Late Yamnaya graves.[234]

As already mentioned in connection with kurgans in the Lower Danube region (in the Soviet Union), the earlier parallels of our pit-grave kurgans are

[229] Gazdapusztai 1968a, p. 40.

[230] Bichir 1958, pp. 275–282; Dumitrescu 1960, pp. 80–81.

[231] Kalicz 1968, pp. 45–49, 55–58.

[232] Ibid, pp. 59–61.

[233] See Merpert 1968, pp. 75–81; Movsha–Tshebotarenko 1969, p. 49; Sinitsyn 1957, pp. 32–35; Bodiankii 1957, pp. 95–98.

[234] This level corresponds to the end of the 3rd phase between the rivers Dniester and Danube. Cf.: Shmaglii–Tsherniakov 1970a, pp. 105–107.

The relationship of the Yamnaya and Catacomb cultures is a much-debated problem of Soviet prehistoric archaeology. The classical view is represented by Gorodtsov 1905, p. 79 and after him, by Krivtsova-Grakova 1938, pp. 33–38 and Popova 1955. In their opinion the Catacomb culture is genetically connected to the Yamnaya culture. True, the most general grave rites are the same, or similar; however, the new elements of decisive importance like the catacomb itself, the specific catacomb pottery, the appearance of the anthropologically new gracility and the deformation of the skull cannot be derived from the Yamnaya culture. Bersenskaia and Shaposhnikova 1957, pp. 270–275 and Klejn 1960, pp. 144–148; Id. 1961, pp. 49–65; Id. 1962, pp. 74–87; Id. 1966, pp. 7–13; Id. 1968a, pp. 11–16 are justified when emphasizing their alien, most possibly southern origin and the impacts of "Schnurkeramik" to be felt on the pottery of the Catacomb culture (Klejn 1968a, pp. 14–15). Their evidence pointing to a phase of the two cultures running parallel is convincing. The appearance of the Catacomb culture can be set to 2100 B. C. (Fisenko 1970, pp. 58–66). The earliest, those of the Novosvobodnaia age can be found in the region of the river Doniets. This stage can be well parallelled with the period of the Troy III settlement. The late Yamnaya population between the rivers Volga and Don must have survived as long as the whole Catacomb period. According to Fisenko's chronology they go until 1800–1700 (cf.: Mamontov 1967, pp. 236–239). This seems to be in accordance with the observations of Shmaglii and Tsherniakov whose opinion is that the Yamnaya groups I and II unearthed between the Dniester and the Danube are partly contemporaneous with Usatovo and partly follow the latter, while the

contemporaneous with the Usatovo group, or they closely follow it.[235] Their arrival to the territory of Romania cannot be set earlier than the end of the Cucuteni B phase.[236] Their earliest Usatovo type burials can be connected with the Foltesti I period.[237]

One of the major issues of relative chronology is the problem of the relationships of the Yamnaya and the Usatovo cultures and the connection of the latter with the different phases of the "transitional period." Judging by the stratigraphy of the Odessa kurgan, most of the researchers assumed that the Usatovo culture may have followed the Catacomb culture, or at least the Yamnaya culture.[238] However, the excavations that seemed to prove the very opposite, forced the researchers of the period to revise the accepted opinions concerning the stratigraphy of the kurgan unearthed in 1912–1913.[239] From this revision it appeared that the Usatovo burials of the site are not later than the pit-grave burials, moreover, they are definitely earlier than the younger pit-graves. According to V. G. Zbenovitch, the emergence of Usatovo must have taken place after the SE movement of the Tripolye tribes in the steppe zone where the penetrating Tripolye population had come into connection with the early groups of the Yamnaya culture.[240] N. M. Shmaglii and I. T. Cherniakov, on the basis of stratigraphic data referred to, brought the early phase of the process leading to the emergence of Usatovo in connection with the horizon represented by the grave of Kainari.[241] Considering the appearance of the "C" type pottery in Cucuteni A–B and B phases as well as its role in Černavoda I type units, it is very likely that the emergence of Usatovo is also connected with it both from historical and chronological aspects.[242] From the point of view of the relative chronology of the Usatovo group, in Zbenovich's opinion Tripolye II–Cucuteni B and Early Yamnaya culture are *terminus post quem;* while in the region of the Dniester *terminus ante quem* is represented by the Late Yamnaya–Catacomb cultures.[243] This means that its eastern neighbours were Yamnaya, Kemi-Oba and May kop; while its western neighbours were Černavoda I (Oltenita–Renie II phase) Salcuta IV and the latest groups of Bodrogkeresztúr. This relative chronology is supported, besides the Maykop type metals and kurgan stratigraphies, by the mutual occurrence of certain undoubtedly analogous vessel types and decorative elements (Černavoda I type corded ware.)[244] V. G. Zbenovich does not consider it likely that the Usatovo group defined by him existed as late as level III of Černavoda, as suggested by V. N. Pavukova.[245] His opinion is based on the fact that the canneluring characteristic of Černavoda III, is missing from the Usatovo material; while the corded ware elements to be found in the latter have no traces at all in the Černavoda III–Boleráz material. These facts prove, in our opinion, above all the lack of cultural relationships and, considering that the appearance of southern impacts first emerging at the time of Černavoda I–Oltenita Renie II may have coincided with Usatovo–Foltesti I, V. N. Pavukova's suggestion concerning relative chronology can only be partly accepted (Tripolye C II–Horodistea–Foltesti I–Bodrogkeresztúr II–Boleráz).[246]

Černavoda I type material is doubtlessly contemporaneous partly with Cucuteni B and partly with the above-mentioned Usatovo–Horodistea–Foltesti I material.[247] It is the pit-graves in the territory of Romania — Brailita, Vişan — dated by the Horodistea I material that determines the beginning of the penetration forcing Černavoda I–Oltenita Renie II population towards the west and putting an end to the Cucuteni B settlements.[248] The pit-grave people moving partly with this population and partly directly afterwards arrived from the same direction, after Foltesti I and before Moldavian Foltesti II, following Salcuta IV–Late Černavoda I, in the period corresponding to Černavoda III preceding Čelei and Cotofeni. The original burials of Valea Lupului, the early graves of Hol-

late, IIIrd Yamnaya group arrived only after a considerable time had passed. In our opinion the pottery of these can be set between 2000–1900 B. C. (Late Coţofeni, Glina III, Vučedol periods). The coincidence of relative chronology between the appearance of the Catacomb pottery — dishes with cross-shaped pedestals — and the similar vessels of Vučedol and the unprecedented character of the form preceding the Catacomb culture seems partly to justify Klein's hypothesis; it points to common Balkan, South-East-European roots.

[235] Cf.: note 189–191.

[236] Dumitrescu 1963, pp. 498–500.

[237] Hartuche–Dragomir 1969, pp. 67–70; Roman 1971, pp. 131–132.

[238] Gimbutas 1956, p. 88.

[239] Zbenovitch–Leskov 1969, pp. 29–38.

[240] Briusov 1952, pp. 232–242; Zbenovitch 1967, pp. 8–16. Childe 1960, p. 114.

[241] Shmaglii–Tsherniakov 1970a, pp. 94–95; Movsha 1972, pp. 20–21.

[242] The position of the dead in the earliest graves of Vychvatinsk also seems to support this assumption. Cf.: Passek 1961, pp. 155–156.; Movsha 1960, pp. 60–67; Chernish 1962, p. 54.

[243] Zbenovich 1969, p. 9; Id. 1972, p. 21.

[244] Zbenovich 1969, pp. 6–8; Nestor–Zaharia 1968, pp. 26–27.; Morintz–Roman 1968, p. 67, Abb. 17. 3–5, p. 72, Abb. 22; Subbotin–Zaghinailo–Shmaglii 1970, pp. 135, 134. Figs 1–2.

[245] Zbenovich 1969, pp. 9–10.

[246] Pavukova 1966, pp. 261–263.

[247] Nestor–Zaharia 1968, p. 26; Dumitrescu 1963, p. 497; Morintz – Roman 1969, pp. 62–63.

[248] Hartuche–Anastasiu 1968, p. 19; Shmaglii–Tsherniakov 1970a, p. 94; Zaharia 1964, pp. 439–443; Dinu 1968, pp. 130–131; Garaşanin 1971, p. 12; see also notes 236–237.

boca, the original burials of Glavanesti Vechie, Endže[249] and the earliest burials of Hortobágy–Árkus–Kettőshalom, Balázshalom at Sárrétudvari and Kétegyháza can be connected with this.

In connection with the latter, the information rendered by the original burials and Copper Age settlements can be summarized as follows.

The material of two settlements situated in the close vicinity of one another points to no interaction or connection. In the case of these shortly inhabited settlements even the assumption that the abandonment of the Bodrogkeresztúr settlement was caused by the arrival of the Černavoda III population is impossible to prove. At any rate, there is no doubt that there must have passed but a short time between the two events. This assumption can, in our opinion, be convincingly supported by the relative chronology of the individual settlements.

The *terminus post quem* of the Bodrogkeresztúr settlement unearthed on barrow field IV cannot be exactly established. We can only make sure that this short-lived settlement began following the end of the independent Tiszapolgár culture.

The *terminus ante quem* seems to be evident; it is apparently represented by the Černavoda III settlement. However, the results of recent research cast doubt on the validity of the mechanic employment of self-evident horizontal stratigraphy. Although there are few settlements of the Bodrogkeresztúr culture and no direct vertical stratigraphy is at our disposal as to its inner chronology,[250] there are strong indications that the people left this settlement before the period marked by Hódmezővásárhely–Hunyadi-halom—Pécska–Nagysánc (deepest layer)—Torda cleft (in caves) —Tiszavalk–Kenderföldek—Tiszavalk–Tetes—Herculane III material.[251] First of all the analogies of the material of this settlement point towards Herculane II and Tarnabod. In addition the typical elements of the Hunyadi-halom group were represented only by a few sherds, namely a typical handle lost after the excavation.

Of the cemeteries of the culture we consider the units of Jászladány and Kunszentmárton–Pusztaistvánháza contemporaneous.[252] The correspondence with the above-mentioned finds of Reți is also very likely.[253] Based on the extensive investigations by P. Roman, it can be supposed that the settlement can also be parallelled with Late Cucuteni A-B, Černavoda I.[254]

It was in connection with the appearance of Salcuța IV elements (Hunyadi-halom group) that the problem of integration–desintegration was raised by I. Kutzián in respect of the Middle Copper Age cultures.[255] In our opinion, the relationships reflected in the find material and often called "cultural impact" and "interrelation" can be considered an evidence of the historical integration process also assumed by P. Roman. In the course of this integration process involving the populations of Salcuta (II-III), Erősd, Petresti, Tiszapolgár and Late Lengyel a Middle Copper Age culture emerged showing a more and more unified character.[256] It naturally has groups manifesting local specialities, from which the Bodrogkeresztúr, the Ludanice, the Balaton group and the Early Salcuta IV found on Herculane II can be easily defined.[257] The final phase of the development uniform in its great lines was closed by the already mentioned Hunyadi-halom, Pécska–Nagysánc (bottom layer), etc. units situated stratigraphically over the Herculane II level and produced the "pure" Hunyadi-halom type in the Tisza region.[258]

This latter level is, according to Pavukova, contemporaneous with the Boleráz group in Transdanubia and Slovakia.[259] This problem is interesting from the point of view of an analysis of the chronological order of the Černavoda III–Boleráz type settlement at Kétegyháza.

On the basis of the analogies this settlement can undoubtedly be connected with the early phase of the Černavoda III–Ezero complex following directly the Oltenita–Renie II phase.[260] Judging from the finds from Baie Herculane, P. Roman assumes that there must have been some relationships between the Early Černavoda III settlements near the Iron Gate (Lower Danube) and the population of the late Salcuta IV layers found at Peștera Hoților.[261] Taking this into consideration, we had to be careful with drawing a parallel between the latest Salcuta IV and the earliest Černavoda III periods. Reckoning with the regional separation of the finds, then, it should be taken for granted that the population producing the Černavoda III–Boleráz type pottery appeared only after the migration of the Salcuta IV–Hunyadi-halom group.[262] The Černavoda III–Boleráz settlements recently unearthed in the Tisza region were contemporaneous with Romanian, Transdanubian and Slovakian analogies and are situated on the very same area where the sites of

[249] Dinu 1959, pp. 247–255, 203–209; Zirra 1960, p. 98; Popov 1931; Cf.: Comșa 1972, pp. 78–79, 85.
[250] Kalicz 1966, p. 5; Roman 1971, pp. 119–120.
[251] Kutzián 1969a; Patay 1970; Roman 1971, p. 94.
[252] Hillebrand 1929; Patay 1945.
[253] Székely 1964, Figs 2–3.
[254] Roman 1971, pp. 112–113.
[255] Kutzián 1969a, p. 57.
[256] Roman 1971, p. 119.
[257] Kalicz 1966, p. 17a.
[258] Kutzián 1969a.
[259] Pavukova 1964, pp. 240–241.
[260] Morintz–Roman 1968; Id. 1969, p. 64.
[261] Roman 1971, p. 83.
[262] Patay 1971, p. 12.

the Hunyadi-halom group can be found, but their finds never occur together with those of the latter. Therefore it is apparent that the "hiatus" between Bodrogkeresztúr and Baden can be eliminated by the assumption that the population of late Salcuta IV and, directly afterwards, that of Černavoda III existed here.[263] In this respect it is noticeable, that the Hunyadi-halom sites were concentrated on the northern borderline of the Tisza region and some of them were hidden in caves.[264]

Consequently, it can be supposed that at Kétegyháza the ceasing of the settlement of the Bodrogkeresztúr population was not directly followed by the settling of the Černavoda III population. As for the lapse of time between the two settlements, we must reckon with the presence of the population characterized by the Salcuta IV–Hunyadi-halom type material possibly containing Černavoda elements as well.

It appears that the movements that revived at the end of the Bodrogkeresztúr period brought about remarkable changes in the Tisza region. The Late Salcuța group and the Bodrogkeresztúr population disappeared from this territory marking the end of a sequence of development unbroken from the Neolithic and containing, besides the often decisive southern features, a large number of autochton elements. Although from a chronological aspect the Černavoda III–Boleráz material fills the "hiatus" between the end of Bodrogkeresztúr and Early Baden, we must emphasize that the number of Early Baden settlements and that of the classic sites is very small as compared to the number of Bodrogkeresztúr sites, and this is especially conspicuous south of the Nyírség. We may reckon with an increase in the number of Baden sites, though it is possible that the relics of both periods will increase in equal proportion. The present low rate of Baden settlements and cemeteries cannot be regarded as incidental, and it should not be simply attributed to lack of research. In this respect the question may be raised whether it is only the Černavoda III–Boleráz settlements, that represent the forces which, having arrived from the SE, could completely drive out the Late Salcuta and Bodrogkeresztúr populations. The possible connection of the Černavoda III type material with some of the barrows at Kétegyháza, as well as the chronological situation of the Romanian pit-grave kurgans suggest that contemporaneously with the Boleráz group both in the Lower Danube and the Tisza region the equestrian nomadic tribes of the steppe must have appeared gradually moving towards the W and occupying territories suitable for their way of life.[265] As to the appearance of pit-grave kurgans which can be connected to the Usatovo and Yamnaya populations, the *terminus post quem* in the Lower Danube region is the Černavoda I–Oltenita–Renie II, while their burials that can be parallelled with Coțofeni, are in several cases secondary, that is, their first wave must have arrived to this territory before the Coțofeni period.[266] It can be supposed that this early wave had reached as far as Transylvania and the Tisza region, as in these two areas the relics of the steppe relationship can be discerned as early as the period directly following the Tiszapolgár culture.[267] Consequently, it is very likely that the penetration of the folk of the pit-grave kurgans began not at the end of the Baden period, but as early as shown by the Černavoda III type material at Kétegyháza.[268] This assumption makes the "tabula rasa" following the Middle Copper Age understandable, because this way the complete lack of relationship between Bodrogkeresztúr and Baden could be ascribed to the circumstance that the bulk of the Bodrogkeresztúr population had escaped from the territory or its cultural unity had been destroyed before the arrival of the Baden groups.[269]

Thus, the earliest groups, which also contained Usatovo elements, can be connected with Shmaglii–Cherniakov's first and second Yamnaya groups.[270] According to N. Y. Merpert this wave represents the migration of the Lower Dnieper Yamnaya group or a related population.[271] Judging from the chronological posititon of the graves we think that the relationship between the steppe region and the Eastern Carpathian Basin can continuously be followed from the Tripolye B I–II period on. As to the character of the relationship, it appears that a change took place following the Cucuteni B–Černavoda I phase, and the former, well-balanced connections were replaced by the penetration of the pit-grave folk.[272] This wave, which we have tried to explain only as far as its early phase is concerned indicates a period of the "extension" of the steppe zone in such a way that its shepherds gradually took over the neighbouring territories.[273] In the above-mentioned initial period the most striking change is the sweeping away of the Usatovo group which partly dispersed and partly continued its

[263] Roman 1971, p. 94.
[264] Kutzián 1969a, p. 53; I owe thanks to N. Vlassa for informing me about the results of his research carried out in the caves of the Torda cleft.
[265] Roman 1971, p. 131–132.
[266] Gazdapusztai 1967a, pp.17.
[267] Kovács 1944; Kutzián 1963, pp. 442–453; Roman 1971, p. 113.
[268] Cf.: Kalicz 1968, Chapter I.
[269] Patay 1969, pp. 11–12.
[270] Shmaglii–Tsherniakov 1970a, pp. 105–108.
[271] Merpert 1968, pp. 75–81.
[272] Dumitrescu 1963, p. 498; Kalicz 1968, p. 59; Nestor 1955, p. 12.
[273] Garasanin 1971, pp. 10–11.

development in Moldavia until as late as the Early Bronze Age [Foltesti II (III?)].[274] The presence of shepherd tribes is traceable even after this period. The original burials of Smeieni, Gurbanesti, Ohat–Dunahalom, Balmazújváros–Kárhozott-halom, and the Celei–Coţofeni Age burial of Cirna may belong here.[275] One of the original pit-grave burials of the barrows unearthed by B. Nikolov may be contemporaneous with these, where the *terminus ad quem* is rendered by a Coţofeni vessel.[276] It is a striking phenomenon that the vessel of the latter grave is a perfect analogy of the vessel found in a cremation burial with ochre grave goods, published by V. Dumitrescu.[277] On the very same site a typical Baden vessel was found by Nikolov in a Yamnaya grave.[278] The Foltesti II type amphora at Valea Lupului, the original burials of Baldovinesti and the burial of Girceni contracted on its side are possibly of a somewhat later origin.[279]

Of the pit-grave burials the latest are those to be parallelled with the late phase of the Coţofeni and Glina III–Schneckenberg period.[280] In this phase both the rite and the grave furniture show differences that force us to cast doubt upon the ethnic and cultural affinity of these burials with the earlier ones. The presence of different grave types and grave goods support the opinion of N. M. Shmaglii and I. T. Cherniakov who assume that at the end of the "transitional period" one has to reckon with the appearance of new components of southern origin; on the other hand, in this phase there also appeared Catacomb and Srubnaya elements from the east.[281] This is indicated by a Srubnaya type vessel from one of the Baldovinesti graves and by burials 1, 3, 4 of Gurbanesti, barrow 2. (Strongly contracted skeletons Late Coţofeni, Glina III vessels.)[282] The following burials can be dated to this period: the Transylvanian Vládháza, Oltenian Verbita, possibly the cremation burial of Szerbkeresztúr,[283] the burial of Ploesti–Triáj yielding the double-spiral pendant and other ornaments.[284] The latter can be connected to the Monteoru culture.

These burials, i.e. the Late Coţofeni–Glina III period render a *terminus ante quem* for the majority of the pit-grave kurgans in the Tisza region. The analogies of the vessels found in Buj, Szerbkeresztúr and in the Milostea II barrow (cremation burial, stone-packed tumulus grave) can be recognized in the graves of Shmaglii-Cherniakov's IIIrd Yamnaya group and may belong to the end of Foltesti II, earliest Glina III, Makó–Somogyvár period.[285] This period marks not the beginning of the presence of pit-grave kurgans in the Lower Danube and the Tisza regions but their final phase; thus, it is hardly possible to connect the appearance of the Pit-Grave folk to the ceasing of the Baden culture.[286]

All these data make the assumption highly possible that the relatively scarce settlements of the Tisza region can be explained by the presence of the Pit-Grave folk. It is an interesting phenomenon that while the kurgans can be found on areas filled up by the rivers Berettyó, Tisza and Körös, on higher fields covered with graves or steppe in the IIIrd millennium B. C., the Baden culture was distributed in the loess region.[287] Thus, in Hungary the relationship of the Baden and Pit-Grave populations must have been similar to what may have emerged in Moldavia as a consequence of the contemporaneous penetration of the Globular-Amphora and Pit-Grave folks, respectively, and to the conditions assumed in North Bulgaria and Oltenia in the Coţofeni period.[288] The position of the hearth observed at Ohat–Dunahalom and the settlement of Černavoda III type at Kétegyháza seem to support this assumption. The original burial of Püspökladány–Kincsesdomb being Usatovo on the basis of its rite and the sequence of pit-grave kurgans following it point to a long period of time. It must be taken into consideration that the kurgan

[274] Zbenovich 1967, pp. 22–25; Id. 1969a, p. 9; Dinu 1968, pp. 138–139; Florescu 1964, pp. 105–123; Cf.: Roman 1969, p. 22; Morintz–Roman 1969, p. 68.

[275] Kalicz 1968, p. 26; Rosetti 1959, pp. 793–794, 797–798. In Rosetti's opinion the burial of Cirna is possibly later than the original burials of Gurbanesti (Ibid, p. 810.) Cf.: Bichir 1959, pp. 276–278; Comşa 1972, p. 85.

[276] Kind information by B. Nikolov.

[277] Dumitrescu 1960, pp. 69–88.

[278] On the basis of B. Nikolov's information. – Owing to his generosity I was able to study the finds.

[279] Florescu 1959, pp. 221–229; Dinu 1959, pp. 203–209; Hartuche–Anastasiu 1968, p. 50.

[280] Morintz–Roman 1968, p. 118.

[281] Rosetti 1959, p. 810.; Shmaglii–Tsherniakov 1970a, pp. 107–108. Id. 1970b, pp. 116–118. (The authors' reference to the Early Bronze Age cemetery of Battonya is apparently a misunderstanding. In the Early Bronze Age cemetery of Battonya one cannot find the analogies of the vessels to be found in the "ochre graves"; moreover, as a whole, it is much later than the burials dealt with by the authors.)

[282] Rosetti 1959, pp. 794–796, Fig. 8; Cf.: Dumitrescu 1960, pp. 86–88; Hartuche–Anastasiu 1968, Pl. 57. 3; Cf.: Klein 1960b, pp. 144, 146, 106, Fig. 6.

[283] Kalicz 1968, p. 22. (with further literature); Berciu 1950, p. 107; Garasanin 1959, p. 36; Gazdapusztai 1965; Cf.: notes 113 and 116.

[284] Nestor 1944, p. 30; Zirra 1960, p. 103.

[285] Popescu–Vulpe 1966, p. 149, Fig. 7, pp. 150–154; Shmaglii–Tsherniakov 1971a, p. 83; Bóna 1965, pp. 62–63.

[286] Cf.: Kalicz 1968, p. 58.

[287] Banner 1956, pp. 136–137; Makkay 1957, p. 36; Borsi 1967, pp. 250–252. According to the kind information by Z. Borsi the territories where the largest number of kurgans can be found (Hortobágy, Nagykunság, Hajdúrét) were in the time of the IIIrd millennium B. C. mostly steppe areas with groves.

[288] Dinu 1960, p. 102; Dumitrescu 1960, pp. 86–88.

fields in the Tisza region contain several thousand kurgans, and all the original burials so far unearthed, together with some of the secondary ones, can be ranged among the material of the pit-grave group. The appearance of the pit-grave type kurgan burials is parallel with the disappearance of the Late Bodrogkeresztúr–Hunyadi-halom population and the latest pit-graves can, on the basis of the data at our disposal, be connected with the Late Baden–Nyírség–Makó level.

The solution of chronological problems is hindered by the circumstance that we have nothing to rely on as to the time-span of the particular cultural periods. While the radiocarbon data of one of the pit-grave secondary burials of Kétegyháza agrees, as for its supposed relative chronology, with the radiocarbon data of the Romanian Černavoda and Usatovo cultures, Hungarian data fail to support it (Usatovo: 2450±80, Černavoda 2555±100, 2435±100; 2310±100; Baja-Hamangia ("ochre-grave") 2580±95, 2140±60; 2110±160; Kétegyháza grave 4, kurgan 3: 2315±80; (the latest burial of the barrow!) but see: Ószentiván (Baden-Kostolac) 2505±80(!); Pivnitsa (Baden-Kostolac) 2160±160; Fenékpuszta (Balaton group) 2940±80 and 2830±80. Certain parallels between the Baden culture and the "ochre graves" can be taken for granted also on the basis of radiocarbon data at our disposal, and in the case of both populations it seems to be logical to suppose a rather long period of several hundred years.

The question of the earliest migration starting from the steppe region is evidently a major historical problem concerning all the regions occupied in the course of later millennia by a number of different nomadic steppe peoples replacing one another. In many cases these peoples determined historical-social development for several centuries. It is a well-known fact that it is the role of these connections that is of decisive importance as to the formation of the specific historical-geographical character of the eastern and south-eastern areas of Central Europe.

The southern part of the Ukraine, the Pontic region, Krim, Caucasus and the foreground of the Caspian Sea, this huge coherent territory was for several thousand years the home of peoples with similar material and spiritual culture. This cultural unity of the zone can, according to Soviet researchers, be traced back to the Mezolithic. The characteristic way of life determined by geographical conditions brought about a continuity manifesting itself in the remarkable persistence of traditions, not to be found in the territories of Central Europe or the Balkans. The huge area preserving its ancient traditions from the Mezolithic through the different stages of development is, naturally, not occupied by one single folk, but by groups of a unified culture constantly mixing with each other. These groups, contrary to contemporary western cultures, cannot be definitely separated on the basis of their find material, rite or data concerning their way of life.[289] (For the same reason it is also difficult to outline the particular Early Iron Age populations, the written sources notwithstanding.)[290]

In the Mezolithic this cultural affinity of the large area seems to be reflected in the unified distribution of "geometric microlits". Both the emergence of the Dnieper–Donets Neolithic culture, and the steppe stock-breeding and horse-breeding nomadic way of life are dated back to local, Mezolithic–Epipaleolithic grounds.[291] This hypothesis seems to be proved by certain continuous features of grave rites and the anthropologic characteristics of the earliest Yamnaya graves indicating the massively-built cromagnoid type.[292]

V. I. Bibikova and A. I. Briusov suppose that the horse-breeding nomadic way of life, i.e. the characteristically steppean cultural-historical zone emerged as early as the end of the IVth millennium.[293] This, both in its population and economic way of life definitely differs from the zone summed up with the term "Danubian circle" represented by the South-Bug, Tripolye, Boian, Gumelnita, Tiszapolgár, etc. cultures.[294]

The Csongrád grave and the Marosdécse cemetery convincingly prove that as early as the emerging of the Pit-Grave culture we must reckon with a minor W oriented migration of the steppe peoples.[295] It is the movements and interactions beginning in Early Tripolye and later gradually strengthening that might have resulted in the new cultures in this "buffer-zone" in the course of Tripolye B II–C I. In the territory of the Soviet Union one of these new cultures is that of Usatovo,[296] which followed Tripolye C I; while in the eastern region of Romania Černavoda I culture emerged on Gumelnita grounds parallel with Cucuteni B.[297] The emergence of the latter cannot be explained simply by the *expansion* of early steppe Pit-Grave folks, since the merging of "Danube" and "steppe" cultural elements is basically characteristic of their composition, as also proved by anthropological data.[298] It is P. Roman's historical reconstruction that seems to be most acceptable concerning the appearance of eastern elements, the emergence of the above-mentioned "buffer-zone" and the impact

[289] Formosov 1958, pp. 135–151.
[290] Bakay, op. cit. pp. 120–121, note 330 (with further literature).
[291] Briusov 1952, pp. 183–184, 188, 203–204; Telegin 1960, pp. 16–19; Telegin 1966, pp. 99–107.
[292] Rykov 1936, pp. 24–26; Zinevitsh–Kruts 1968, pp. 13–39.
[293] Briusov 1952, pp. 203–204; Bibikova 1969, p. 67.
[294] Ibid.
[295] See Chapter 2.
[296] See notes 241–242.
[297] Morintz–Roman 1968, p. 120; Roman 1971, pp. 128–129. The Černavoda I finds from the site Rimnicelu were unearthed together with Cucuteni B pottery. I should again like to express my thanks to N. Hartuche for having given me the opportunity to see the material. (See: Popescu 1969, pp. 510.)
[298] Zbenovich 1967, pp. 20–22.

of the eastern tribes on the Copper Age cultures of the neighbouring territories. According to his assumption the Cucuteni population, on the settlements of which "C" type ware, in its A–B period and in the later phase Černavoda I material frequently occur, had good relationships with the population of the early steppe groups. As a consequence of the pressure by the steppean groups a part of the Gumelnita-Salcuta tribes moves W and SW along the Danube and with this movement a long uniting process begins in the course of which the differences of the Tiszapolgár–Salcuta–Gumelnita cultures fade away and therefore, in this period the Bodrogkeresztúr, Ludanice and Late Salcuta groups can be regarded within the Copper Age unit only as regional units.[299]

It is not sufficient for this integrating process to be explained by the increasing pressure of the steppeans only, since the described, ever increasing intercultural relationships are also significant.

At the time following the Oltenița–Renie II period began the westward expansion of the Usatovo and Yamnaya tribes. The Late Salcuta population appeared in Transylvania and especially in the Tisza region, the territory of the Bodrogkeresztúr culture. This movement makes P. Roman's assumption of an earlier, similar process highly acceptable.[300]

It is difficult to give an exact explanation as to the strengthening of the westward movement of the steppeans after the emergence of the Usatovo culture. Several researchers share the opinion that this westward movement should be explained by the desiccation of the steppe.[301] A chain reaction started by other eastern groups can also be assumed. It is especially difficult to find the direct causes of these migrations considering the fact that we have no data about the relationship of the individual steppe groups and tribes; and to identify them within the above-mentioned cultural unit seems to be a tremendous task. Relative chronological data, and primarily the stratigraphic situation of the above-mentioned W-oriented pit-grave burials justify V. Dumitrescu's view, according to which it is at the end of the early phase of Usatovo — probably contemporaneous with the latest Cucuteni B (Monteoru type) — that the penetration of Moldavia and the Lower Danube region by the Pit-Grave folk begins.[302]

The recurring penetrations are proved by the stratigraphic evidence of the excavations between the rivers Dniester and Danube and by the extensive distribution of burials chronologically following each other. The ceasing of the Cucuteni B settlements and the intruding of the Usatovo–Černavoda I tribes towards W and S are most probably to be related to these attacks. The disappearance of the latest Salcuta and Bodrogkeresztúr populations can be attributed to similar attacks,[303] as a result of which the flourishing copper-metallurgy was discontinued.[304]

It is at this time that the southern groups — taking part in the formation of the Černavoda III–Boleráz–Early Baden cultures — appear at the Lower Danube. This process is by no means clear, the *terminus post quem* is probably Salcuta IV, at least in respect of the Černavoda III.[305]

Thus, the distribution of *early* pit-grave kurgans and the Černavoda III–Boleráz material seem easy to parallel. (The kurgans dominate in East Hungary and Romania while the Boleráz material comes primarily from Transdanubia and Slovakia.)[306]

The earliest burials either contain Usatovo type grave goods or they lack any furniture. It is only later that finds hinting at local connections appear, the most significant of which are those connected with the Coțofeni culture. We must also reckon with the mutual adoptation of certain ritual elements.[307] These relationships are established in NW Bulgaria and in Oltenia, that is, in the region E of the Iron Gate (Lower Danube). Here their direct precedents are most probably the interactions of the Early Pit-Grave groups with the Černavoda III population. The groups arriving to the Tisza region through the Iron Gate or more probably along the Olt valley and Transylvania may have been similarly connected with the Černavoda III and Baden populations.[308] (The route must have been well known to them.)

It appears that these moving shepherd tribes did not produce their characteristic pottery like in the western territories. The absence of pottery may be incidental, however, a more likely explanation is that with the Yamnaya tribes pottery was not such a stabilized cultural element as the burial rite. The nomadic way of life is convincingly accounted for by the instability of the pottery element,

[299] Roman 1971, pp. 130–131.
[300] See note 264.
[301] Brooks 1950, pp. 299–301; Schwarzbach 1950, p. 154; Cf.: Erdélyi 1970, pp. 91–92.
[302] Dumitrescu 1963, pp. 498–500.
[303] Roman 1971, pp. 131–132.
[304] Renfrew 1969, p. 17.
[305] Roman 1971, p. 132.
[306] Torma 1969a, pp. 5–6; Id. 1969b, p. 104; Pavúková 1964, p. 230. Id. 1966, pp. 234–264.
[307] Dumitrescu 1960, pp. 86–88.; Rosetti 1959, p. 810; Shmaglii–Tsherniakov 1970a, p. 91; Subbotin–Zaghinailo–Shmaglii 1970, pp. 141–142.
[308] See note 287.

especially considering the peripheral position of the territories in question where the females absorbed from the local population followed the traditional pottery-making models of the region, if they made any pottery at all.[309]

The folk of the Catacomb culture does not follow the Pit-Grave culture towards W.[310] The catacomb grave type and dishes with cross-shaped pedestals must have got into the Central Danube Basin and to the Doniec region from the same S direction.[311] Rosetti supposes that the Late Yamnaya population living at the Lower Danube mediated this southern influence towards the E. This assumption is hardly acceptable, since very few catacomb grave types or pottery occur W of the Dnieper.[312] In the steppe the latest "ochre graves" are definitely to be parallelled with the Catacomb period, and with the beginning of the Early Bronze Age in the Carpathian Basin.[313]

The Pit-Grave culture is represented in and W of Moldavia only by characteristic burials often agreeing to the smallest details. The anthropological data similarly prove the ethnic affinity of the builders of the pit-grave kurgans. The historical conditions of the westward movement reflected in the distribution of the burials cannot be examined in detail because of the lack of settlements and grave goods. It appears that the burial rite was the most stable element, thus, the smaller or greater changes in the way of life as a consequence of changing cultural and ethnic conditions cannot be recognized from the burials alone. The origin and influence of new local ethnic elements cannot be elucidated as yet, although their presence is suggested by anthropological evidence. Similarly, it is difficult to define when the domination of the Central European and Balkan impacts reached a degree that resulted in the ceasing of the characteristic rite of kurgan building.

As to the possible outcome of the expansion of the Pit-Grave folk, we may reckon with changes in the way of life of the cultures living near the pit-grave area.

The expansion of the people of the pit-grave kurgans caused, in the opinion of several experts, remarkable changes in Central Europe, the Balkans, and even in Northern Europe. In their opinion, the introduction of corded ware, the wide distribution of the Indo-European languages, the profound change in the economic and social system, the destroying of the Central European as well as Balkan and Anatolian settlements should all be related to the conquest of this nomadic population.[314]

The enlisted major historical events took place partly parallel with the migration of the pit-grave kurgans. However, the territory involved in these events is considerably larger than the distribution area of the pit-graves. This in itself suggests that only part of the changes can be accounted for by the steppean tribes.[315]

It is hard to accept the concept of "the early penetration of the steppe elements" — corresponding in Gimbutas' system to phase "Kurgan III" and to be put to the Cucuteni A–B periods — that resulted in the major expansion of the Indo-Europeans. According to this concept the extension of the early Ukrainian corded ware groups over the Netherlands, the appearance of gray pottery in Northern Iran and the destroying of the Troy Ist settlement are connected with the early penetration.[316] The concerning relative chronology assumed by H. L. Thomas seems to be basically acceptable as to the rough synchronity of the earliest corded ware, the Usatovo culture and Early Baden. However, the including of Marosdécse (Cucuteni A–B) is unfounded.[317] The emergence and distribution of corded ware cultures cannot be explained by one or more strong "Drang nach West"-like Pit-Grave expansions, because the find material of the latter does not contain — apart from the cord pattern prevailing from the Neolithic — any elements common with Globular–Amphores and with Early Corded Ware or with anything as their possible roots.[318] In the Usatovo and Late Yamnaya periods, in the territory of West-Ukraine and Moldavia the interactions with the northern corded

[309] The mixing with local population is shown in many cases by the gracile Mediterranean female type (see: Antonia Marcsik's paper in the present volume.)

[310] Shmaglii–Tsherniakov 1970a, p. 108.

[311] Cf.: note 234.

[312] Rosetti 1959, p. 808.

[313] Kőszegi 1962, pp. 20–21; Klejn 1970, pp. 49–57.

[314] Gimbutas 1956, pp. 150–151; Id. 1961, p. 198; Id. 1963, pp. 826–827; Id. 1965b, pp. 477–482; Id. 1970, pp. 186–189; Garašanin 1959, pp. 51–52; Id. 1961, pp. 31–36; Mellaart 1960, p. 276; Bóna 1961, pp. 10–11; Thomas 1970, pp. 199–215.

[315] Merpert 1961, pp. 161–164; Bibikova 1969, p. 67.

[316] Thomas 1970, pp. 199–215.

[317] Ibid., p. 208. To the relationship of early corded ware and Baden see Machnik 1969a, pp. 386–389.

[318] Gimbutas explains the emergence of the Corded Ware cultures essentially with the large-scale expansion of the "Kurgan culture" (Gimbutas 1970, p. 184). Artemenko tries to derive the Central-Dnieper Corded Ware culture genetically from the Late Pit-Grave culture. (Artemenko 1967, pp. 10–14.) Danilenko's opinion is similar (Danilenko 1955, pp. 126–128.). Briusov and Zimina, Beresenskaia and Häusler convincingly prove in their studies that this assumption is groundless both from chronological and cultural aspects. Machnik, too, stresses that cord pattern as a decorative element is, in itself, not characteristic from a cultural point-of-view. Neither thinks it Sveshnikov likely that Corded Ware cultures emerged in steppe areas. (Cf.: Briusov–Zimina 1966, pp. 11–12.; Beresenskaia 1970; Häusler 1963; Id. 1969, p. 260; Machnik 1969b, p. 237; Sveshnikov 1971, pp. 12–13.)

ware cultures suggest that there are two units of different geographical distribution, having no genetic relationship with each other, in the Yamnaya period.[319]

The culture of the corded ware is not steppean in its origin.[320] Its origin should be looked for in the zone of the forest steppe where no pit-grave burials can be found.[321] Cord-pattern ornaments appeared in the steppe and on its W periphery much earlier in Srednii-Stog II–Early Yamnaya, respectively Cucuteni A–B period ("C" pottery).[322] The cord-pattern ornaments mostly occurring with incrustation as it can be observed, e.g. on the Mihalič type[323] pottery of Ezero being parallel with or slightly earlier than Hungarian Early Bronze Age, are quite different from the former. Corded ware found in Transylvania,[324] East-Slovakia[325] and in certain burials of the Romanian Plain[326] can be connected to Little Poland, to the Central European Corded-Ware cultures. Similarly, the stray-finds of Buj[327] and Tápiószele[328] may belong to the Central European Corded Ware.

It is generally in connection with the origin of Corded Ware cultures, but by all means in relationship with the early movement of the steppe peoples, that the problem of distribution of the folk groups speaking Indo-European language, together with the issue of the agreement of linguistic results and archaeologic evidence, is raised.[329]

According to the well-known thesis proved by linguistic methods, the original home of the Indo-Europeans must have been in the West-Asian steppe, since its peoples living a nomadic way of life could produce a linguistic continuity and could more easily speak an essentially homogeneous language for centuries than the agricultural communities of the "Danube" in the 4–3rd millennia. It were possibly these steppe areas and the Pontic region from where the Indo-European community dispersed; the major differentiation of the particular languages must have started only on the new areas, in accordance with the number of "conquerors" and the language of the local population.[330] For the prehistorians concerned with the origins of the individual Indo-European folk groups, primarily with the Mycenaean Greeks, it was evident to imagine the process assumed on the basis of linguistic methods in the form of the migration of Pit-Grave populations. Thus, M. Gimbutas regards Srednii-Stog, Yamnaya and Catacomb cultures as the different phases of the so-called "Kurgan culture"; and attributes the distribution of the Indo-European languages to the gradual, remarkably large expansion of these. She sees evidence of her thesis in the concordance of such general features as the employment of tumulus burials, corded ware, the appearance of the catacomb-grave form in different cultures and what is more, it is also to the effect of the "Kurgan culture" that she ascribes the fortified settlements of citadel type, among others, the Early Bronze Age settlements of Vučedol and Nagyárpád.[331]

H. L. Thomas supposes recurring *Corded Ware–Indo-European* waves after 2600 B. C. (radiocarbon chronology) starting from the Pontic region and supports his assumption by the general similarities referred to by M. Gimbutas.[332]

As to the Cucuteni A–B period this view cannot be accepted and it would be very difficult to prove that the destroying of Troy Ist settlement was in connection with the movements of the Early Pit-Grave tribes. The significance of these events should not be exaggerated, because on the very areas where the appearance of the steppe folk is undoubtedly proved by finds, the unbroken development of local cultures is also proved. (In Cucuteni B–Tripolye C I–γ I phase the import of Bodrogkeresztúr type copper axe-adzes is undisturbed.)[333] The spreading of the majority of pit-grave kurgans must have occurred in the period directly preceding Coţofeni and in its early phase, and it must have been afterwards that closer connections with local populations began to establish (Coţofeni, Foltesti II, Protoglina). The period preceding Coţofeni and "Mihalic" seems partly to be parallelled with Troy IInd layer.[334]

The peak of the penetration of the Pit-Grave folk can be parallelled with the "destruction level" set to 2300 B. C., indicated by the destruction of Troy II, Beycesultan XIII, Tarsus, Lerna III,

[319] Shmaglii–Tsherniakov 1970b, pp. 116–117; Subbotin–Shmaglii 1970a, pp. 129; Id. 1970b, p. 127.
[320] See note 318.
[321] Sveshnikov 1971, pp. 12–13.
[322] Morintz–Roman 1969, pp. 67–68.
[323] Georgiev–Merpert 1965, p. 129.
[324] Roman 1973, pp. 6–7, 11; Kalicz 1968, pp. 53–55.
[325] Budinsky-Krička 1967, p. 335, Abb. 54, p. 363; Cf.: Machnik 1970.
[326] Rosetti 1959, pp. 794–795, Fig. 8.
[327] Roska 1914, pp. 418–420; Kalicz 1968, p. 42, Taf. I. 13.
[328] Dinnyés 1973, p. 39, Pl. II. 9.
[329] Merpert 1961, p. 173; Mellaart 1962, pp. 46–50; Gimbutas 1963, pp. 815–836 (with further literature); Gimbutas 1970, pp. 155–197; Thomas 1970, pp. 210–212.
[330] Grossland 1971, pp. 234–235 (with further literature).
[331] Gimbutas 1970, pp. 166–168.
[332] Thomas 1970, pp. 206–210.
[333] Zbenovich 1969b, pp. 135–142; Cf.: Zbenovich 1967, pp. 22–25; Mellaart 1962, pp. 46–50.
[334] Morintz–Roman 1969a, p. 68.

and in South Anatolia possibly by the appearance of the Indo-European "protohettite" Luvian people. At the end of the 2nd phase of the Anatolian Early Bronze Age several hundred settlements were destroyed and, according to J. Mellaart, a renewed nomadization began in huge territories.[335]

In Zbenovitch's opinion it is impossible to explain all this by the appearance of the escaping Usatovo folk; its survival can be observed only in the Moldavian find material.[336] On the other hand, the distribution area of the characteristic pit-grave burials is not larger than that of the earlier, Cucuteni A-B period burials. It is very likely that the changes taking place in Anatolia, the Near-East and the Cyclads reflect a parallel phenomenon, Anatolian in its origin. Above all we must question the opinion of M. Gimbutas who identified the "Kurgan culture" with the prehistoric culture of the Indo-Europeans; in her opinion, at the end of the IIIrd millennium "Kurgan fighters" appeared in Palestine.[337] The same concept is accepted by H. L. Thomas as well.[338] We have no reason to deny that the folk of the Pit-Grave culture was Indo-European or that they must have spoken Indo-Iranic languages and their tribes in the N foreground of the Caucasus were in connection with the folk groups inhabiting the S side of the Caucasus and N Anatolia, and, speaking similarly Indo-European languages.[339] (However, it is not justified to call these two units "Kurgan culture" as a whole.)[340]

The culture of the Pit-Grave kurgans must have been one of the Indo-European or — what is more likely — Indo-Iranic cultures.

The above-mentioned geographical distribution of the pit-grave burials does not denote vast expansion, however, the frequent occurrence of the burials suggests that neither can the expansion be restricted to one short period nor the people taking part in it to one group.[341]

According to N. G. L. Hammond the forerunners of the Greeks can be found in the "kurgan" population. This assumption cannot be supported by archaeological evidence as yet. Hammond spans the chronological distance of several hundred years between pit-grave burials and Early Mycenaean shaft-graves when he suggests to include the Early Helladic, small-tumuli burials of Leukas into the burials of the "kurgan folk", and the same way supposes the "kurgan origin" of the tumuli dated from the end of EH and from the beginning of the MH in Macedonia and Lerna.[342]

At the time of the Early Bronze Age (Zók culture) the steppe component does not seem to be of great importance even in the Carpathian Basin. The distribution of the Baden, Zók cultures, and the pit-grave kurgans suggests that the ethnic unit of the steppe inhabited only the E part of the Great Hungarian Plain, it mixed with the Late Copper Age population of southern and local origin and its grave rites indicating its somewhat ethnic independence ceased in the above-mentioned early phase of the Bronze Age. It can be supposed that its late groups merged into certain groups of the Zók culture, however, it is disputable whether they had a decisive historic or social significance.[343]

Judging from the more strict social organization of the nomadic peoples in general, it is easy to imagine a kind of cruel, patriarchal ruling stratum in the society of the pit-grave kurgans.[344]

The economic life of the Pit-Grave folk was based on nomadic stock-breeding. This was established already in the early phase of research, primarily on the basis of the grave rites similar to the burials of the already known nomadic peoples, and this was the basis for Childe's term "first Pontic horsemen".[345] Merpert emphasizes that we must reckon with an extremely advanced level of stock-breeding, the significance of which was underlined by the early domestication of the horse.[346] The composition of the recovered animal bone material also points to a nomadic way of stock-breeding. In many cases, especially on certain settlements, we can find relics suggesting complementary agriculture. Major settlements, such as e.g. Mihailovka, occur, especially at important crossroads. However, this does not prove a settled agricultural way of life concerning the majority of the population.[347]

Very significant are the carts drawn possibly by cows. Their occurrence in late pit-graves and the model from the Tri Brata kurgans suggest that they

[335] Mellaart 1960, p. 276. See: Mellaart 1959, pp. 32–33.
[336] Zbenovich 1969a, p. 9.
[337] Gimbutas 1970, p. 156; Muhly 1971, p. 438; Mellaart 1971, p. 132.
[338] Thomas 1970, p. 212.
[339] Garašanin 1971, p. 14; Berciu 1967, pp. 64–66; Cf.: Pigott 1968, pp. 266–318.
[340] Cf.: Gimbutas 1970, pp. 181–190.
[341] Morintz–Roman 1968, p. 118; Roman 1971, pp. 128–129; Merpert 1968, p. 80; Garašanin 1971, p. 11.
[342] Hammond 1972, pp. 243–250, 257–264. The Servia, Leukas, Pazhok, etc. burials containing stone circle, stone coffin or sometimes a pythos show, apart from the minor barrow built above them, no common features with the Pit-Grave culture. The Leukas graves, to be regarded undoubtedly as the earliest ones are geographically furtherst from the distribution area of the pit-grave kurgans. (Cf.: Hammond, loc. cit., with further literature).
[343] Cf.: Kalicz 1968, pp. 32–33; Id. 1967, p. 16.
[344] Bóna 1961, pp. 10–11.
[345] Childe 1929, pp. 206–208.
[346] Merpert 1961, pp. 163–164.
[347] Lagodavskaia-Shaposhnikova-Makarevitsh 1959; Id. 1962; Shepinskii 1962. p. 12; Shaposhnikova 1962. p. 7; Merpert 1961. p. 173.

did not simply serve for transportation but they could also be used as temporary living places in the steppes.[348] Their Anatolian, i.e. Trans-Caucasian origin seems to be undoubtable.[349] The above-mentioned elements of grave construction imitating tents or huts allow the assumption of yurta-like dwelling-places.[350] The occurrence of camel may hint at the characteristically nomadic way of life perhaps even to be related to the half-desert steppe areas around the Caspian Sea.[351]

Thus, with a number of tribes of the culture it is wholly justified to assume the earliest form of equestrian nomadic way of life, probably accompanied by patriarchal social order which can be observed with the latter nomadic peoples of the area. However, the question remains whether we may reckon in the steppe in this early period with economic differences postulating the entire separation of the heads of the clan and a cast-like establishment of society.[352] Burials similar to the burial vault found at Maykop do not occur among the graves of the Pit-Grave culture. The burials of most distinguished persons denoted by stone stelae, gold jewelry or some bone implements are not separated from those of the other members of the community. Among original burials both female and male graves occur.[353] The frequent supposition of human sacrifices may have come from the wrong interpretation of finds. (There is a large number of children's graves excelling from among the burials — usually lacking grave goods — with grave furniture consisting of vessels or jewelry.)[354]

Hungarian researchers supposed, on the basis of the custom of kurgan building, that the social stratification of the steppe people was more marked than that of the Baden or Bodrogkeresztúr tribes may have been.[355] However, the building of kurgans, as it is proved by the family burial place character of the kurgans and the large number of kurgan burials of uniform type, can be conceived only as the basic element of the burial rites shared by the whole society.[356]

The number of grave goods of distinguishing character is, because of the unified grave rites, fewer than in the above-mentioned Carpathian Basin cultures. The central burials of the Baden cemetery at Alsónémedi or the diadem of Vörs are distinguishing marks having no analogy from the pit-grave kurgans. Consequently, it is difficult to ascribe the social differences of the Early Bronze Age and the emergence of "citadels" to the influence of the steppeans.[357]

[348] Kalicz 1968, pp. 58–59.
[349] Pigott 1968, pp. 266–318.
[350] Krivtsova-Grakova 1962, p. 11.
[351] Rosetti 1959, p. 802.; Gimbutas 1956, p. 80; Zirra 1960, p. 103.
[352] Gimbutas 1956, pp. 80–90; Cf.: Klejn 1967, pp. 226–227.
[353] See above the survey on the excavations of the Kétegyháza and Dévaványa barrows.
[354] Leskov 1967, p. 9.
[355] See notes 343–344.
[356] Klejn 1971, p. 288.
[357] Banner 1956, pp. 221–222. Cf.: notes 331, 343.

ABBREVIATIONS USED IN THE BIBLIOGRAPHY

AAH = Acta Archaeologica Hungarica. Academiae Scientiarum Hungaricae, Budapest
Acta Ant. Arch. Univ. Szeged = Acta Antiqua et Archaeologica Universitatis Szegediensis, Szeged
Am. Anthr. = American Anthropologist
Annal. Univ. Budapest = Annales Universitatis Scientiarum Budapestiensis de Rolando Eötvös nominatae, Budapest
AJA = American Journal of Archaeology, Cambridge
Alba Regia = Alba Regia, Székesfehérvár
Arch. Ért. = Archaeologiai Értesítő, Budapest
Arch. Hung. = Archaeologia Hungarica, Budapest
Arch. Mold. = Arheologia Moldovei, Iaşi
A. St. = Anatolian Studies
Becherkulturen = H. Behrens and F. Schlette (eds), Die neolithischen Becherkulturen im Gebiet der DDR und ihre europäische Beziehungen. Veröffentlichungen des Landesmuseums für Vorgeschichte in Halle. 24. 1969
CAH = Cambridge Ancient History, Rev. ed. Cambridge, 1971
Comptes Rendu = Congrès International d'Anthropologie et d'Archeologie Prehistoriques, Compte Rendu de la Huitième Session à Buapest I–II, Budapest, 1876 and 1877
DJ = Jelentések Debrecen sz. kir. város múzeumának és közművelődési könyvtárainak évi működéséről és állapotáról, Debrecen (Reports of Town Muzeum, Debrecen)
DMÉ = A Déri Múzeum Évkönyve, (Annales Musei Debreceniensis de Friderico Déri Nominati), Debrecen
Földr. Ért. = Földrajzi Értesítő, Budapest
Fol. Arch. = Folia Archaeologica, Budapest
GZM = Glaşnik Zemaljskog Muzeja u Sarajevu (Bulletin du Muzée de la République Socialiste de Bosnie-Herzégovine à Sarajevo).
HR = History of Religions, Chicago
Ind. Eur. Conf. = G. Cardona, M. Koenigswald and A. Senn: Indo-European and Indo-Europeans. (Papers presented at the Third Indo-European Conference at the University of Pennsylvania, Philadelphia 1970)
JMV = Jahresschrift für Mitteldeutsche Vorgeschichte, Halle
Materiale = Materiale si Cerčetări Arheologice. Academia Republicii Populare Romîne, Institutul de Arheologie
MFMÉ = Móra Ferenc Múzeum Évkönyve, Szeged
Mitt. Arch. Inst. = Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften, Budapest
MKÉ = Múzeumi és Könyvtári Értesítő. A Múzeumok és Könyvtárak Országos Főfelügyelőségének és Országos Tanácsának Hivatalos Közlönye, Budapest
MTAE = Magyar Tudományos Akadémia Értesítője
MZSRW = Mitteilungen des Zentralmuseums Soz. Räterepublik der Wolgadeutscher, Pokrowsk
PPS = Proceedings of Prehistoric Society, London
Rad VM = Rad Vojvodanskih Muzeja, Novi Sad
Rég. Füz. = Régészeti füzetek. Magyar Nemzeti Múzeum, Budapest
Rev. Muz. = Revista Muzeolor, Bucureşti
SCIV = Studii şi Cerčetări de Istorie Veche. Bucureşti
Slov. Arch. = Slovenská Archeológia. Bratislava
Stud. Zvesti AUSAV = Studijné Zvesti AUSAV. Nitra
Symp. 1959 = B. Soudsky and L. Plesova (eds) L' Europe à la fin de l' âge de la pierre, Praha 1961
Symp. 1969 = A. Tocik and J. Vladár (eds), Symposium über die Entstehung und Chronologie der Badener Kultur, Bratislava 1973
Symp. 1973 = Symposium über die frühe Bronzezeit von Mittel- und Osteuropa. Kraków 1973
VMK = Veszprém megyei Múzeumok Közleményei (Mitteilungen der Museen des Komitates Veszprém), Veszprém
WZ Univ. Halle = Wissenschaftliche Zeitschrift der Martin Luther Universität, Halle
Арх. Пам. УССР = Археологічн Пам'ятки УССР. Киев

ИГАИМК = Известия Государственной академии истории мат. культуры
ИТУАК = Известия Таврической ученой архивной комиссии
КСИА = Краткие сообщения о докладах и полевых исследованиях Института археологии. (АН СССР). Москва
КСИА АН УССР = Краткие сообщения Института археологии. (АН УССР). Киев
КСИИМК = Краткие сообщения о докладах и полевых исследованиях Института истории материальной культуры. (АН СССР). Москва
МИА = Материалы и исследования по археологии СССР. Москва
П. Э. Б. = А. М. Лесков = Н. Я. Мерперт (ред.): Памятники эпохи бронзы юга европейской части СССР. Киев, 1967
СА = Советская Археология. Москва
СЭ = Советская Этнография. Москва
Тр. АС = Труды археологического съезда
Труды ГИМ = Труды Государственного исторического музея
Труды 1970 = Труды Днестро–Дунайской новостроечной експедиции 1963–1967 гг. Часть I. Материалы по археологии Северного Причерноморья. 6. (Одесса 1970.)
Зестник ЛГУ = Вестник Ленинградского Государственного Университета
ВОАО = Записки Одесского археологического общества

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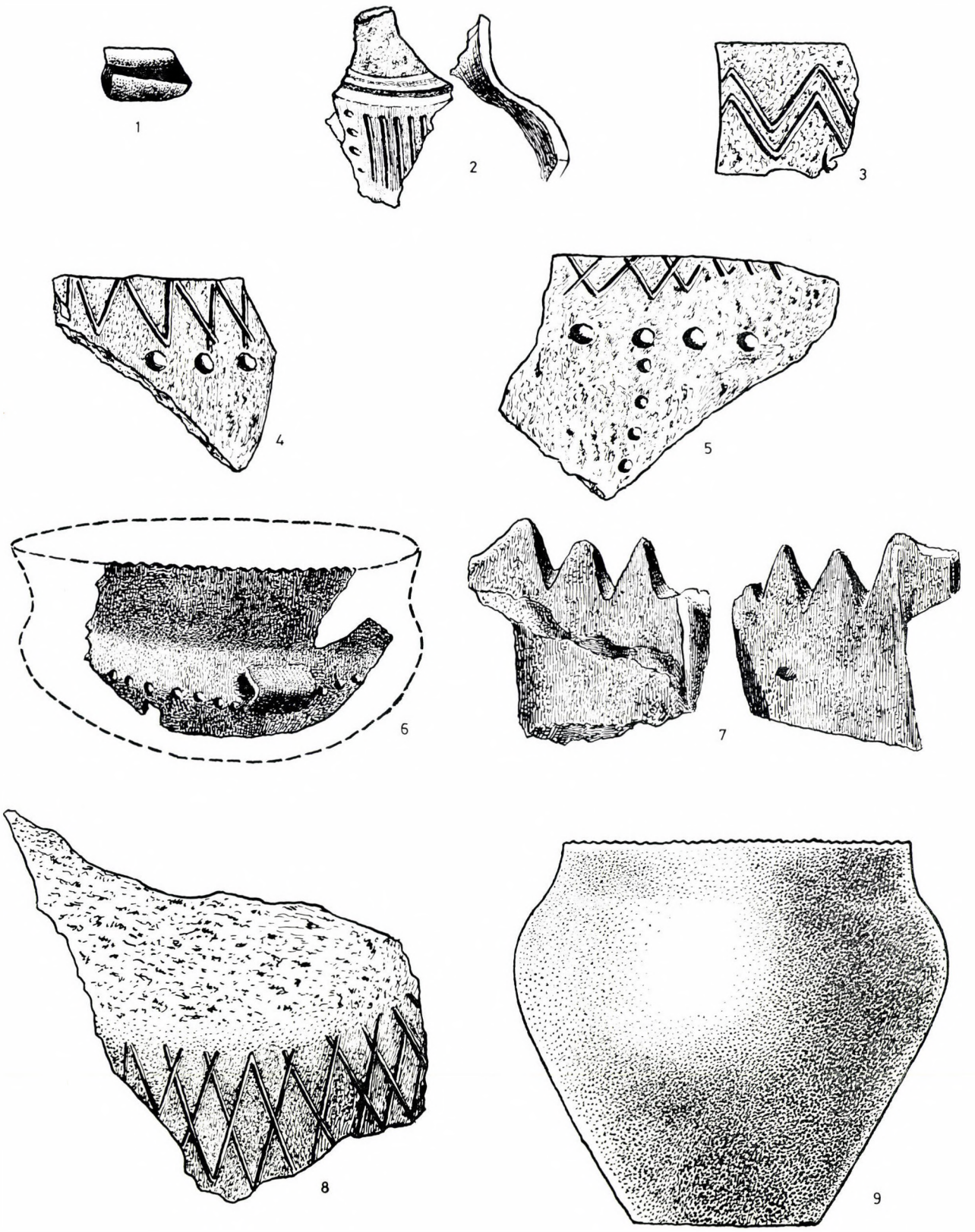
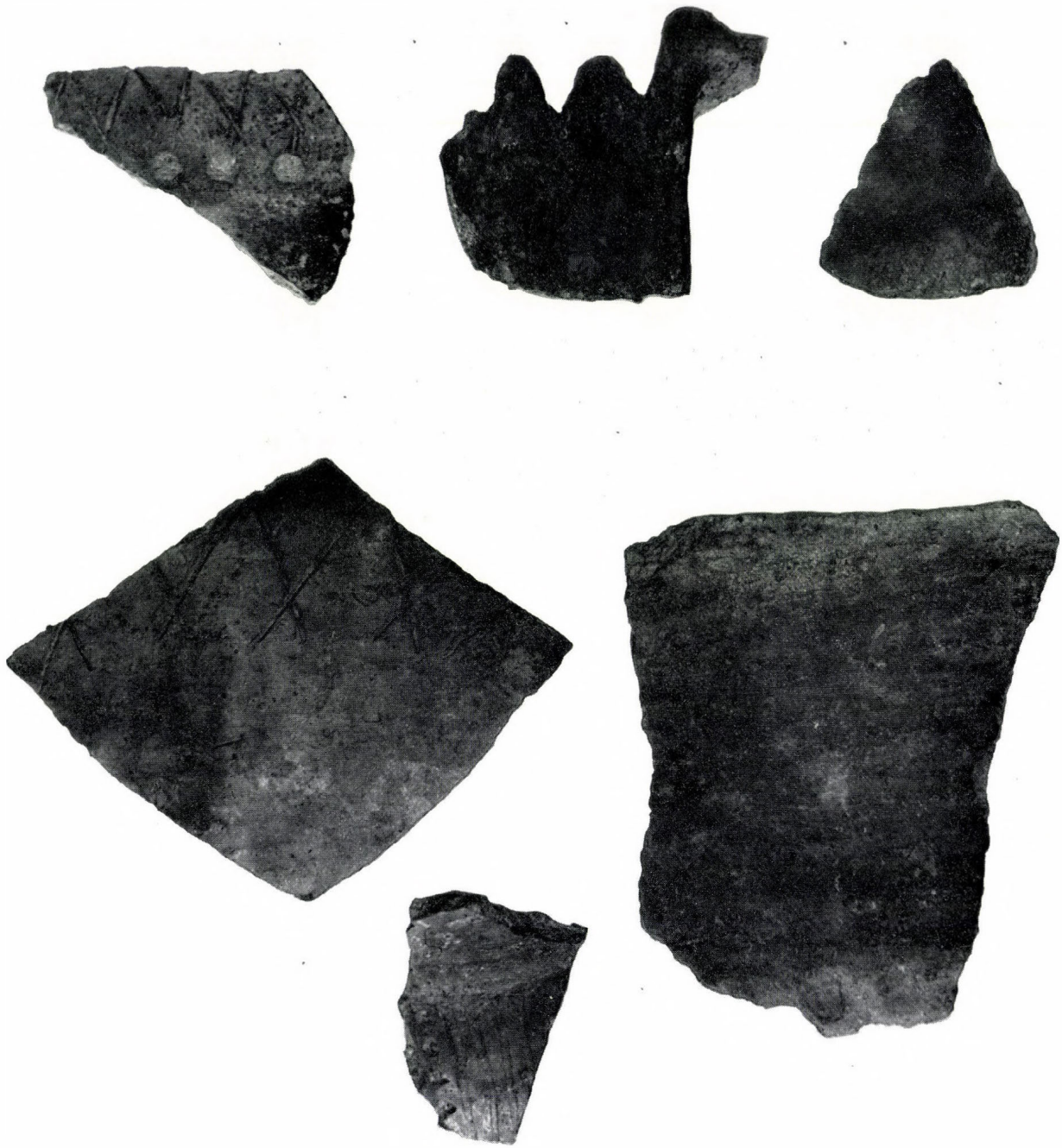
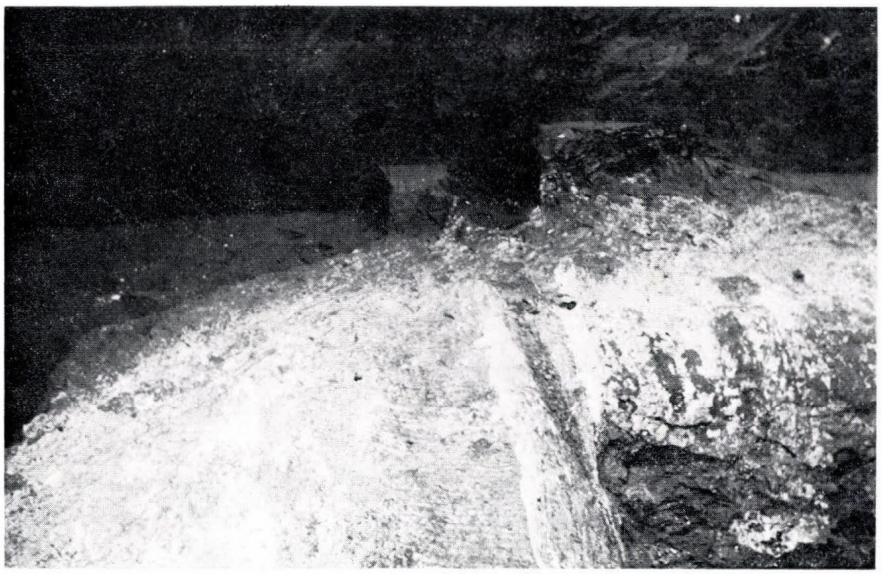


Pl. 1. 1 : Bead made of copper plate from the burial of László-halom; 2–8: Sherds of Baden vessels from the hearth of Debrecen-Dunahalom; 9: Debrecen–Halászlaponyag. Vessel from the original surface. (1–9: after the drawings made by Lajos Zoltai in the inventory of Déri Museum, Debrecen)



Pl. 2. Sherds of Baden vessels from the hearth of Debrecen–Dunahalom



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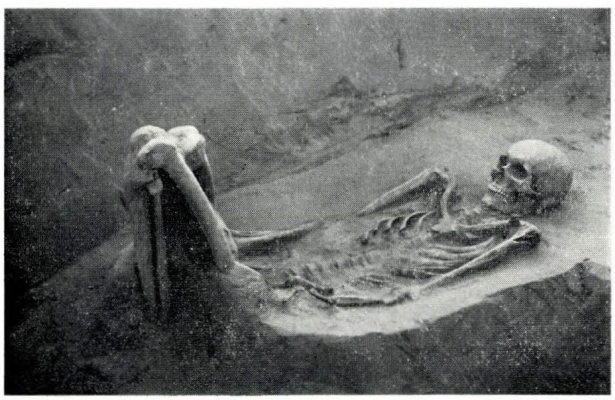

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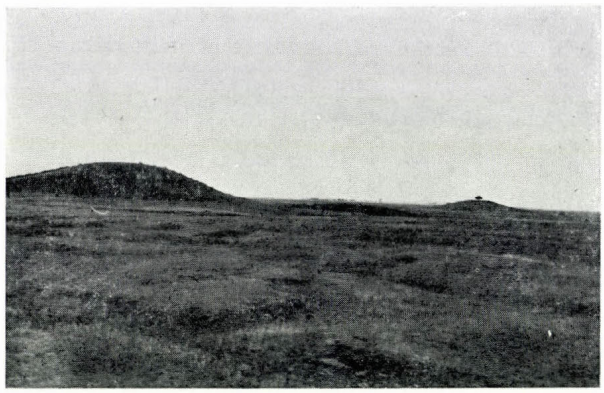
Pl. 3. 1: Dévaványa–Barcé-halom, grave 1. Remains of mat from the SW circle of the grave; 2: Dévaványa–Barcé-halom, grave 1 after opening; 3: Dévaványa–Barcé-halom, grave 1 before opening, with mat remains; 4: Csongrád–Kettőshalom, grave 1 from S; 5: Csongrád–Kettőshalom, grave 1 from N



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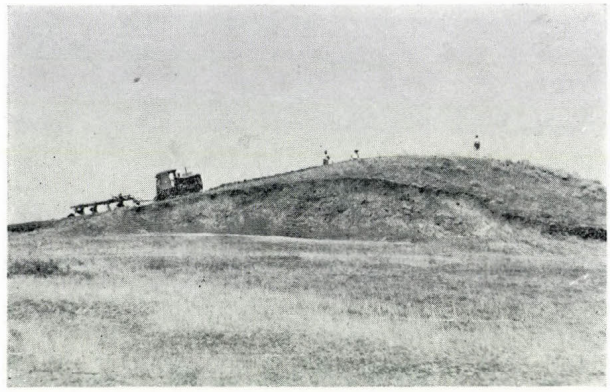

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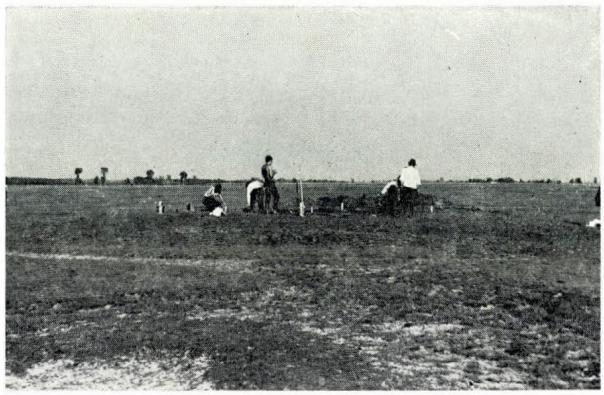

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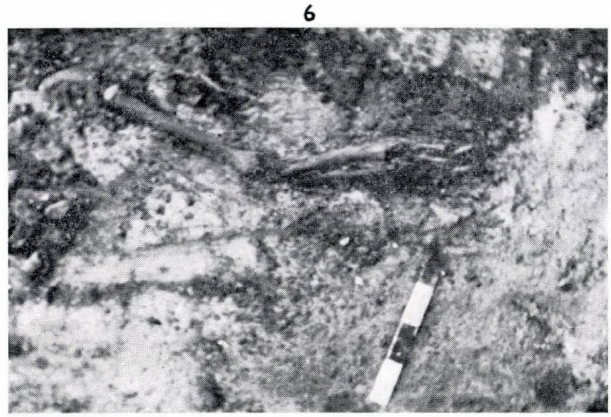

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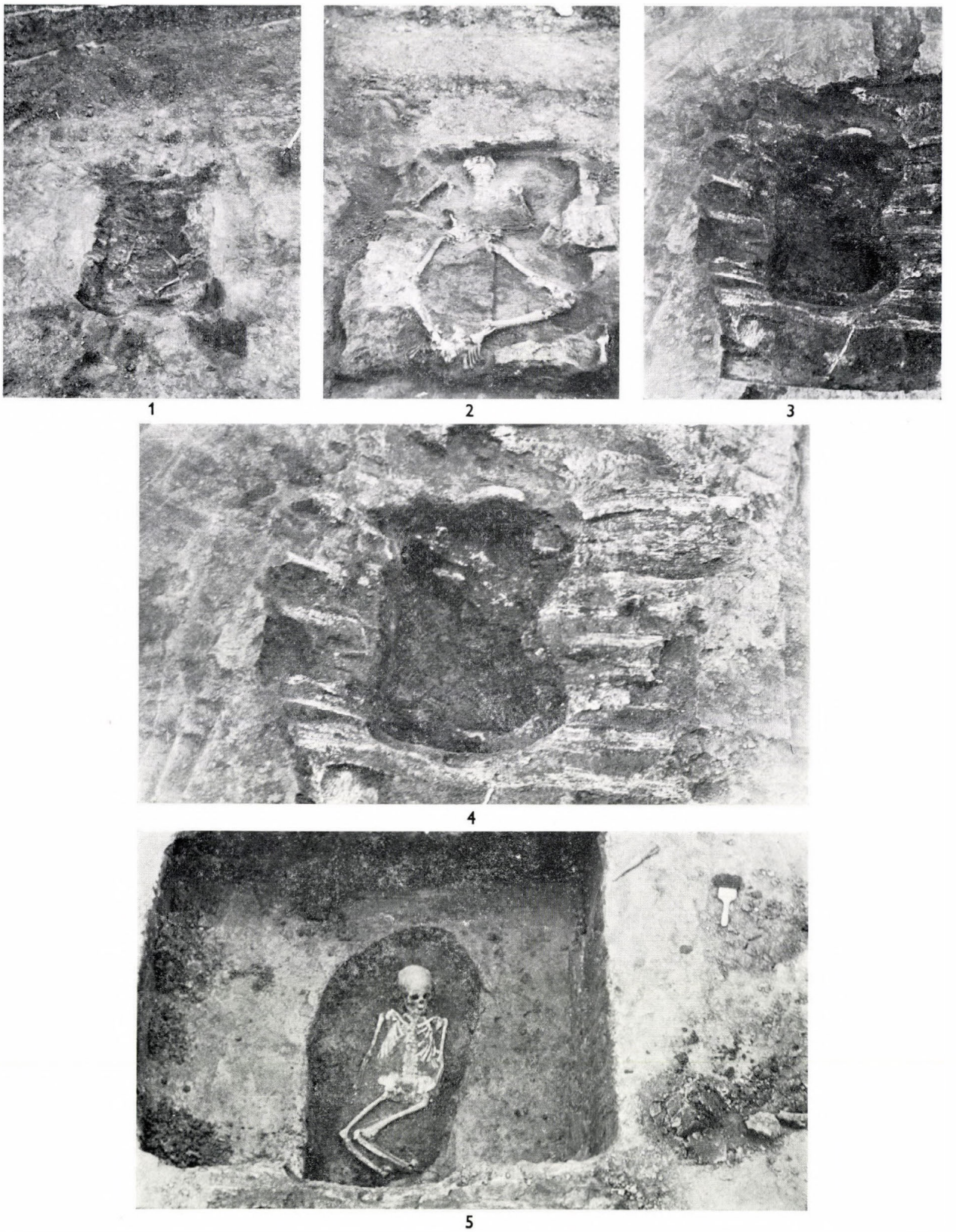
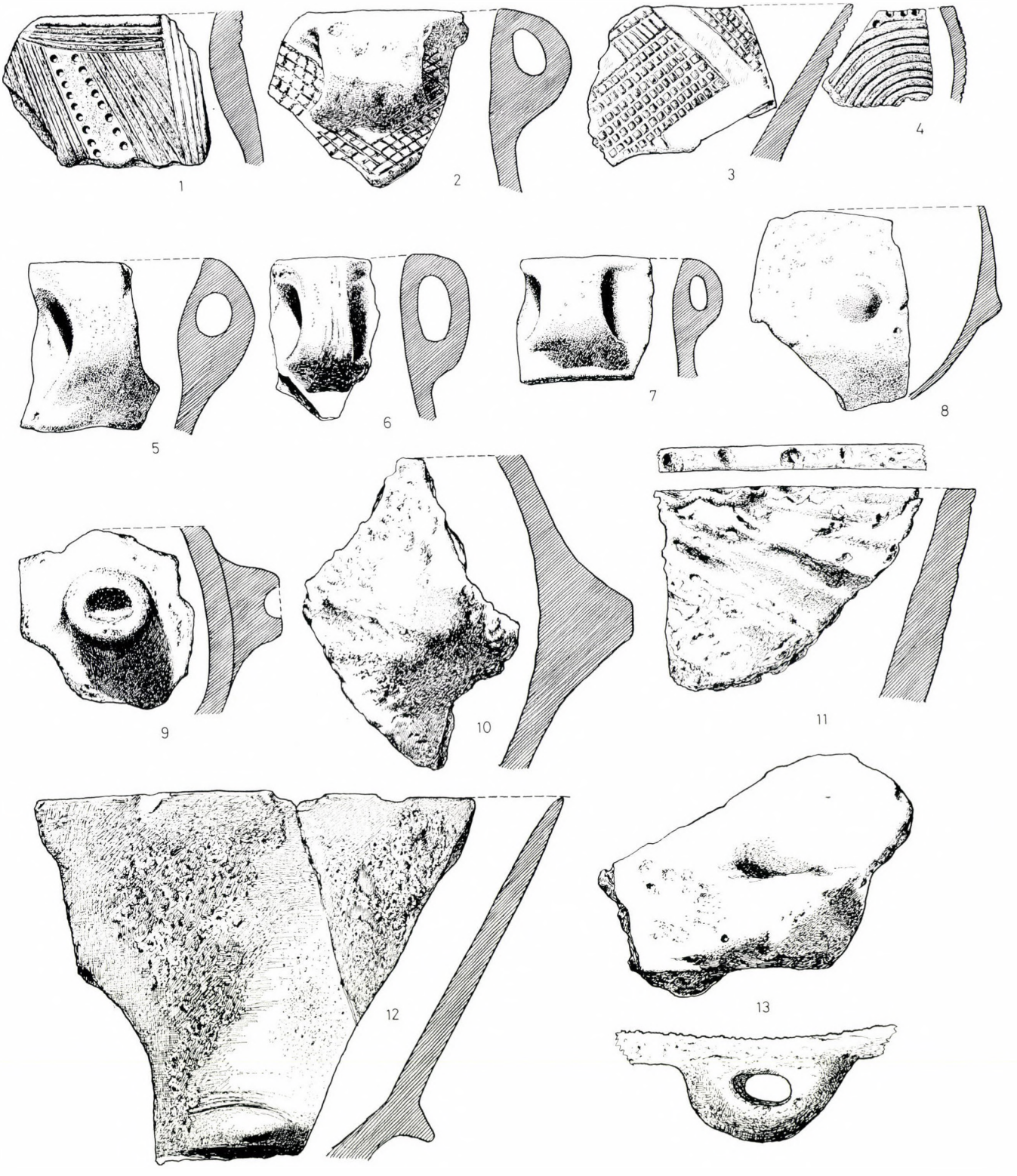
Pl. 4. 1: Kétegyháza. Detail of the kurgan field; 2: Kétegyháza, kurgan 3; Török-halom at the beginning of the excavation; 3: Kétegyháza, the opening of kurgan 4; 4: Kétegyháza, kurgan 3, grave 4; 5: Kétegyháza, kurgan 3, grave 5; 6: Kétegyháza, kurgan 3/a, grave 5; 7: Kétegyháza, kurgan 3/b, grave 1; 8: Kétegyháza, kurgan 3/b, grave 1

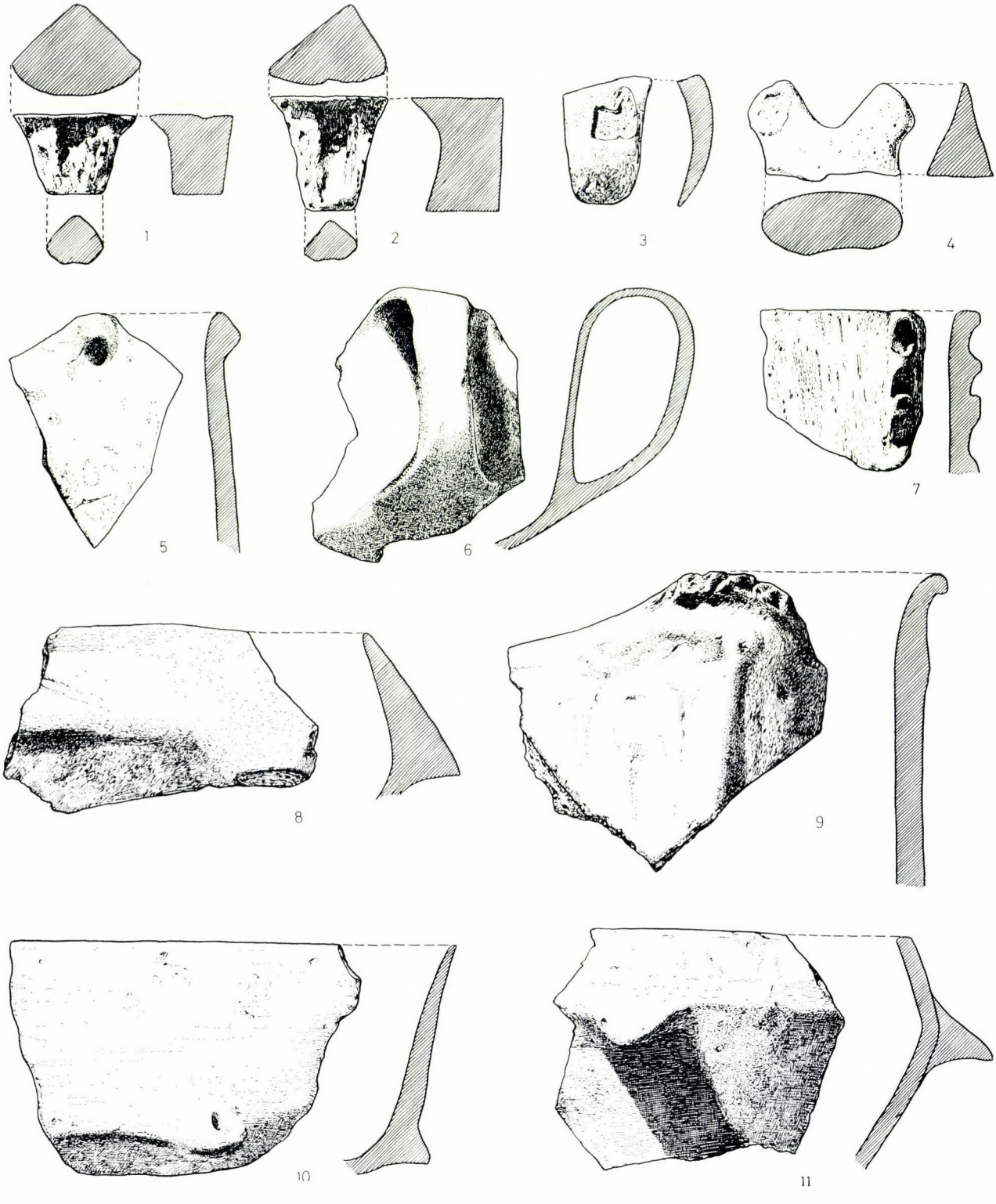


Pl. 5. 1: Kétegyháza, kurgan 3, grave 6 with the remains of the beam construction; 2: Kétegyháza, kurgan 3, grave 6, after opening; 3: Kétegyháza, kurgan 3, grave 7, beam construction; 4: Kétegyháza, kurgan 3, grave 7. the remains of beams; 5: Kétegyháza, kurgan 3, grave 7

Pl. 6. Kétegyháza. The pit-grave furniture of kurgans 3, 3/a and 3/b



Pl. 7. Kétegyháza, kurgan 4. The find material of the Bodrogkeresztúr type settlement



Pl. 8. Kétegyháza, kurgan 4. The find material of the Bodrogkeresztúr type settlement

Pl. 9. Kétegyháza, kurgan 4. Vessels from the Bodrogkeresztúr type settlement

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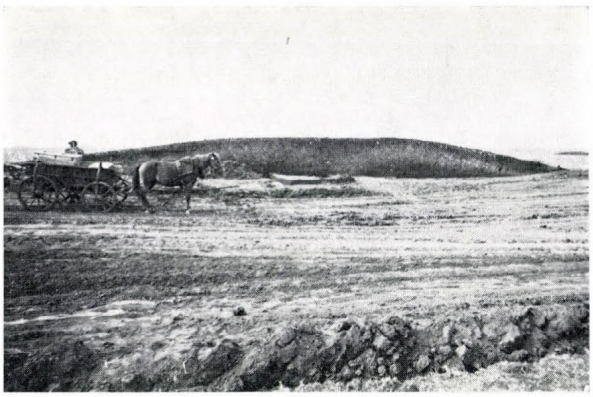

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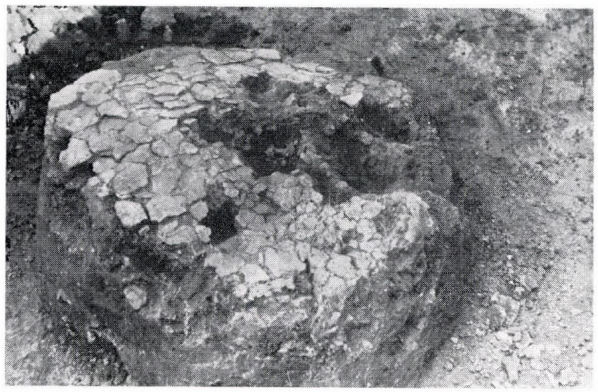
Pl. 10. 1: Kétegyháza, kurgan 5, grave 1; 2: Kétegyháza, kurgan 6, grave 3; 3: Kétegyháza, the opening of kurgan 5, from S; 4: Kétegyháza, kurgan 5, hearth 1; 5: Kétegyháza, kurgan 5, hearth 4; 6: Kétegyháza, kurgan 10, grave 1



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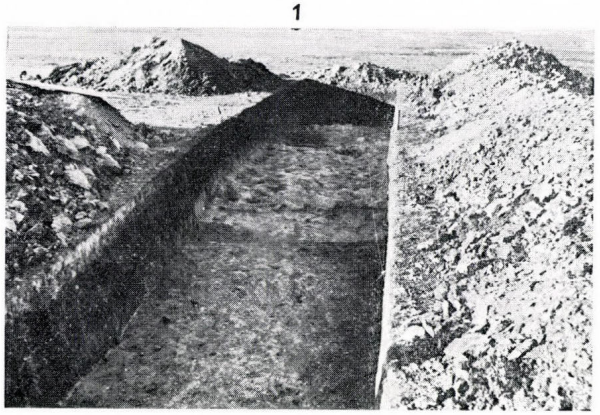

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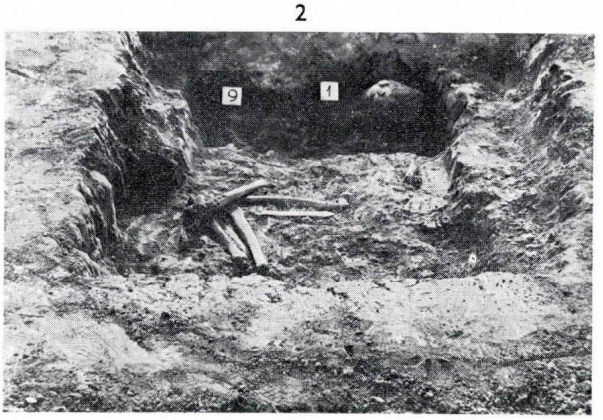

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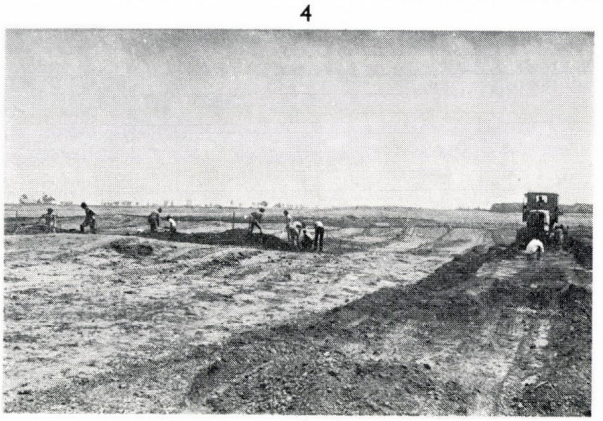

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Pl. 11. 1: Kétegyháza, kurgan 6, hearth 1; 2: Kétegyháza, kurgan 6, vessel "A" in situ; 3: Kétegyháza, surface 6/I; 4: Kétegyháza, kurgan 9, grave 1; 5–6: The opening of the central part of Dévaványa–Csordajárás kurgan

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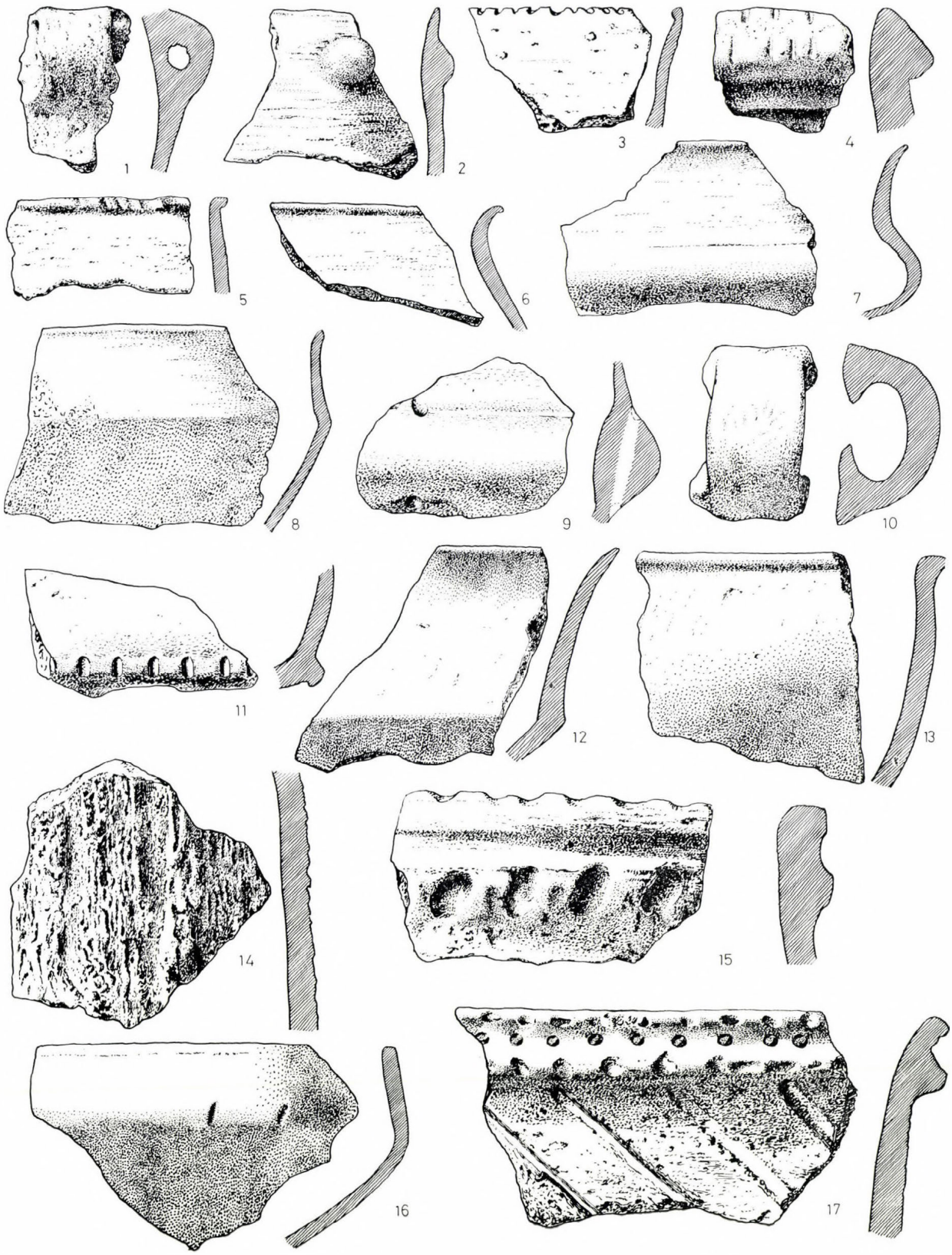
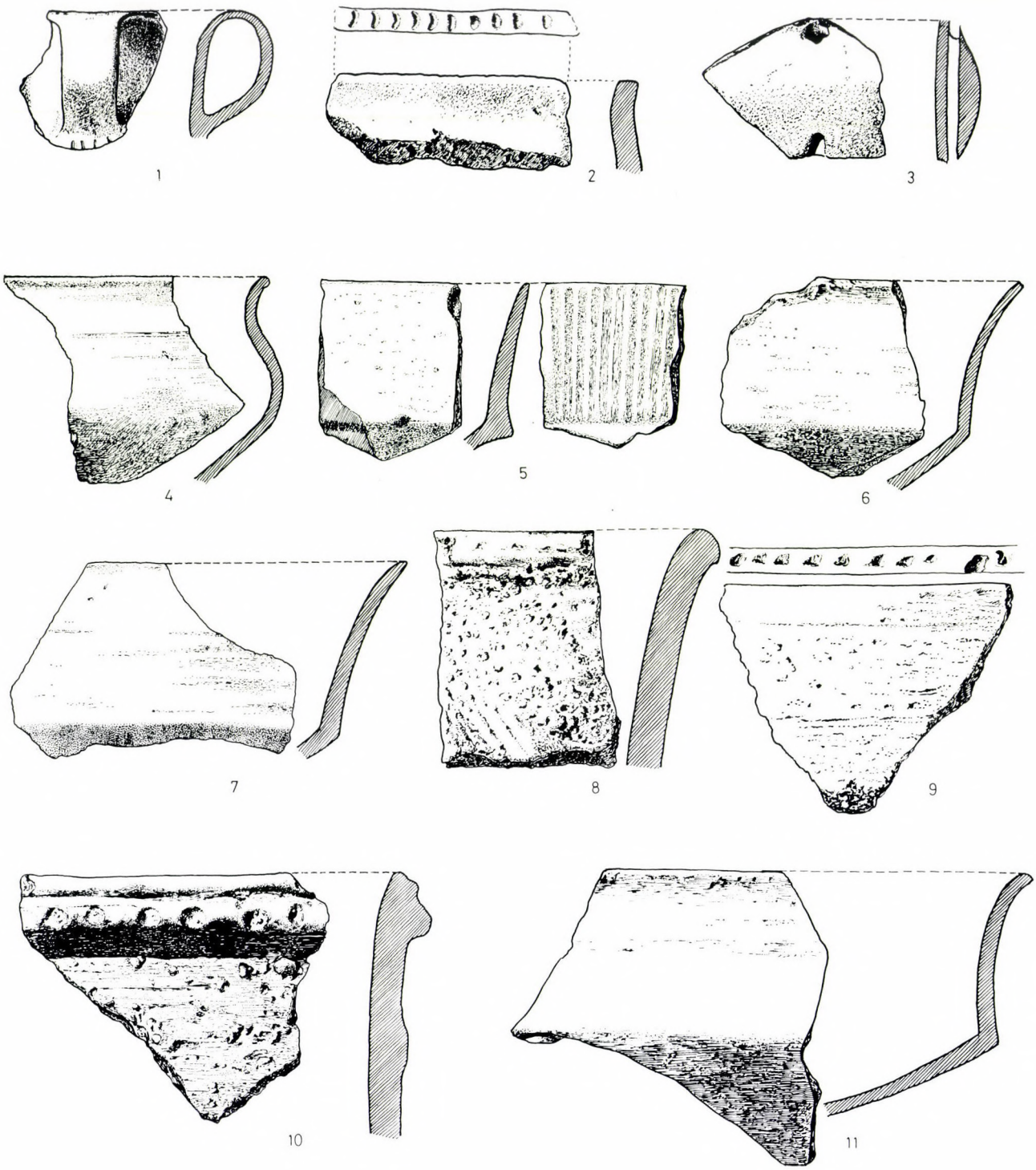
Pl. 12. 1: Kétegyháza, kurgan 6, vessel "A"; 2: Kétegyháza, vessel 6/2–3(C)

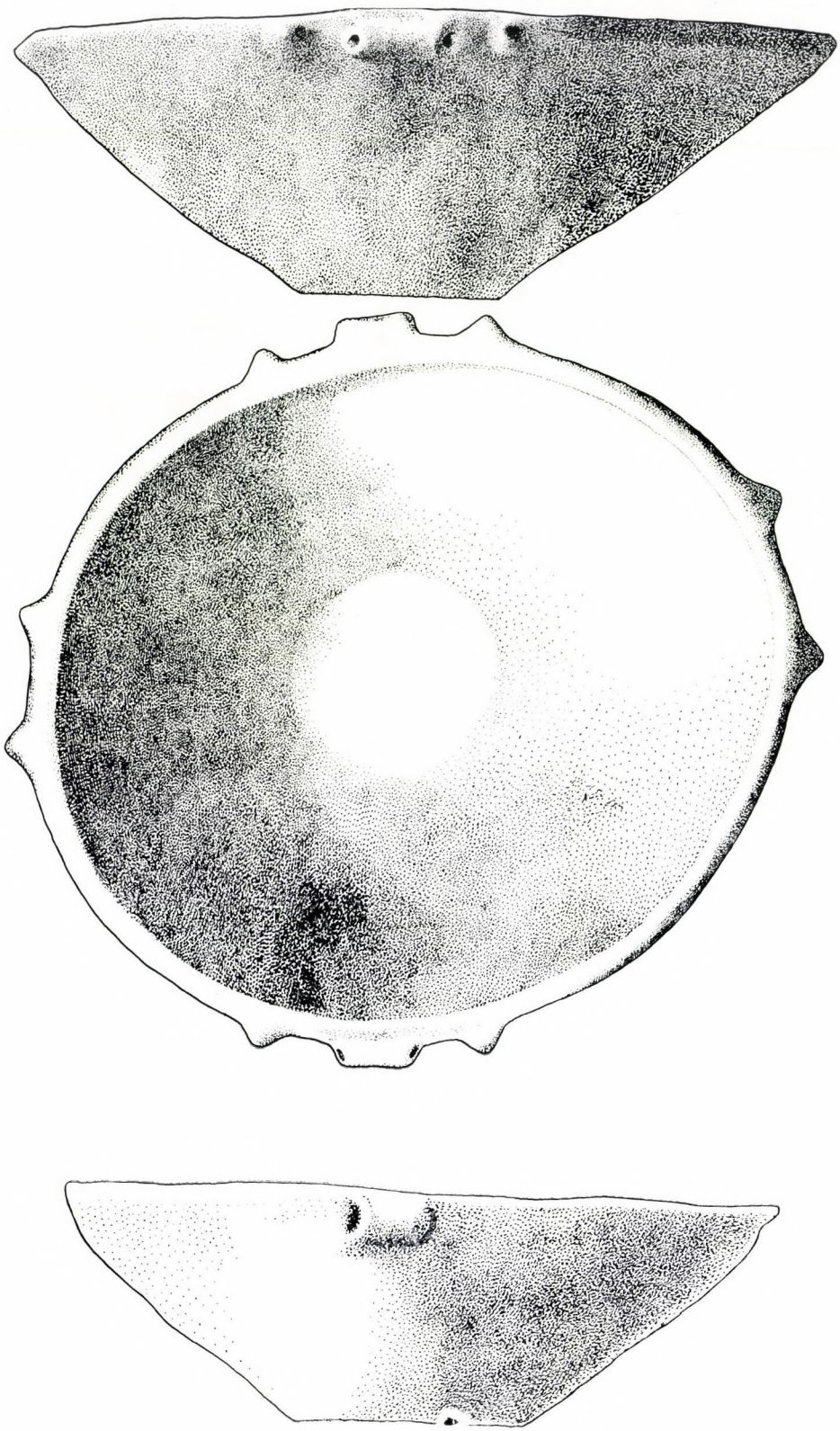


Pl. 13. The circle of kurgans 5–6 at Kétegyháza: finds of the Late Copper Age settlement

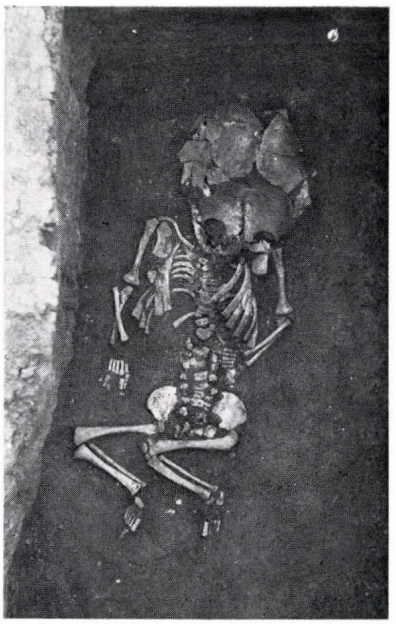


Pl. 14. The circle of kurgans 5–6 at Kétegyháza : finds of the Late Copper Age settlement

Pl. 15. Finds of trench 6/II, Kétegyháza



Pl. 16. Finds of trench 6/II, Kétegyháza



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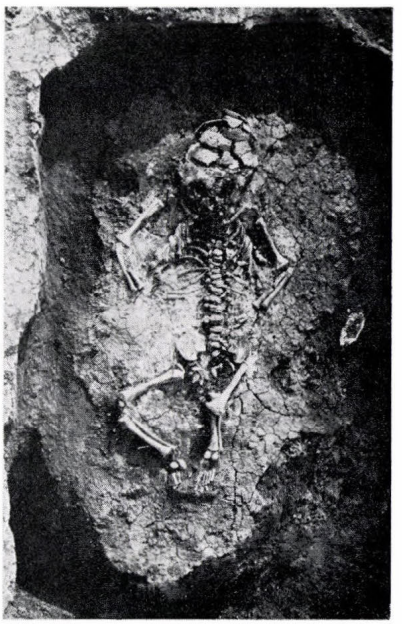

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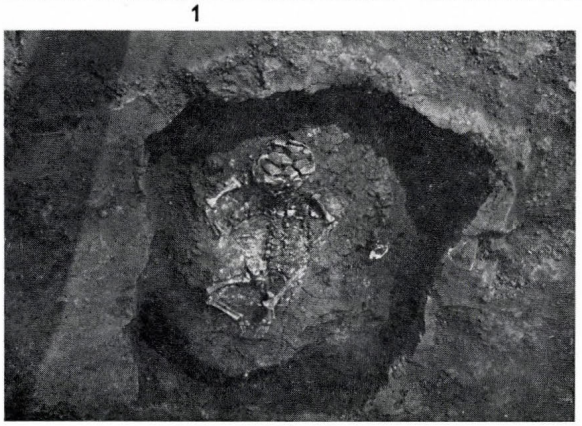

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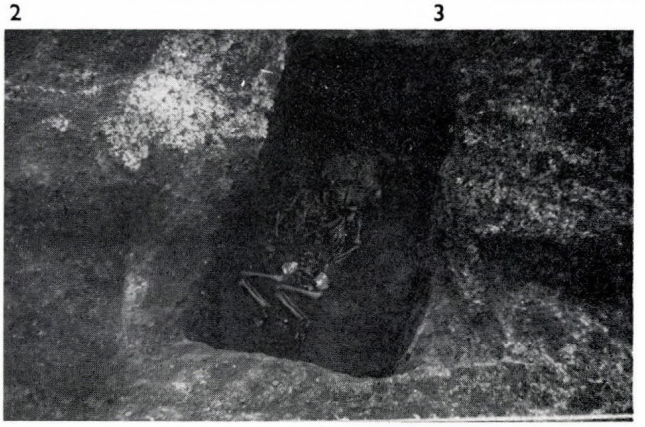

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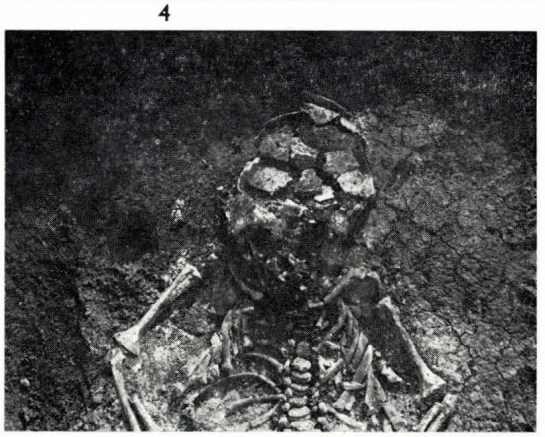

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Pl. 17. 1, 4, 6: Dévaványa–Csordajárás kurgan, grave 1; 2, 7: Dévaványa–Csordajárás kurgan, grave 2; 3, 5: Dévaványa–Csordajárás kurgan, grave 3

THE ANTHROPOLOGICAL MATERIAL OF THE PIT-GRAVE KURGANS IN HUNGARY

by Antónia Marcsik

Most part of the anthropological material originating from the excavation of the kurgans representing the so-called "Yamnaya" (Pit-Grave) culture in the territory east of the Tisza river can be found in the collection of the Anthropological Department, József Attila University, Szeged.

The findspots of the material are the following:

Kétegyháza
Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom
Dévaványa–Barcéhalom
Nagyhegyes–Elep, Mikelapos (Grave 34)[1]
Debrecen–Dunahalom
Debrecen–Basahalom 1–2[2]
Sárrétudvari–Balázshalom
Debrecen–Halászlaponyag
Dévaványa–Csordajárás

The finds are few in number and in an extremely fragmentary state of preservation. Considerable conclusions can only be drawn with criticism. Their detailed anthropological elaboration — as the matter in question is a prehistoric material — is extremely important. Applying the usual methods in anthropology, it has been deemed the most advisable to describe the individuals as far as possible according to graves.[3]

Kétegyháza

Kurgan 6, grave 1 (Inventory No. 4670)

Fragmentary cranium with long tubular bones and pelvis in good state of preservation. Great part of the splanchnocranium is missing.

Sex: female (–1.5) on the basis of tuber frontale et parietale, regio glabellaris, processus mastoideus, prot. occ. externa, arcus zyg., mandibule, pelvis, sacrum, femur.

Age at death (hereafter: age) 35–40 (Ad.) on the basis of cranial sutures, dentition, facies symph., trajectorium system.

The neurocranium is long, medium-broad, high, and according to the indices dolichocranic, orthocranic, metriocranic. The contour of cranium in the norma verticalis is tent-shaped. (This tent-like shape can be attributed to the tuber visible in the middle part of the sutura sagittalis, probably a pathological deformation.) The glabella and protuberantia occipitalis externa are of degree 2. The processus mastoideus is small. In the norma temporalis some flatness of lesser degree may be observed in the lambda region. The forehead is medium-broad, slightly curved, and judging from the transversal-frontoparietal index it is eurymetopic. The facial index and the upper-facial index cannot be calculated owing to the fragmentary splanchnocranium. The orbit is chamaeconch and oblongly square. The fossa canina is filled in. The mandible is comparatively low, the protuberantia mentalis is extremely strong, and the gonion region is conspicuous, too. For this reason, her face seems to be square.

Nevertheless, the clavicula is gracilis, as compared to the humerus, may be considered medium-sized. The humerus is characterized as eurybrach and gracile. The ulna is flat, the radius, as compared to the humerus, is proportionate, the femur is very flat and without any pilaster, the tibia is slightly flat. The stature is tall (163 cm).

[1] The find is to be found in the Anthropological Collection of the Hungarian National Museum, Budapest. I wish to express my gratitude to Dr. T. Tóth, head of the department, for his kind help in giving me access to the material.

[2] The skeletal bones of the two individuals from Debrecen–Basahalom were designated "1" and "2". The relation of skeleton "1" with the Yamnaya civilization is doubtful, because of defective archaeological records. Its metric values are therefore not shown in the tables. The skeletons from Kétegyháza, Balmazújváros, Árkusmajor, Dévaványa have their inventory numbers in the Anthropological Department, and those from the environment of Debrecen (Dunahalom, Basahalom, Sárrétudvari) — except for Debrecen–Halászlaponyag — have the original inventory numbers of the Déri Museum, Debrecen. The latter ones were made accessible to me by I. Ecsedy. I greatly appreciate his help.

[3] Martin, R. (1928), *Lehrbuch der Anthropologie*, 2nd ed., Jena. Lipták. P. (1963), Einige Fragen der Anthropotaxonomie, *Anthropos*, 15, pp. 149–154; Id. (1965), On the taxonomic method in paleoanthropology (historical anthropology), *Acta Biol. Szeged* 11, pp. 169–183; Farkas, Gy. (1972), *Antropológiai Praktikum I. Paleoantropológiai metodikák* (Anthropological Practice I. Paleoanthropological Methods) (Co-authors: I. Lengyel and Antónia Marcsik), Szeged.

On the cervical vertebrae, and particularly on the dorsal and lumbar vertabrae, a formation of osteophytes can be observed. On the frontal surface of the corpora of lumbar vertebrae an erosion is to be seen, the middle part of the corpus is dented.

Taxonomically the skeleton may have been a gracile variation of cromagnoid-A, probably still with nordoid characteristics.

Kurgan 5/a, grave 1 (Inventory No. 4671)

Cranium in a fragmentary state of preservation. Os frontale and the bilateral os zygomaticum are complete, parietalia and os occipitale, as well as the other parts of the cranium are missing. The long tubular bones are in a comparatively good state of preservation, the pelvis is extremely fragmentary.

Sex: male (2) on the basis of tuber frontale, regio glabellaris, protuberantia occipitalis externa.

Age: 30–35 (Ad.) on the basis of the medullary space-cone of long bones, traject. system.

The cranial paries is remarkably thick. The forehead is medium-broad, curved, slightly low. His glabella is large, of degree 5. The orbit is roundish, according to its index it is hypsiconch.

The humerus is characterized as platybrach, the femur is medium-pilastric, the tibia slightly flat. The stature is tall (177 cm). The cortical part of the skeletal bones, similarly to the cranial paries, is very thick and extremely weighty.

As the cranial and skeletal bones are for the most part missing, they cannot be described in detail taxonomically but, because of the strength of the glabella and of the arcus superciliaris belonging to it, it may represent an archaemorphic (protonordoid?) type of the Europid great race.

Kurgan 4, grave 1 (Inventory No. 5439)

Skeletal bones of a child (Inf. II, 8–10 years old), without a cranium. From among the skeletal bones only the tibia on one side, a fragment of the femur, and a few dorsal vertebrae were found.

Kurgan 6, grave 3 (Inventory No. 5443)

A fragmentary and postmortally deformed cranium. Os nasale and os frontale are in a good state of preservation, both parietale and os occipitale are defective and deformed. The other parts of the cranial bones are missing or are extremely fragmentary. Similarly to the cranium, the skeletal bones are defective as well, and are in a fragmentary state of preservation.

Sex: male (2) on the basis of tuber frontale and parietale, regio glabellaris, linea nuchae.

Age: 30–35 years (Ad.) on the basis of the medullary spacecone of humerus, cranial sutures.

The forehead is curved, and on the basis of its size it is broad. The glabella, together with the arcus superciliaris is very well developed, of degree 5. The orbit is strikingly low and oblongly square, on the basis of its index it is chamaeconch. The nose is very strongly protruding, slightly concave.

The humerus is robust and characteristically eurybrach. On the basis of the brachial index the antebrachium is proportionate. The ulna is medium-sized. The femur is strongly pilastric, on the basis of index 10 : 9 it is very flat. The stature is tall medium-sized (169 cm). The skeletal bones are robust.

On the basis of the taxonomic determination, the skeleton may represent the archaemorphic type of cromagnoid-A (*Pl. I*a).

Kurgan 3, grave 4 (Inventory No. 5444)

Fragmentary long bones. The other parts of the skeletal bones and the cranium are missing.

Sex: male (?).

Age: Adultus.

The long tubular bones cannot be measured, the other parts preserved indicate a robust skeletal system.

Kurgan 3/b, grave 1 (Inventory No. 5448)

Child, 5 to 7 years old (Inf. I). Cranial and long bones extremely fragmentary and defective. On the internal surface of the cranial bones small foramina can be observed.

Kurgan 3, grave 7 (Inventory No. 5449)

The cranium and skeletal bones of a child (12 to 14 years old, Inf. II). In good state of preservation. The foramen occipitale magnum is extremely large.

Kurgan 9, grave 1 (Inventory No. 6831)

A very fragmentary cranium. (Only the larger part of the os frontale is in a good state of preservation. The other bones of the cranium are missing.) The long tubular bones are fragmentary as well, the pelvis and other parts of the skeletal bones are missing.

Sex: female (—1).

Age: 40–45 (Mat.).

The forehead is slightly curved, the glabella is of degree 1.

The femur is without pilaster and is very flat. The tibia is slightly flat. The skeletal system, as a whole, is light, gracile.

The stature is medium-sized (155 cm).

Balmazújváros–Árkusmajor(Hortobágy)–Kettőshalom

Grave 1 (Inventory No. 4730)

A cranium in a medium state of preservation, postmortally strongly deformed in the occipital region. The bones of the facial cranium are mostly

missing. The cranial paries is extremely thick. The skeletal bones are fragmentary, the pelvis is missing.
Sex: male (1.7) on the basis of tuber frontale and parietale, glabella, mandibula, femur.
Age: 35–40 (Ad.) on the basis of femur, tibia section, cranial sutures.

The forehead is medium-broad, slightly curved. In this case, too, morphologically strongly marked features can be observed. The glabella and protuberantia occipitalis externa are of degree 4, the processus mastoideus is strong. The mandible is medium-high.

The cortical layer of the long tubular bones is very thick. The bones are heavy. The femur is without pilaster and very flat, the tibia is slightly flat. As the long tubular bones are fragmentary, the stature cannot be calculated.

The skeleton is not suitable for a thorough taxonomical measurement, as the cranial bones are fragmentary and deformed. However, the proto-Europid features can be recognized here, too.

Dévaványa–Barcéhalom
Grave 1 (Inventory No. 7839)

Cranium in a medium state of preservation. Posterior, basal and facial parts defective. The long bones are in a medium state of preservation, the other parts of the skeletal bones are defective and fragmentary.
Sex: male (2).
Age: 40–45 (Mat.).

The cranium is of dolichomorphic character. The forehead is broad, slightly curved. The glabella is of degree 4. The arcus superciliaris — as compared to that of the males in Kétegyháza — is not so protruding. The face is high or medium-high. Indices cannot be calculated. The orbit seems to be roundish. The mandible is medium-high.

The clavicle is long, according to its index it is robust. The humerus is characteristically eurybrach. The ulna is medium-sized, the femur is without pilaster, on the basis of index 10 : 9 it is very flat. The tibia is mesoknem. The stature is tall (173 cm).

According to the taxonomic determination, it represents an archaemorphic — presumably protonordoid — type of the Europid great race.

Nagyhegyes–Elep, Mikelapos
Grave 34 (Inventory No. 10138)

Extremely fragmentary cranium and fragments of long bones.

Only a part of the calvaria from the cranium and only a few vertebrae from the skeletal bones are in a state of good preservation.
Sex: female (?).
Age: 35–40 (?), (Mat.).

In the area above the calvaria and the protuberantia occipitalis externa some asymmetry can be observed. The protuberantia occipitalis externa is of degree 2. The cranial paries is thick but comparatively light. It is unsuitable for a thorough metrical and morphological analysis.

Debrecen–Dunahalom, 105/1923

Calotte and corpus mandibulae in a good state of preservation, the other parts of the cranium are missing. From the skeletal bones only the corpus femoris, and the distal part of the femur can be found.
Sex: male (?).
Age: 35–40 (Ad.).

The cranial paries is not so thick and the bones are not so heavy as those of the male skeletons from Kétegyháza. The glabella and the arcus superciliaris are of degree 4. The linea temporalis is narrowed — similarly to the male finds in Kétegyháza. The forehead is broad, eurymetopic and curved, the norma verticalis is ovoid. In the posterior part of the calvaria strong planoccipitalia is to be found that may have formed postmortally.[4] In the medium part of the sutura sagittalis a minor prominence can be seen, probably of pathological origin. The norma occipitalis is therefore tent-shaped.[5] The mandible is medium-high, the trigonum mentale is well demarcated. The sex-determination of the find is uncertain because only a part of the cranium was at our disposal. The area of the glabella, together with the arcus superciliaris, is strongly developed (of degree 4), but the other residuary parts of the cranium refer to a feminine skeleton (*Pl. I*b).

Debrecen–Basahalom, 1906—1320. 11. 1

Os frontale, os nasale, and the corpus mandibulae with the right ramus mandibularis. Long tubular bones in a good state of preservation.
Sex: male.
Age: 25–30 (Ad.).

The forehead seems to be domed, the orbit roundish. The nose is medium-protruding and straight. The mandible is medium-high, the trigonum mentale is tuberous, the gonion region slightly protruding. The glabella is of degree 3. The forehead is narrow.

In the distal part of the right femur osteophyte-formation can be observed. The humerus is characteristically eurybrach, at the same time it is medium-sized. The femur is slightly pilastric and

[4] The measurements concerning the posterior part of the calvaria have not been evaluated because of planoccipitalia.
[5] Cf.: Female cranium of Kétegyháza (6–1. 4670)

very flat. The tibia is euryknem. Strong, long tubular bones. The stature is tall (176 cm).

Debrecen–Basahalom, 1326. 41. 2

The cranial bones are in a defective and fragmentary state. The mandible is in a state of good preservation. There is some red dyschromia on the bones. The skeletal bones are also in a fragmentary state of preservation. From the pelvis, only the iliac spatulae remained.

Sex: male.

Age: 30–35 (Ad.).

The cranial paries is thick. The symmetrically positioned foramen parietale can be well seen. The sutural bones are from the lambda region. The maxilla is in a good state of preservation. The fossa canina is of degree 2. Fossa praenasalis, torus palatinus. The glabella is of degree 4, although it is slightly fragmentary together with the nasal bones. The nasal bones are strongly protruding and are in a slightly concave position. In the area above the os nasale there is a supranasal suture remnant. The processus mastoideus is strong and the subjacent incisura mastoidea is very deep. The spina nasalis anterior is of degree 2, and there is no alveolar prognathism. The palate is mesostaphyline.

The skeletal bones are unsuitable for metric measurement.

Sárrétudvari–Balázshalom, 1059

The basal part of cranium, the occipital region on the right, and the mandible are missing. On the remaining part of the cranium red dyschromia can be seen. The skeletal bones are missing.

Sex: female (−2).

Age: 25–30 (Ad.).

The cranium is medium-broad. The forehead is medium-broad and metriometopic, domed. The glabella is of degree 1. The face is medium-high, the orbit is mesoconch and square, the nose mesorrhine, medium-protruding, and concave. The palate is mesostaphyline. The spina nasalis anterior is of degree 1, the fossa canina is of degree 2, the alveolar prognathism is moderate. On the left, there is os epiptericum.

Taxonomically: Mediterranean-x (Pl.1 (c) and (d).

Debrecen–Halászlaponyag

Defective bones of a cranium. From the skeletal bones, the distal part of the left scapula is preserved.

Sex: female.

Age: 25–30 (Ad.).

The forehead is narrow, the glabella is of degree 2. The processus mastoideus is middle-sized. The cranial paries is medium thick. It is a (postmortally) strongly planoccipital cranium.

Dévaványa–Csordajárás

Grave 1 (Inventory No. 7976)

A very fragmentary cranium and skeletal bones of an infant (Inf. I.), with long bones in a comparatively good state of preservation. The age of the infant (a few months) can be concluded indirectly. The body length, on the basis of the products of multiplying femur, humerus and the medium part of tibia, is 64 cm; and judging from the length of femur (100 mm) it is more than 50 cm. In the maxillary and mandibular dental curve only the upper part of the crown is visible. The crown-formation is only complete in the lower incisivus, no development of the dental radix is traceable.

Grave 2 (Inventory No. 7977)

Calvaria and skeletal bones of a young person in a comparatively good state of preservation. On the frontal bone, there are traces of red dyschromia. The age can be estimated at 14–16 years (Juv.). The third molar is missing, the epiphyses stand free, they are not coossified with the corresponding diaphyses. There can be observed no sulcus praeauricularis, the incisura ischiadiaca is deeply arched, the glabella is moderately expressed, the processus mastoideus is of medium strength, the protuberantia mentalis is strongly expressed. On the basis of all these, the find should have belonged to a male. It could be determined in spite of his young age.

The index of the maximum length and maximum breadth of the cranium is 80.59 (brachycranic).

Grave 3 (Inventory No. 7978)

The fragmentary cranial and skeletal bones of a small child (Inf. I., between half a year and one year). The long tubular bones are in a good state of preservation. On the frontal bone and in the parietal zone there is some red dyschromia. The crown-formation of the deep-seated deciduous teeth is complete but the development of the tooth roots is at an initial stage. The forehead is divided into two parts (sutura frontalis media). Fonticulus frontalis seu major between the parietal part and the frontal bone. The length of the femur is 115 mm, its medium part is 10 mm. The length of the tibia is 92 mm, that of the humerus is 90 mm.

Of the 19 individuals anthropologically examined, the number of males is 8, that of females is 5, while that of children (Inf. I., Inf. II., Juv.) is 6.

Most of the crania show a dolichomorphic tendency. The forehead is mostly broad, in case of males it is strongly or medium-developed. The glabella and arcus superciliaris in the male crania are of degree 4 to 5. The orbital index is varied, hypsi- and chamaeconchia occur equally.

Their stature is tall (in the case of females, one medium stature value also occurs). The individual sizes of the cranial and skeletal bones, as well as the indices calculated from these, are shown in Tables 1—4.

On a morpho-taxonomical basis, in case of males, two remarkable phenomena have to be emphasized.

(a) The skeletons from kurgans 5/a, 6/3 at Kétegyháza, at Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom, and Dévaványa–Barcéhalom show the *archaemorphic* (cromagnoid and protonordic) features of the Europid great race. For the determination of the archaic features of the cranium the zone of os frontale is most important.

Therefore, the most important dimensions concerning the frontal bone, the indices connected with these, as well as the morphological characteristics of the frontal bones, have been examined and compared with the female crania (Table 5).[6]

The forehead is broad, short or medium-sized, on the basis of index 29 : 26 it is long, or very long, according to index 10 : 29 it is narrow. As a rule, it is morphologically curved and low (unfortunately, the angle of frontal inclination could not be measured). The glabella is of degrees 4 to 5, but on evaluating the archaic characteristics it is decisive that both the arcus superciliaris and the glabella are very strongly developed (Pl. 1(e). In some cases this results in a protrusion similar to the torus supraorbitalis (Pl. 1(f). The processus mastoideus is strong and large, the protuberantia occipitalis externa is of degree 4, the cranial paries is in some cases strikingly thick. The nose is strongly protruding.

In the case of the Debrecen–Dunahalom and Debrecen–Basahalom 2 finds, the archaic characteristics could not be exactly evaluated.[7]

In the case of the female individuals representing the investigated group of the Pit-Grave civilization the above mentioned archaic feature is not present.

The forehead in these cases is very broad, very long, on the basis of index 29 : 26 it is long or medium sized, according to index 10 : 29 it is narrow, similarly to that of males. Morphologically the forehead is not so low and curved as in the case of males. The glabella is small, the arcus superciliaris is not visible, or together with the glabella, it is poorly developed. The processus mastoideus is small, the protuberantia occipitalis externa is of degree 2 (unfortunately, the latter one is usually missing).

(b) The high stature value of the males is connected with robust skeletal bones (Kétegyháza 5/a/1, 6/3, 3/4, Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom, Dévaványa–Barcéhalom). The long tubular bones are, as compared with the female skeletons, heavy, with strong muscle reliefs on them, in one or two cases the cortical layer is obviously thick (Kétegyháza 5/a/1, Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom). In four cases this feature is combined with the archaeomorphic characteristics of the cranium (Kétegyháza 5/a/1, 6/3, Balmazújváros–Árkusmajor(Hortobágy)–Kettőshalom, Dévaványa–Barcéhalom). In two cases, this morphologically observed robustness is strengthened by the indices calculated for the skeletal bones (Table 4).

The males and the females differ in another feature, which appears not so much in the metrical values but rather in the morphological characteristics. In addition there is a taxonomic demonstration of some other components in the case of the females (the find of 6/1 at Kétegyháza is crA-x/nordoid, while that of Sárrétudvari–Balázshalom is Mediterranean-x). The stature value of the females is high or medium sized and morphologically gracile in every case (6/1 and 9/1 at Kétegyháza). (The morphological and taxonomical differences between males and females are shown in Table 5.)

DISCUSSION OF THE LITERATURE AND EVALUATION OF THE HUNGARIAN FINDS

Apart from two short reviews,[8] no monograph has been published on the anthropological finds of the Pit-Grave kurgans in Hungary. As in the course of its expansion this population originating from South-Ukraine settled at the lower reaches of the Danube, too, the relevant anthropological descriptions can mainly be found in the Soviet and Romanian literature.

G. F. Debets[9] characterized the population of the Pit-Grave culture in the following way. This population is morphologically homogeneous. On the basis of the average height of face, the orthognath profile-combination, and the strongly protruding nose they are Europid. Their striking

[6] For the evaluation of sizes and indices I have used Alexeyev–Debets' method, a great part of the data (Ukrainian and Russian) have been evaluated using this method. (Alexeyev V. P., and Debets G. F.) Алексеев, В. П. и Дебец, Г. Ф. (1964), *Краниометрия*, Москва, pp. 1–128.

[7] In the case of Debrecen–Dunahalom we may assume the possibility of some archaic features, but the nasal and frontal bone parts of find 2 at Debrecen–Basahalom are very defective.

[8] Gazdapusztai, Gy. (1966–67), Chronologische Fragen in der Alföld er Gruppe der Kurgan-Kultur, *MFMÉ* 2, p. 100; Ecsedy I. (1971), Eine neue Hügelbestattung der "Grubengrab"-Kultur (Kupferzeit-Frühbronzezeit) in Dévaványa, *Mitt. Arch. Inst.* 2 (1971), p. 47.

[9] (Debets, G. F.) Дебец, Г. Ф. (1948), *Палеоантропология СССР*, Москва, Ленинград, pp. 102—103.

characteristics are the strongly curved forehead and the enormous superciliary arch. Accordingly, these crania can be compared with the upper-palaeolithical crania at Brno–Předmost. Their average stature is tall (173 cm).

According to P. G. Zinevich and I. S. Kruts,[10] their cranium is dolichocranic, with hypsi-acrocran ovoid and pentagonoid contours, their forehead is medium-broad, the orbit is usually low, the nose is broad or medium-broad. With males, the glabella and the arcus superciliaris, as well as the processus mastoideus are well developed. With females, the latter ones are poorly developed.

In the Ukrainian paleoanthropological material of S. T. Konduktorova[11] there can be found some finds representing the Pit-Grave culture. In the case of males, on the basis of index 8 : 1 mesocrania, of index 48 : 45 mesene is characteristic. Their average height is 170 cm.

S. M. Velikanova[12] reports on a proto-Europid type living on a vast steppe-zone of the Soviet Union, with an extremely small territorial differentiation. According to her, the robust hypermorphous forms, to which the proto-Europid type belongs, had at the end of the Neolithic Age and at the beginning of the Bronze Age an exact area of propagation. In the south and west, the hypomorphous, gracile forms were more frequent. In Ukraine this proto-Europid type is characteristic of the population of the Dnepr-Donets culture. Besides robust features their broad face is conspicuous. Throughout the Ukrainian Bronze Age, the proto-Europid type may be considered as genetically originating from the population of the Dnepr-Donets civilization.

In the paper of G. V. Debets and Yu. A. Durnovo[13] we find interesting data concerning the population of the Aeneolithic steppe-civilization. Skeletons from the Aeneolithic Anau civilization of Central Asia have been compared to the population of the ancient civilization in the Indus basin, and to the man of the Aeneolithic steppe age. In their analysis the Aeneolithic steppe skeletons are characterized as being robust, occasionally quite exceptionally robust. The average height of the males in the ancient Yamnaya civilization was 172.4 cm, while that of the females 160.2 cm. The average weight of males was 74.2 kg, that of females 59.0 kg. The authors add, however, that these values may actually have been even higher.

T. Tóth[14] originates the strong effect of the autochtonous morphological component of Mesolithic origin from the Pit-Grave culture in Ukraine and the Lower Volga region.

M. Gimbutas[15] describes the *migration* of the "kurgan" tribes coming from the Ukraine. During their westward expansion they destroyed the Mariupol civilization in the Black Sea region. On the basis of the pertaining literature, she characterizes the "kurgan" population as a robust cromagnoid type, with tall stature and rather narrow face. The Mariupols were more robust, with definite cromagnoid features (strikingly broad face).

Aeneolithic skeletons from Mariupol have been described by I. I. Gohman,[16] supplying similar data and emphasizing the large absolute breadth of the face.

The crania of the series from Smeeni in Romania[17] are robust, the superciliary arch being always strongly protruding. The stature in most cases is tall. The neurocranium is dolichocranic, the glabella is large. The ocular and nasal indices are varied. From a typological point of view, they belong to the proto-Europid, more exactly to the proto-Nordoid group.

Similar results have been obtained at the investigation of the Ochre-Grave population in Holboca, Valea Lupului, and Brăiliţa[18] as well. These represent a joint group but a considerable difference has been shown between males and females. They are robust, their stature is tall in each group (average:

[10] (Zinevich, P. G. and Kruts. I. S.) Зиневич, Г. П., Круц, И. С. (1 968), *Антропологічна характеристика давнього населения території України*, Київ, pp. 34–37, 50–59.

[11] (Konduktorova, T. S.), Кондукторова, Т. С. (1956), Материалы по палеоантропологии Украины, *Антропологический сборник*, 1, pp. 166–203.

[12] (Velikanova, M. S.) Великанова, М. С. (1970), Население Прутско-Днестровского Междуречья в эпоху бронзы по антропологическим данным, *Советская Этнография* 2, pp. 79–90

[13] (Debets, G. V. and Durnovo. Yu. A.) Дебец, Г. Ф., Дурново, Ю. А. (1971), Физическое развитие людей эпоху энеолита в Южной Туркмении. *Советская Этнография* 1, pp. 26–35.

[14] Tóth, T. (1970), On the morphological modification of anthropological series in the Lithic and Paleometallic Ages I, *Ann. Hist.—Nat. Mus. Hung.* 62, pp. 381–392.

[15] Gimbutas, M. (1963), The Indo-Europeans: Archeological Problems, *Amer. Anthrop.* 4, pp. 820–822.

[16] (Gokhman, I. I.) Гохман, И. И. (1959), Антропологический материал из Мариупольиского могильника *CA*, 3, pp. 105–114.

[17] Necrasov, O., Cristescu, M. and Antoniu, S. (1964), Étude anthropologique des squelettes de Smeéni datant de l' énéolithique et de l'âge du Bronze. *Ann. Roumain d'anthrop.* 1, pp. 19–28.

[18] Necrasov, O. and Cristescu, M. (1965), Données anthropologiques sur les populations de l'âge de la Pierre en Roumanie, *Homo* 16, pp. 129–161.

171 cm), except for the Brăiliţa series where their stature is rather short. The cranial index is generally dolichocranic but mesocrania also occurs. The forehead is curved, eurymetopic, with males the glabella is very protruding. The face is generally lepten, in case of males, however, euryen and hypereuryen types also occur. With females the face is lepten. The nose of the males is leptorrhine, that of the females chamaerrhine and mesorrhine. The orbit index is usually mesoconch.

On the basis of these series as well as of Necrasov's[19] comprehensive work, the group representing the Yamnaya civilization excavated in Romania may be characterized taxonomically as follows. The material includes two main components, one of them resembles the Cro-Magnon and Předmost types. The other leading type is the same proto-Nordic which occurs in the Caspian Steppe during the Neolithic and Early Bronze Age. Apart from these essential types there are mediterranean elements represented mostly by the female skeletons of Brăiliţa and by some individuals of the Holboca and Valea Lupului series. These skeletons from Holboca and Valea Lupului compare well with the original type of the Boian and Gumelniţa cultures. It has been suggested that the male individuals of the Pit-Grave culture resemble the types of the Southern-Azovian area. Concerning the Dinaric-Armenian element, a Cucuteni origin can be assumed. The female series of the Pit-Grave skeletons contains a remarkable Mediterranean component.

The first appearance of the steppean population in Eastern Hungary is demonstrated by the Csongrád grave.[20] The male skeleton found in Csongrád is tall and robust but without any protomorphic features. It is Cro-Magnon A–Nordic and can be well compared to the series from Aleksandria (Srednii-Stog II) and Zaporishka (Early Pit-Grave culture).

J. Nemeskéri's work concerning the anthoropological data of the *Pécel* civilization[21] is worth mentioning. Nemeskéri evaluated 43 graves of the Alsónémedi graves. In another comprehensive work of his[22] there is a detailed analysis of the material of three findspots. He has pointed out that the Pécel population differs from that of Bodrogkeresztúr because of the preponderance of the Mediterranean race-composition.

Considering the fact that the skeletons excavated in Hungary are fragmentary in the course of evaluation emphasis should be laid on the morphological features. Based on the above data, the Hungarian material of the Pit-Grave kurgans may be summarized as follows:

(1) Although the skeleton from the Csongrád grave representing the early phase is a robust one, it differs from the majority of finds treated in this paper, because it lacks archaemorphous elements.

(2) In the case of males representing a later phase of the Yamnaya civilization two components may be postulated:

(a) a very tall, robust and taxonomically probably protonordoid one;

(b) a very tall, more robust than the former one, taxonomically possibly protocromagnoid one.

(3) In our material — similarly to the Romanian finds — in the case of females the Mediterranoid (gracile) characteristics can also be found.

The question is if any intermingling occurred between the population of Yamnaya and that of Pécel, or else the Mediterranoid gracile elements got into the originally predominant proto-Europid component in the course of the Pit-Grave migration. Owing to the low number and the fragmentary state of preservation of the evaluated finds, this question remains to be answered.

[19] Necrasov, O. (1961), Consideration sur la structure anthropologique des populations de l'âge de la Pierre en Roumanie et les problèmes qui s'y rattachent. *Anthrop. Közl.* 5, pp. 53–61.

[20] Marcsik, A. (1971), Data of the Copper Age anthropological find of Bárdos-farmstead at Csongrád–Kettőshalom, *MFMÉ. Szeged* 2, pp. 19–27.

[21] Nemeskéri, J. (1951), Anthropologische Untersuchung der Skelettfunde von Alsónémedi, *Acta Arch. Hung.* 1, pp. 55–72.

[22] Id. (1956), Anthropologische Übersicht des Volkes der Péceler Kultur (in: Banner, J.: Die Péceler Kultur) Arch. Hung. 35, pp. 295–311.

Table 1

Individual measurements

No. of measurements (Martin)	Kétegyháza				Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom
	6/1 Ad. female	5/a/1 Ad. male	6/3 Ad. male	3/7 Inf. II.	1 Ad. male
1.	187	—	—	172	—
1c.	180	—	—	172	—
5.	104	—	—	92	—
7.	37	—	—	41	—
8.	140	—	—	133	—
9.	98	99	107	89	101
10.	132	123	121	113	(126)
10b.	125	119	120	112	119
16.	—	—	—	33	—
17.	137	—	—	133	—
20.	118	—	—	111	—
26.	133	125	115	121	130
27.	132	—	140	125	125
28.	111	—	—	110	—
29.	118	113	106	108	115
30.	115	—	132	112	—
31.	90	—	—	97	—
40.	—	—	—	78	—
43/1.	98	99	105	33	—
46.	91	—	—	—	—
47.	—	—	—	103	—
48.	—	—	—	62	—
51.	41	40	42	39	—
52.	29	34	28	34	—
54.	—	—	—	22	—
55.	—	—	—	45	—
57.	—	—	9	8	—
63.	—	—	—	—	33
66.	—	—	—	—	106
69.	30	—	35	26	30
70.	65	—	—	—	71
71.	30	—	—	—	39

Table 2

Individual measurements

No. of measurements (Martin)	Dévaványa–Barcéhalom	Debrecen–Dunahalom	Sárrétudvari–Balázshalom	Debrecen–Basahalom 2.	Debrecen Halászlaponyag
	1 Mat. male	105 Ad. male	1910 Ad. female	1906 Ad. male	— Ad. female
1.	—	178	—	—	—
1c.	—	165	—	—	—
8.	—	(140)	(137)	(136)	—
9.	103	98	93	—	100
10.	—	122	117	—	132
10b.	—	115	115	—	131
26.	121	120	120	—	137
27.	—	100	100	115	—
29.	111	108	107	—	118
30.	—	(93)	94	103	—
43/1.	—	—	98	—	—

Table 2 (contd)
Individual measurements

No. of measurements (Martin)	Dévaványa–Barcéhalom	Debrecen–Dunahalom	Sárrétudvari–Balázshalom	Debrecen–Basahalom 2.	Debrecen–Halászlaponyag
	1. Mat. male	105 Ad. male	1910 Ad. female	1906 Ad. male	— Ad. female
46.	—	—	90	—	—
47.	(122)	—	—	—	—
48.	72	—	65	—	—
51.	—	—	40	—	—
52.	—	—	30	—	—
54.	—	—	23	23	—
55.	—	—	48	—	—
57.	—	—	10	9	—
62.	—	—	42	42	—
63.	45	—	34	34	—
65.	—	—	—	118	—
66.	—	—	—	108	—
69.	35	32	—	36	—
70.	72	—	—	68	—
71.	35	—	—	38	—

Table 3
Indices calculated from individual measurements

No. of size	Kétegyháza				Balmazújváros–Árkusmajor (Hortobágy)–Kettőshalom	Dévaványa–Barcéhalom	Debrecen–Dunahalom	Sárrétudvari–Balázshalom	Debrecen–Basahalom 2	Debrecen–Halászlaponyag
	6/1 female	5/a/1 male	6/3 male	3/7 Inf. II.	1 male	1 male	105 male	1910 female	1906 male	— female
8 : 1	74.87	—	—	77.33	—	—	(78.65)	—	—	—
9 : 8	70.00	—	—	66.92	—	—	70.00	67.88	—	—
9 : 10	75.00	80.49	88.43	78.76	80.16	—	80.33	79.49	—	75.76
9 : 10b	79.20	83.19	89.17	79.46	84.87	—	85.22	80.87	—	76.34
16 : 7	—	—	—	80.49	—	—	—	—	—	—
17 : 1	73.26	—	—	77.33	—	—	—	—	—	—
17 : 8	97.86	—	—	100.00	—	—	—	—	—	—
20 : 1	63.10	—	—	64.53	—	—	—	—	—	—
20 : 8	84.29	—	—	83.46	—	—	—	—	—	—
10 : 8	94.29	—	—	84.96	—	—	87.14	85.40	—	—
10 : 29	111.8	108.8	114.1	—	109.5	—	112.0	109.2	—	111.9
27 : 26	99.25	—	121.74	103.31	96.15	—	83.33	83.33	—	—
28 : 26	83.46	—	—	90.91	—	—	—	—	—	—
28 : 27	84.09	—	—	88.00	—	—	—	—	—	—
29 : 1	63.19	—	—	—	—	—	60.6	—	—	—
29 : 26	88.72	90.40	92.17	89.26	88.46	91.74	90.00	89.17	—	86.13
30 : 1	61.5	—	—	—	—	—	52.2	—	—	—
30 : 27	87.12	—	94.29	89.60	86.40	—	93.00	94.00	89.57	—
31 : 28	81.08	—	—	88.18	—	—	—	—	—	—
40 : 5	—	—	—	84.78	—	—	—	—	—	—
52 : 51	70.73	85.00	66.67	87.18	—	—	—	75.00	—	—
52 : 48	—	—	—	80.95	—	—	—	46.15	—	—
54 : 55	—	—	—	48.89	—	—	—	47.92	—	—
71 : 70	44.62	—	—	—	54.93	48.61	—	—	55.88	—
63 : 62	—	—	—	—	—	—	—	80.92	80.92	—
29+30 +31/1	172.7	—	—	—	—	—	—	—	—	—

Table 4

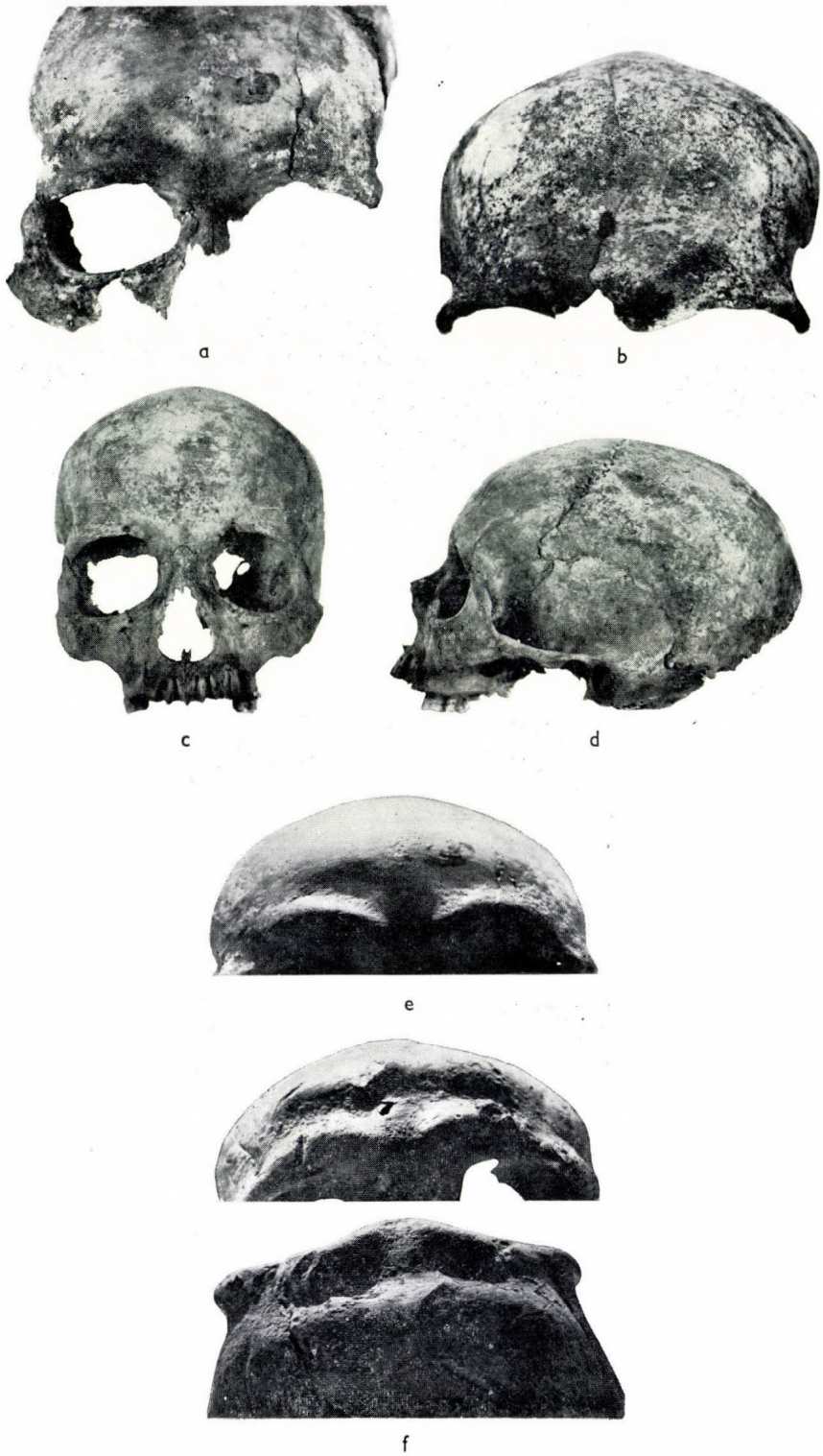
Individual measurements, indices of the skeletal bones and the stature

No. of measurements (Martin)		Kétegyháza								Dévaványa–Barcéhalom		Árkusmajor Kettőshalom	
		6/1 Ad. female		5/a/1 Ad. male		6/3 Ad. male		9/3 Mat. female		1 Ad. male		1 Mat. male	
		right	left	right	left	right	left	right	left	right	left	right	left
Sacrum	4.	100		120		—		—		—		—	
	5.	103		114		—		—		—		—	
Sternum	1.	114		—		—		—		—		—	
	4.	51		—		—		—		—		—	
Clavicula	1.	146	146	—	—	—	—	—	—	—	—	—	160
	6.	30	30	—	—	—	—	—	—	—	—	—	40
Scapula	2.	—	96	—	—	—	—	—	—	—	—	—	—
	7.	—	127	—	—	—	—	—	—	—	—	—	—
Humerus	1.	310	305	—	—	322	318	—	—	—	—	—	—
	2.	308	300	340	—	319	314	—	—	—	—	—	—
	5.	18	19	26	—	27	26	—	—	—	—	25	23
	6.	15	14	19	—	21	20	—	—	—	—	20	20
	7.	60	55	72	—	70	65	—	—	—	—	67	67
	9.	34	32	41	—	37	35	—	—	—	—	—	—
	10.	41	42	48	—	45	42	—	—	—	—	—	—
Radius	1.	240	240	—	—	—	247	—	—	—	—	—	270
	1b.	236	237	—	—	—	242	—	—	—	—	—	268
Ulna	1.	262	262	—	—	270	272	—	—	—	—	294	290
	2.	227	227	—	—	235	237	—	—	—	—	255	257
	13.	14	15	—	—	20	21	—	—	—	—	20	20
	14.	23	21	—	—	25	25	—	—	—	—	23	26
Femur	1.	442	447	—	—	—	—	—	—	—	—	—	465
	2.	440	442	—	—	—	—	—	—	—	—	—	—
	3.	425	430	—	—	—	—	—	—	—	—	448	453
	6.	23	21	—	33	34	33	—	26	—	31	32	30
	7.	24	25	—	29	26	26	—	26	—	31	33	33
	9.	34	34	—	—	36	35	—	37	—	40	40	41
	10.	20	20	—	—	25	26	—	24	—	29	25	29
	18.	43	44	—	—	—	—	—	—	—	—	—	46
	8.	73	75	—	95	90	92	—	80	—	95	100	105
Tibia	1.	365	367	—	394	—	—	—	345	—	—	370	385
	1a.	370	372	—	400	—	—	—	350	—	—	380	395
	1b.	362	362	—	392	—	—	—	338	—	—	380	385
	8.	23	22	—	34	—	32	—	29	—	33	38	36
	8a.	28	27	—	38	—	34	—	33	—	36	40	38
	9.	16	17	—	22	—	21	—	19	—	25	24	24
	9a.	17	18	—	24	—	26	—	—	—	25	25	26
	10b.	62	63	—	80	—	80	—	70	—	80	85	85
Fibula	1.	355	—	—	—	—	—	—	—	—	373	—	373
Clavicula	6 : 1	20.5	20.5	—	—	—	—	—	—	—	—	—	25.0
cl. Humerus	1 : 2	47.4	48.0	—	—	—	—	—	—	—	—	—	—
	7 : 1	19.3	18.0	—	—	22.7	22.7	—	—	—	—	—	—
	6 : 5	83.3	73.6	73.0	—	77.7	76.9	—	—	—	—	80.0	86.9
rad. Ulna	1 : 2	77.9	80.0	—	—	—	78.6	—	—	—	—	—	—
	13 : 14	60.8	71.4	—	—	80.0	84.0	—	—	—	—	86.9	76.9
Femur	6 : 7	95.8	84.0	—	113.7	130.7	126.9	—	100.0	—	100.0	96.9	90.9
	10 : 9	62.3	62.3	—	—	69.4	74.2	—	64.9	—	72.5	62.5	70.7
Tibia	9a : 8a	60.7	66.6	—	63.1	—	76.4	—	66.6	—	69.4	62.5	68.4
Stature		163 tall		177 tall		170 tall		155 medium		—		173 tall	
Note		gracile		thick cort. layer, robust bony system		robust, strong muscle reliefs		gracile		thick cort. layer, robust bony system		robust	

Table 5

Distribution of dimensions and indices in Alexeyev–Debets's classification and the main characteristics

No. of size (Martin)	Classification (Alexeyev–Debets)		Males	Females
10.	broad		3	1
	very broad		1	2
26.	very long		—	1
	medium long		2	1
	short		2	1
	very short		1	—
29 : 26	very long		2	—
	long		2	1
	medium long		1	1
29.	very long		—	2
	long		1	—
	medium long		2	1
	short		2	—
10 : 29	very narrow		1	—
	narrow		3	3
Glabella and arcus superciliaris		1.	—	1
		2.	—	2
		4.	4	—
		5.	2	—
Stature	males			
	170.0–179.9	tall	3	
	females			
	153.0–155.9 average	tall		1
	159.0–167.9	tall		1
Skeleton		robust	4	—
		gracile	—	2
Taxon	proto-Europid (prn, prcr-A)		4	—
	crA-x (n)		—	1
	m-x		—	1



Pl. 1. (a) Kétegyháza 6/3–5443, male; (b) Debrecen–Dunahalom, 105/1923, male; (c) Sárrétudvari–Balázshalom, 1059, female, m-x, norma frontalis; (d) Sárrétudvari–Balázshalom, 1059, female, m-x, norma lateralis; (e) State of development of the glabella and arcus superciliaris. Kétegyháza 6/3–5443, male; (f) State of development of the glabella and arcus superciliaris. Kétegyháza 5/a–1–4671, male

CHEMICAL ANALYSIS OF THE OCHRE-CLODS IN SOME PIT-GRAVES

by GYÖRGY DUMA

The grave furniture, known as ochre-clods, which are very common in Hungarian archaeological finds, have not yet undergone scientific examination, so the name refers to their external appearance only. By describing the formal characteristics and defining their approximate colour, the existing similarities and differences can hardly be made clear. This fact made it necessary to define those aspects which have to do with their material characteristics. Research material was available to us from five pit-grave burials.

Kétegyháza, kurgan 6, grave 1

The surface of the ochre-clod under research was granular, and it seemed to be a rough granular aggregate. In an atmospherically dry state its material was hardly friable, but when stuck it fell to pieces easily and the exposed surfaces were grey in colour. It could be observed that the fragment was covered by red material only in certain places. These parts formed the outer surface of the ochre-clod. The main mass of the ochre-clod was formed of grey clay. Judging from the granular content and organic content of this main mass it is certain that it comes from the soil.

According to examinations carried out by X-ray defraction on the red-coloured material, its main mass was shown to consist of haematite (Fe_2O), and there was a smaller amount of felspar and a minute quantity of montmorillonite.

On the basis of the above results it could be established that the main mass of the material called ochre-clod was formed of a clod coming from a clay layer which is close to the surface and which is its natural state. The surface of the clod got its dark red colour from a haematite layer. Since only the surface layer of the grave furniture consists of red-coloured earth dye, the name ochre-clod does not characterize it.

2. Kétegyháza, kurgan 3, grave 6

The characteristics and contents of the ochre-clod under research are identical with those of the above.[1]

The results of the X-ray defraction examination on the ochre-clods from the Kétegyháza kurgan 3, grave 7 and the Dévaványa–Csordajárás kurgan, graves 1 and 3 could be summarized as follows:

3. Kétegyháza, kurgan 3, grave 7

The material of the red-coloured sample, which was glued together and showed the imprints and remains of a leather bag, consisted of an 81–85% mass of haematite, a minimal quantity of goethite, a lesser quantity of lepidocrochite, a small quantity of quartz, and a very small quantity of plachioglas.[2]

4. Dévaványa–Csordajárás, kurgan, grave 1

The contents of the ochre nugget consisted of a 95–96% mass of haematite, a minimal quantity of goethite, traces of lepidocrochite, and a minimal quantity of quartz.

5. Dévaványa–Csordajárás, kurgan, grave 3

The contents of the ochre-clod consisted of a 93–95% mass of haematite, a minimal quantity of goethite, uncertain traces of lepidocrochrite, and a minimal quantity of quartz and plachioglas.

[1] For further information see: Duma, Gy. and Ecsedy, I. (1975), Die "Ockerklumpen" der Grubengrab Kultur—Jamnaja Kultur, *Mitt. Arch. Inst.* 4, (1973), pp. 129–133.

[2] Regarding the quantitative aspect of the estimation, we must take into consideration the fact that the limit of registration is usually 3% and, furthermore, that there is a $\pm$ 5% error margin in the case of minerals in larger quantities. After the preliminary sampling we applied special sampling conditions. The indications of quantity used mean the approximate values here as follows: trace: 1%, minimal quantity: 1–2%, very little: 3–4%, small quantity: 5–6%, mass: above 60%.

COPPER AGE VERTEBRATE FAUNA FROM KÉTEGYHÁZA

by SÁNDOR BÖKÖNYI

Although the evolution of the vertebrate fauna of the Hungarian prehistoric age is rather well known, there are still cultures about whose domestic and wild animals we know little. This is generally due to the lack of excavations, particularly those with proper bone collecting, resulting either in the complete lack or in only small quantities of research material.

Such a link was formed by the Černavoda III–Boleráz group at the end of the Middle Copper Age and at the beginning of the Late Copper Age, although, the knowledge about the animal husbandry of this group which shows connections with Černavoda III of Romania and with the Copper Age cultures of the Ukraine, is of vital importance in order to understand the development of the animal husbandry of the Late Copper Age introducing our Bronze Age.

The excavations led by Gy. Gazdapusztai in Kétegyháza, unearthing a small quantity of animal remains (Bodrogkeresztúr culture, Middle Copper Age), yielded an evaluable amount of animal bones belonging to the Černavoda III–Boleráz group. The bone sample is a typical bone assemblage of a settlement. Complete skeletons, larger skeletal parts or whole skulls do not occur in it, and even whole long bones are very rare. (Altogether one single cattle metacarpus, two sheep metacarpi and three metatarsi and a dog humerus are preserved in their whole length.) All other bones were broken up in order to get the marrow, a delicate food. Several bones show traces of burning and chewing, the latter ones obviously caused by the dogs of the settlement.

The species composition of the excavated bone sample is shown in the following table:

		Bodrogkeresztúr culture		Černavoda III–Boleráz group	
		specimen	individual	specimen	individual
cattle — Bos taurus L.	n	171	19	215	25
	%	67.32	52.78	31.80	27.47
sheep — Ovis aries L.	n	61	10	334	36
goat — Capra hircus L.	%	24.02	27.78	49.41	39.55
pig — Sus scrofa dom. L.	n	12	3	74	10
	%	4.72	8.33	10.95	10.99
horse — Equus caballus L.	n	—	—	14	4
	%	—	—	2.07	6.59
dog — Canis familiaris L.	n	2	1	15	6
	%	0.79	2.78	2.22	6.59
domesticated animals	n	246	33	652	81
	%	96.85	91.67	96.45	89.00
aurochs — Bos primigenius Boj.	n	5	2	13	4
	%	1.97	5.55	1.92	4.40
red deer — Cervus elaphus L.	n	—	—	5	3
	%	—	—	0.74	3.30
roe deer — Capreolus capreolus L.	n	—	—	1	1
	%	—	—	0.15	1.10
wild swine — Sus scrofa fer. L.	n	—	—	4	1
	%	—	—	0.59	1.10
brown hare — Lepus europaeus Pall.	n	3	1	—	—
	%	1.18	2.78	—	—
bird — Avis sp.	n	—	—	1	1
	%	—	—	0.15	1.10
wild animals	n	8	3	24	10
	%	3.15	8.33	3.55	11.00
total	n	254	36	676	91

As the above table demonstrates, the faunae of both periods are poorly represented in the excavated parts of the settlements: remains of five domestic and two wild species were unearthed in the part of the settlement belonging to the Bodrogkeresztúr culture and those of six domestic and five wild species were found in the part belonging to the Černavoda III–Boleráz group. The fact that the sample is poor in species is not due to the domestic part because it contains all species usually occurring in the settlements of the Bodrogkeresztúr culture, and their group gets even completed by the domestic horse in the Černavoda III–Boleráz group. As far as the wild fauna is concerned, it contains the four most commonly occurring species of prehistoric settlements — aurochs, red deer, roe deer and wild swine — only in the settlement part of the Černavoda III–Boleráz group (also a bird species joined them). Out of these four species the aurochs was represented alone in the settlement part of the Bodrogkeresztúr culture, and besides it only three bones of one single hare were found.

These facts show the small importance of hunting, that is clearly indicated by the numerical data of the fauna list too. This epoch was the period of the decline of hunting following its great upswing at the end of the Neolithic. At this time animal keeping could exist without any essential local domestication, and man was not forced to turn to hunting as a supplementary food procuring source on a larger scale.

As regards the domestic fauna, in the settlement part of the Bodrogkeresztúr culture the ratios of the species are surprisingly similar to those which were found in Tarnabod, the only settlement of this culture with statistically evaluable fauna (Bökönyi, 1959). The only difference is that here the ratio of the small ruminants is somewhat higher than there.

The domestic fauna of the settlement part belonging to the Černavoda III–Boleráz group strongly differs from this. In the latter, the small ruminants are the most common, their number making out almost half of all domestic animals. Lagging behind them are cattle, then come the very rare pig, dog and horse. This domestic fauna is very similar to that of the Körös culture settlements in Hungary (Bökönyi, 1964, 1968a, 1971, 1974), the only differences being the occurrence of the domestic horse and the low ratio of wild animals in the former. This fauna is even more similar to that of the Pécel (Baden) culture settlements, because the domestic horse sometimes occurs in the latter ones too, and their domestic–wild ratio is also resembling that of Kétegyháza. The species composition (%) of the Körös and Pécel culture settlements is demonstrated below:

		cattle	caprovines	pig	horse	dog	wild animals
Körös culture							
Deszk–Olajkút	specimen	22.37	53.45	0.15	—	0.15	23.88
	individual	20.76	42.93	0.94	—	0.22	8.78
Gyálarét	specimen	16.54	34.61	2.55	—	0.76	45.54
	individual	13.02	28.47	4.07	—	0.81	53.63
Röszke–Lúdvár	specimen	7.32	31.16	0.67	—	1.63	59.22
	individual	6.52	27.83	1.74	—	2.17	61.74
Tiszajenő–	specimen	24.12	66.45	0.44	—	0.22	8.78
Szárazérpart	individual	24.49	48.98	2.04	—	2.04	22.45
Pécel culture							
Andocs	specimen	34.61	41.12	13.92	0.13	5.11	5.11
Budapest–	specimen	32.07	38.88	21.04	—	1.20	6.81
Andor utca	individual	32.81	35.94	19.27	—	2.09	9.89
Tiszaszöllős–	specimen	13.88	66.73	7.47	—	1.96	9.96
Csákányszeg	individual	21.28	45.74	14.89	—	5.32	12.77

The Černavoda III–Boleráz fauna of Kétegyháza resembles also that of the eponymous site of the Černavoda culture in Romania. Although this latter site (Černavoda–Dealul Sofia) yielded only a comparatively small number of animal remains, 288 identified specimens, both the ratios of the domestic animal species and also the domestic–wild ratio (Haimovici–Ureche, 1968) are surprisingly similar to those of Kétegyháza: there also the small ruminants are the most frequent, cattle follow them from a rather big distance, pig is very rare, and domestic horse also occurs, however, in such a small number that even dog exceeds it in frequency just like in Kétegyháza. All these point with right to a connection between the two cultures. See the procentual fauna composition after Haimovici–Ureche, 1968, below:

	cattle	caprovines	pig	horse	dog	wild animals
specimen	34.72	32.64	9.72	4.17	3.82	13.89
individual	21.90	44.77	8.57	2.86	7.62	14.28

As regards the occurring species, the sample unearthed in Kétegyháza is far too small to allow the observation of changes taking place during the life of the two cultures or of the differences between the domestic animals of the two cultures.

Among the domestic animals of the site the remains of cattle are particularly fragmentary. In the whole cattle bone sample one single horn-core fragment can be found, and even that cannot be measured. It comes from the Černavoda III–Boleráz group, and although it is of a subadult individual, there can be observed that it is a fragment of a long, bulky hornc-ore. This means that it is of a cattle of the so-called primigenius type that is very similar in its horn form to the aurochs. This is not at all surprising since most of the Neolithic and Copper Age cattle in Hungary could not have a very long domesticated past and were therefore rather similar to their wild ancestor.

The Copper Age cattle of Kétegyháza, according to the measurements of their extremity bones, were very variable, however, independent breeds cannot be distinguished in the population. On the basis of the length of the single whole metacarpal one can determine an animal of 129.78 cm withers height with Matolcsi's index (1970). This is considerably higher than the average withers height (just above 117 cm) of the Copper Age cattle in Hungary (Bökönyi, 1974). Nevertheless, in the cattle sample of Kétegyháza remains of even larger individuals appear, e.g., a metacarpal fragment with 64 mm proximal and 68 and 71 mm distal breadth, a tibia fragment with 75 mm distal breadth, or an astragalus with 76 mm greatest length, and finally a metatarsal fragment with 66 mm distal breadth. They are obviously remains of strong bulls (in fact the horn-core fragment mentioned above probably comes also from a bull). About some of the bones, e.g., the third metacarpal and the tibia fragment, one can suppose that they are remains of freshly domesticated individuals. After the "domestication fever" of the Late Neolithic the aurochs domestication abruptly declined in the Copper Age, however, it sporadically occurred in the sites as a way of increasing the number of domestic cattle.

Besides these prominently large individuals the bulk of the domestic cattle population consists of animals of medium size, and there can be sporadically found small individuals too. These latters are represented, e.g., by metacarpal fragments with 54.5 and 58 mm proximal breadth. They are probably bones of cows, however, there is a vague possibility that they come from oxen, since the castration of bulls had been practised in Central and Eastern Europe from the end of the Neolithic (Krysiak, 1950–51; Nobis, 1954). Nevertheless, there is no positive evidence in the bone sample of Kétegyháza.

As for the two small ruminants, sheep are far more frequent than goats. While the goat is represented by one single bone in the settlement part of the Bodrogkeresztúr culture and by two in that belonging to the Černavoda III–Boleráz group, the former one yielded one, and the latter one 23 sheep remains.

Also the only whole horn-core of the site comes from sheep (Černavoda III–Boleráz group): a left horn-core of an adult individual. It is short, similar to a goat's horn-core, untwisted, so it shows the characteristics of the so-called palustris type. By identifying it with this type one does not want to specify it as a member of a particular breed or race. It is only for the sake of simplicity, since, according to Reitsma (1932), the palustris horn-cores come from the fe males of the prehistoric sheep population of Europe, just as the so-called Copper sheep horn-cores represent the males of the same population.

On the basis of the length of the five measurable sheep metapodials the withers heights determined by Zalkin's method (1961) are as follows:

bone	length	withers height
metacarpal	114.0 mm	55.40 cm
metacarpal	134.0 mm	63.12 cm
metatarsal	115.5 mm	52.18 cm
metatarsal	115.5 mm	54.05 cm
metatarsal	149.2 mm	69.83 cm

The second metacarpal is from an individual of medium size, the third metatarsal is from another of large size (both are from the Černavoda III–Boleráz group), the three other bones represent small sheep. In fact, these latter ones are the typical sheep of the Hungarian Neolithic and Copper Age, and even the individual of 63.12 cm withers height can be placed into this group as a strong male (on the basis of its thick diaphysis). At the same time the individual of 69.83 cm withers height definitely resembles the large sheep of the Bronze Age. This is quite obvious because the first wave of the large, "improved" sheep which spread out of the sheep domestication centre of Southwest Asia (where also the conscious sheep breeding started first, at least according to data published by Kraus [1966] about the sheep keeping of the Mesopotamian temple-farms) reached the Carpathian basin with the Černavoda III–Boleráz group and the Pécel culture. The withers height of the large Kétegyháza individual surpasses the average withers height of the Bronze Age sheep in Hungary which means that it fits their size variation very well. In fact it is either a well-developed ram or a wether.

Among the sheep extremity bone fragments there also appear a couple of specimens coming from large individuals, e.g., each metatarsal fragment of 20 and 21 mm proximal breadth, and a humerus fragment

of 33 mm distal breadth. The majority of the bones is, however, from animals of small or medium size.

The three goat bones point to rather small animals which is surprising because prehistoric goats generally surpass sheep for size both in Southwest Asia and in Central and Southeast Europe (Bökönyi, 1973).

The few pig bones of the site are in an extremely fragmentary state, only two astragali are intact. The measurements of the bones point to a rather variable population. Thus, for example, the 30 and 31 mm lengthes of each upper and lower M_3 indicate animals of very small size, at the same time a humerus fragment of 40 mm distal breadth comes from an individual of much larger size, and finally two astragali of 45 and 47 mm greatest length represent pigs of considerable size. On the basis of their length calculated with Teichert's indexes (1969), the withers heights of the two latter individuals are 80.55 and 84.13 mm being far above the average withers height (74.7 mm) of the Neolithic pigs (Teichert, 1970). It is possible that the individual of 84.13 cm withers height was one of the freshly domesticated pigs originating from the local wild swines, which would explain its outstandingly large size.

The most interesting domestic animal remains of the site of Kétegyháza are undoubtedly the horse bones found in the settlement part of the Černavoda III–Boleráz group. According to our most recent knowledge, the Equus ferus Boddaert, the only wild horse species in the Late Pleistocene of Eurasia (Nobis, 1971), did not survive the drastic climatic change of the end Pleistocene in the Carpathian basin just like in the Balkan and Appennine peninsulas. The best evidence for this is the fact that although tens of thousands of animal remains have been identified and described from several sites in the Carpathian basin and first of all in Hungary, in this vast material of first-class authenticity, there has not been found one single horse bone of undoubtedly Neolithic origin. This means that in the Early Holocene the horse reached Hungary in an already domesticated form.

Among archaeozoologists the place and time of the earliest horse domestication had been a subject of disagreement until finally Bibikova (1967) was able to determine them on the basis of bone finds. She found the earliest domestic horse bones in the Aeneolithic (Srednij-Stog culture: second half of the fourth mill. B. C.) settlement of Dereivka, the South Ukraine. The site lies on the right bank of the Dnieper River, *c.* 70 km from the town of Kremenchug. In the site already the composition of the fauna was very interesting: about 60 per cent (2255 specimens) of the 3703 identified mammal bones came from horses. Even in case of hunting such a high specialization would raise the suspicion of domestication (the same situation was observed in Late Neolithic sites of Hungary where aurochs abundance and local cattle domestication were in close connection). Beside this, the detailed analysis of a whole skull found among the horse bones and the conspicuously wide variation of the Dereivka horses clearly proved the local domestication of the population. Besides this early horse domestication centre of Eastern Europe, horse domestication could happen in the western part of Central Europe and in Western and Northern Europe, too, it must have been, however, of secondary importance due to the small number of wild horses living there.

The settlement of Dereivka is about the same age as period B of the Tripolye culture. And the earliest phase of this latter (B_1) is contemporary and also closely connected with the Tiszapolgár culture in Hungary. It is not surprising therefore that the earliest domestic horse remains appeared — if only scattered — in the sites of the Tiszapolgár culture, too. The first such find was a worked metacarpal fragment in grave No. 3 of cemetery B at Deszk (Bökönyi, 1959), later the small-scale excavation of a Tiszapolgár culture settlement at Kisköre–Szingehát also yielded three horse remains (Bökönyi, 1971, 1974). Each horse bone was unearthed in Kenderes–Telekhalom and Kenderes–Kulis, too (Bökönyi, 1971, 1974). Both latter sites are settlements of the Tiszapolgár culture with some Neolithic antecedents. Since no authentic horse remains were found in Neolithic sites of Hungray, one can assume that both horse bones are from the Tiszapolgár culture.

In fact, archaeologists described Early Copper Age horse bones from Hódmezővásárhely–Tatársánc–Zalay brick factory (Kisrétpart group) and Hódmezővásárhely–Bodzáspart (Banner, 1939), and also from Znojmo, Moravia, from a site essentially contemporaneous with the Tiszapolgár culture (Childe, 1929). Nevertheless, these data can be accepted only with certain reservations since the names of the zoologists who made the identifications are not known.

The domesticated horse reached also Moldavia at approximately the same time; it always appears in the sites of the Gumelniţa culture there (Zalkin, 1967). It is interesting that it did not reach Romania at that time, as bones of domesticated horses have not been found in settlements of the Gumelniţa culture there (Necrasov—Haimovici, 1959a), however, they already occurred at the beginning of the Cucuteni culture (Necrasov—Haimovici, 1959b).

The scattered early domestic horses did not start a real horse keeping in the Copper Age of Hungary, and after the Early Copper Age horse import also fell back. From the Middle Copper Age of Hungary

(Bodrogkeresztúr culture) that is contemporaneous with Tripolye B_2, C_1 and γ_1 only two horse bones are found: a worked metacarpal fragment (similar to that of cemetery B at Deszk, see above) from grave No. XXVII of the cemetery at Magyarhomorog (Bökönyi, 1974), and a lower molar from grave No. 44 of the second (Bodrogkeresztúr) phase of the cemetery of Tiszapolgár–Basatanya (Bökönyi, 1959). However, as the grave had been disturbed, this latter find cannot be considered authentic.

Fig. 1. Anterior hoof bone of horse

Fig. 2. Distal tibia fragment of horse

Earlier (Bökönyi, 1974) we had a similar opinion about the authenticity of the Pécel culture horse bones, too. As for the sites of this culture, Salgótarján–Pécskő (Bökönyi, 1968c) and Andocs (Bökönyi, 1974) yielded each one horse remain, the excavation of Budapest–Békásmegyer–BUVÁTI produced 25 horse bones (Bökönyi, 1974). But since in the first site Early Bronze Age pits and in the second Middle Bronze Age and Celtic pits were also unearthed, we did not dare to consider the horse bones fully authentic just on the basis of the occurrence of one horse bone in the one-level site of Andocs.

Nevertheless, the horse remains unearthed in Kétegyháza by Gy. Gazdapusztai — three upper molars, a left os incisivum fragment, two incisors, a right proximal radius fragment, a right distal radius fragment, a right distal metacarpal fragment, each a left anterior phalanx I and II (Fig. 1), two pelvis fragments, and a right distal tibia fragment (Fig. 2) — confirm the authenticity of the horse finds of the Pécel culture.

The occurrence of horse finds in the Černavoda III–Boleráz group is no surprise at all. This culture has strong eastern roots, its animal husbandry has a definitely mobile character, and the contemporaneous Usatovo (Tripolye C_2) yielded not only 13 per cent horse bones but also a bit undoubtedly proving the use of horse as draught or saddle animal (Hančar, 1956).

According to the above described facts the horses introduced by the Černavoda III–Boleráz group can be considered the second wave of domestic horses in Hungary. As for the third wave, it might come in at the very beginning of the Bronze Age, with the Bell Beaker culture (Bökönyi, 1974). As the study of faunas of the two Bell Beaker sites with collected and identified animal bone samples (Budapest–Csepel–Háros and Budapest–Csepel–Hollandi út 33/b) clearly demonstrates that the horse was the far most important species in the animal husbandry of this culture with a frequency exceeding 60 per cent. Such a high horse frequency cannot be found in any other site in Hungary, its only analogy is in the horse domestication centre in the Ukraine. This great number of horses — provided they were introduced by the Bell Beakker culture at all — put horse keeping on a firm basis in Hungary on which it could develop on its own, without any further import.

The question arises as to the appearance of the horses first introduced to Hungary. Unfortunately neither skulls nor larger skull fragments were found in any of the early sites. Sometimes single teeth were unearthed. They — among others also the three upper molars of Kétegyháza — point to animals of small size, comparatively varied enamel pattern and short or middle-long protoconus. The evidence of the extremity bone measurements is approximately the same. According to this, these horses were small animals of rather heavy stature with a great variability which is a characteristic feature of all kinds of primitive domestic animals. It can be stated that in Hungary the domestic horses of both the Copper and the Bronze Age were of the same size range and growth type ("Wuchsform") indicating that they were of the same origin. (In this respect there is no

difference between the horses of the Bell Beaker culture and those of any other Bronze Age cultures.)

Comparing the horses of the Bronze and Copper Ages in Hungary to the early domestic horses of the settlement at Dereivka it will be clear that the size variations of the two populations are the same (Figs 3–5). This again confirms the eastern origin of the earliest domestic horses of Hungary originally assumed on the basis of archaeological data.

It is also interesting to compare the domestic horses of the Copper and Bronze Ages in Hungary and of the Ukraine to those of the Bronze Age in the western half of Central Europe and of Western Europe. As shown in Figs 3–5 the two groups can be easily separated, although, their ranges of variation certainly overlap. Strangely enough, and quite contrary to present-day conditions, the western Bronze Age horses were smaller than the eastern ones. This has already been supposed (Bökönyi, 1974) but at that time, owing to the limited number of horse bones, it could not unquestionably be proved.

Unfortunately, long bones preserved in their whole length, which can be used for the determination of the withers height, are missing in the Copper Age horse bone sample of Hungary. The three complete metacarpals of the Bell Beaker culture are from horses of 125.0, 126.3 and 134.0 cm withers heights. Nevertheless — on the basis of their other comparable measurements — they are from the lower half of the range of variation of the Bell Beaker horses in Hungary, and fit therefore into the withers height variation of 126.4–144.5 cm of the Dereivka horses. At the same time, the withers height variation of the western Bronze Age horses is between 119.2 and 138.9 cm only the largest western individuals surpass the average withers

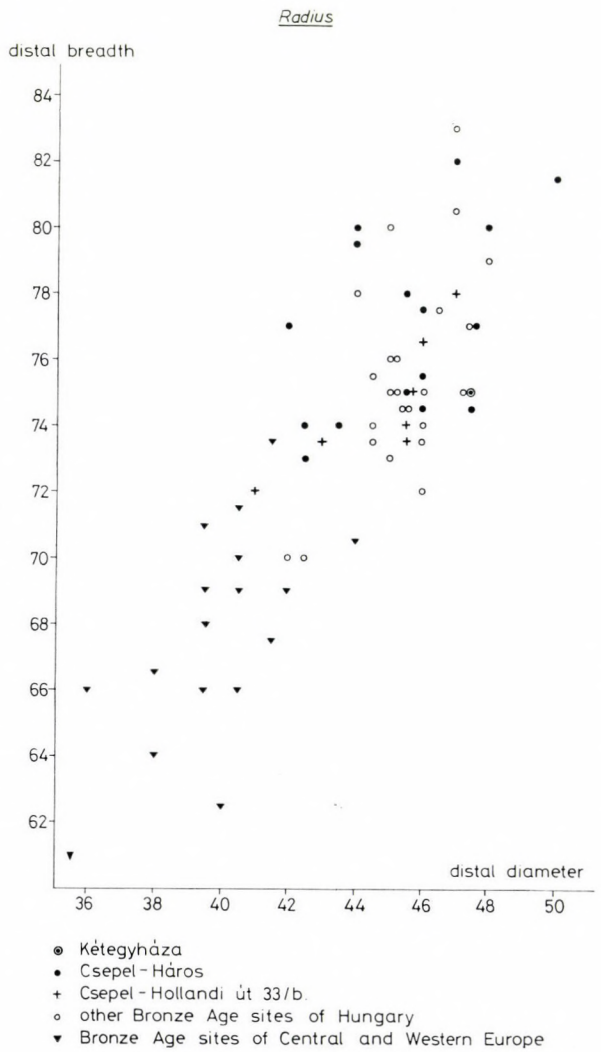


Fig. 3. Size variation of radii in Copper and Bronze Age domestic horses

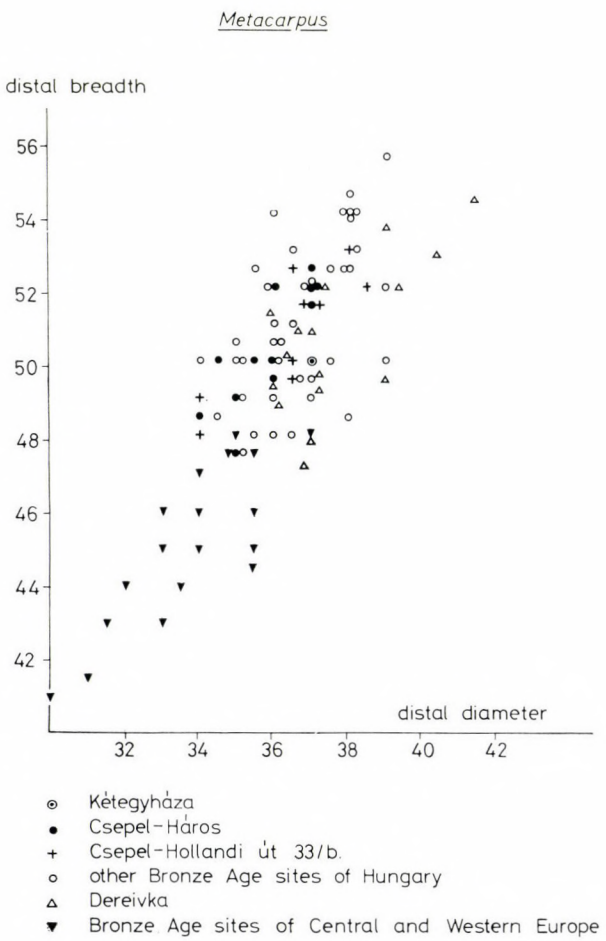


Fig. 4. Size variation of metacarpals in Copper and Bronze Age domestic horses

height of *c.* 136 cm (Bibikova, 1970) of the Dereivka horses.

To the exact description of the earliest domestic horses of Hungary, the anterior hoof bone of Kétegyháza (Fig. 1), and the hoof bones found in the sites of the Bell Beaker culture and in the lowermost layer of Tószeg belonging to the Nagyrév culture also provide some informations. All of these are narrow, and deeply hollowed pointing to steppe horses adapted to the hard, dry soil, and this fact shows again the eastern origin of the earliest domestic horses of Hungary.

The scatter-diagrams showing the size variation of the eastern and western domestic horses of the Bronze Age (Figs 3–5) extraordinarily agree with the similar diagrams (Figs 6–7) of the Iron Age horses of the same areas (Bökönyi, 1968b). Out of the two horse groups the eastern one was larger in

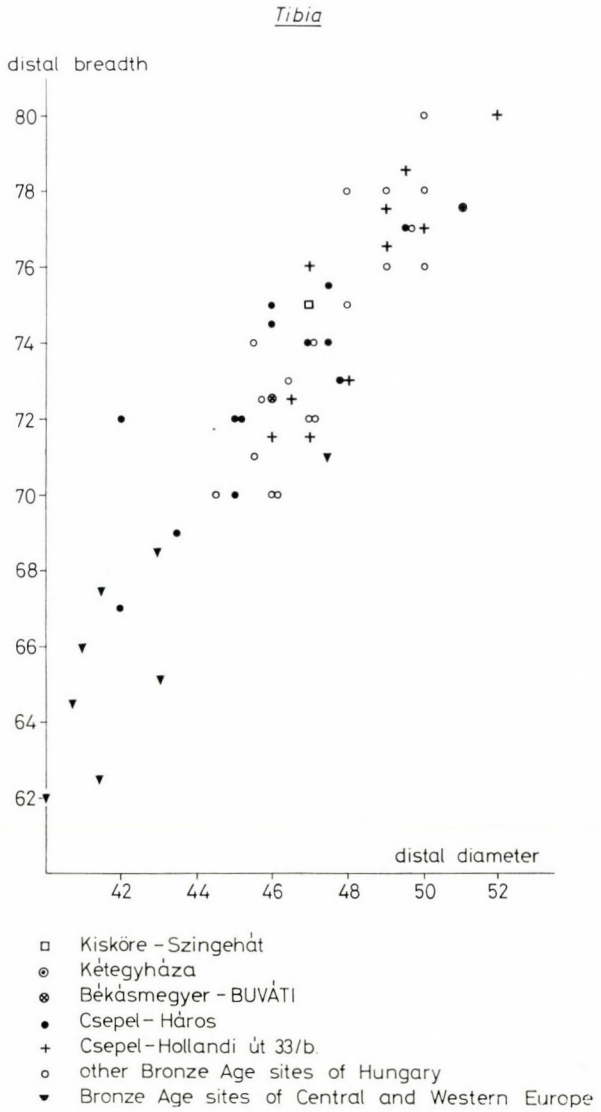


Fig. 5. Size variation of tibiae in Copper and Bronze Age domestic horses

that age, too, with an average withers height of 136 cm (that exactly corresponds to the average withers height of the Dereivka horses, see above), at the same time the average western horses were only around 126 cm in withers. It seems quite possible that the larger size of the horses of the eastern group was due to a wild stock of larger body dimensions. On the steppes of the southern half of Eastern Europe the wild horses found ideal living conditions and bred therefore in large populations there, which resulted in their larger size. At the same time in the western part of Central Europe and in Western Europe, there lived small populations pushed to the periphery of the area of distribution. In these small populations a size decrease appeared due to the isolation and the unfavourable living conditions that could be observed even on the domesticated horses originating from them.

Among the dog remains of Kétegyháza the brain-skull fragment of a subadult individual occurs (Bodrogkeresztúr culture). It comes from a small dog of palustris type. This skull type is in fact the most common among prehistoric dogs in Hungary.

On the basis of the length of a complete humerus occurring among the extremity bones also the withers height can be determined with Koudelka's method (1884). It is 48.86 cm that points to a dog in the upper region of the size variation of the Mittelschnauzer breed. At the same time, the mandible fragment of a small dog also appears with an M_1 of 19.5 mm length. In the dog bone sample there are no signs indicating local domestication.

The aurochs, the most frequent wild animal species, was represented by two heavy horn-core fragments (both are from the Černavoda III–Boleráz group; one of them comes from an undoubtedly adult individual), a brain-skull fragment, a right upper M_3, two mandible fragments, a whole left calcaneus and 11 tiny extremity bone fragments.

Both horn-core fragments are undoubtedly from bulls, they cannot be measured, however, their large dimensions clearly prove it. Remains of some large individuals appear also among the extremity bone fragments, but both measurable specimens, the proximal half of a right metacarpal and a left calcaneus, represent animals of small to medium size.

Among the aurochs bones, there is a specimen with pathological alteration. It is a distal metacarpal fragment with an imperfectly healed fracture; the fractured parts slipped a little out of alignment and grew together in this way. It cannot be determined whether the fracture was caused by man or it was of another nature. One thing is certain, however, that the animal survived the incident (the fracture is completely healed) and was killed much later. The lameness resulted by the incident obviously made the animal an easier prey.

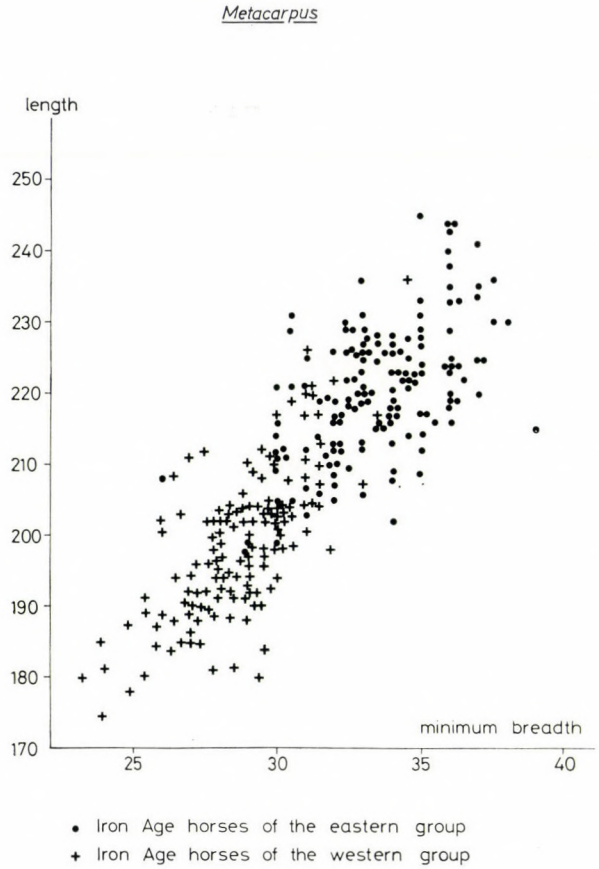


Fig. 6. Size variation of metacarpals in Iron Age domestic horses. After Bökönyi, 1968b

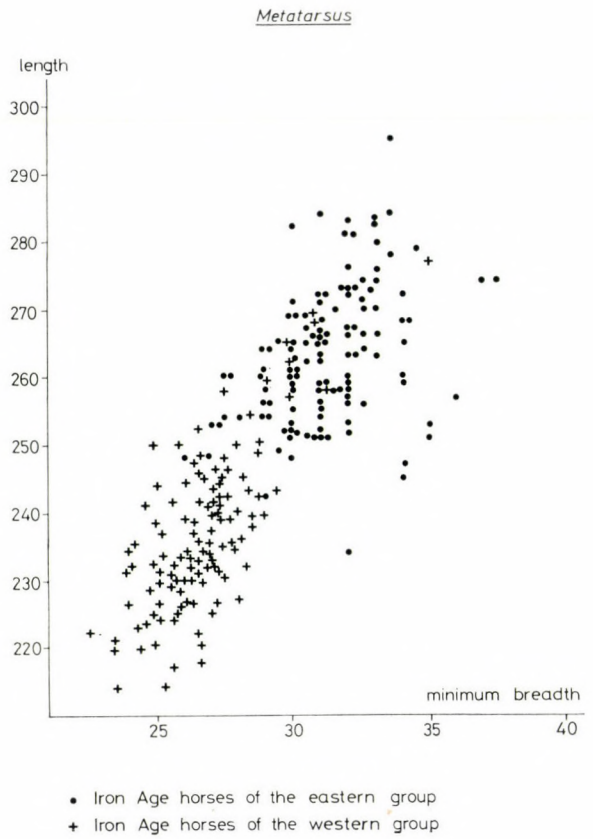


Fig. 7. Size variation of metatarsals in Iron Age domestic horses. After Bökönyi, 1968b

As the fauna list demonstrates, red deer remains were found only in the settlement part belonging to the Černavoda III–Boleráz group. Each red deer sample consists of an antler, mandible and scapula fragment and two left calcaneus fragments. The antler and mandible fragments are small, characterless pieces, the three other bones can be measured: the scapula fragment represents a small individual, but both calcaneus fragments are from large deers. It seems possible that the first animal was a hind, and both others were stags bearing in mind the rather considerable sexual dimorphism of red deer (Szunyoghy, 1963).

The roe deer was represented by a very deformed end part of an antler. Antler abnormities are comparatively rare in subfossil roe deers, and this one is the first in Hungary. Otherwise this antler could be regarded a good trophy today.

Of wild swine a naso-facial, distal femur, distal tibia and a metapodial fragment were unearthed. The naso-facial fragment belongs to an adult sow, and the small dimensions of the other bones — unfortunately none of them can be measured — indicate that they are also from the same individual.

The hare is represented by two femur fragments and a tibia fragment. According to their measurements they are brown hare (Lepus europaeus Pall.) remains. There was unearthed also a very fragmentary bird radius. Unfortunately the species cannot be identified.

The exploitation of the species of the Copper Age fauna found at Kétegyháza is also an interesting problem. This, of course, concerns only the domestic animals since among the wild animals only ungulates, hare and a bird species occur, and it is obvious that all of them were hunted for their meat.

As for the exploitation of the occurring domestic species, their age distribution give some information. Unfortunately, the number of animal remains whose age can be determined is small, and therefore only very cautious conclusions can be drawn from the frequencies of the different age groups. The frequencies of the age groups in the bone samples can be seen in the table below:

	juvenile	subadult	adult	mature
cattle	4	12	22	—
caprovines	9	24	28	2
pig	6	2	12	1
horse	—	1	12	—
dog	2	2	9	—

On the basis of this table the Copper Age domestic animals of Kétegyháza can be divided into two groups. In the first group the number of bones of juvenil and subadult animals surpasses or at least comes near to that of the adult (and mature) ones, in the second group the number of the bones of the juvenile and subadult animals lags far behind those of the adult (and mature) ones. The first group consists of cattle, pig and caprovines (in this respect it was advisable not to separate the sheep and goat bones from those of the general group "caprovines", not simply because their number was very small in comparison to the latter ones, but also because the species identification of the juvenil bones is extremely difficult or even impossible, so one would get a false impression of age group frequencies; the difficulties described above were first observed in sites of the Balkans and the Near East with tens of thousands of animal remains), and horse and dog belong to the second group.

In the first group meat exploitation might be of decisive importance, this is why so many young animals were slaughtered (and also therefore because in this way they had not to be fed in the winter, during the period of food-shortage). But besides this a secondary exploitation seems also to play a certain role in the case of these species: this is why the ratio of adult individuals is comparatively high, there is no need for such a large breeding stock even in the case of unipar species. In the second group the meat exploitation seemingly played no essential role, though — judging from the evidence of bones broken up for the marrow — both the horse and the dog were undoubtedly eaten, the primary exploitation was certainly not meat in this group.

What could be the secondary use of the first group and the primary use of the second group? For cattle and goat it could be milk. Also their wild forms had milk to feed their young, the domestication only increased its quantity. Man obviously began to consume the milk of his domestic animals when the young of the mother animal died for some reason (mortality was not low among newborn animals under the circumstances of primitive animal keeping following domestication; this is testified by the skeletons of newborn goats found in great numbers in the site of Sarab, Iran, sixth mill. B. C.) or when they were killed by man. The first representation of cow milking is from Ur, from the temple of Nin-Hursag, after 2400 B. C. (Zeuner, 1963), however, milking obviously goes back to much earlier times. Interestingly enough, the cows are being milked on this representation from the rear, as is usual with goats, and from this fact one may infer that the milking of goats preceded that of cows.

In the case of cattle draught use can also be supposed besides milking. From Transcaucasia representations of draught oxen are known from 3700 on, and two- and four-wheeled vehicles and their models appeared in the Volga and Dnieper regions in the Kurgan culture (Gimbutas, 1970). Obviously, carts were introduced from that area to the Carpathian basin, too, sometime at the Late Copper Age.

For sheep, obviously wool was their secondary exploitation in the site at Kétegyháza. Man had known sheep wool much earlier, its earliest evidence is known from the already mentioned sixth mill. B. C. site of Sarab, Iran, in the form of a clay figurine of a woolly sheep (Bökönyi, 1974).

The situation of the horse is quite different. It is highly probable that in the case of this species which was domesticated only in the second wave of domestication the direct aim of domestication was not its meat. Since at the time of horse domestication the use of cattle as draught animal was already known in the area of the horse domestication, it is easily conceivable that the main aim of horse domestication was to get more appropriate, and in the first place quicker draught animal than cattle. It is also possible that there was a close connection between the use of horse as draught animal and the spread of the quick, spoked-wheeled cart. The use of horse as riding animal seems to be a later invention. There are no early date in this respect from Europe but, e.g. in Mesopotamia representations of horse-riding and references to saddle-horses in texts appear first in Period III of Ur, *c.* 2000 B. C. (Moorey, 1970). Particularly from tactical point of view it is of decisive importance "daß die kriegerische Organisation, die sich der Hilfe von Equiden bedient, mit dem Wagenkämpfer und nicht mit dem Reiterkrieger begann" (Wiesner, 1968).

Unfortunately, the site does not yield any positive evidence for the use of horse as draught or saddle animal. It is not surprising because bits or strap-dividers made of antler or bone as parts of the earliest known horse gear are not known from before the Middle Bronze Age in Hungary (Mozsolics, 1953). Besides, it is also possible that mares were milked but it was not of any particular importance even in the diet of the nomads; horse-milk was used for making koumiss.

The primary use of dog could be the roles of watch-dog, herd-dog and hunting companion, particularly the first two ones since hunting was not considered important in the settlement.

Summing up it can be stated that in the site at Kétegyháza the settlement part belonging to the Bodrogkeresztúr culture yielded five domestic and two wild animal species, and in the settlement part belonging to the Černavoda III–Boleráz group six domestic and five wild animal species were found. Hunting was unimportant in both periods, and fishing played no role at all in the life of the

inhabitants. In the domestic fauna of the Bodrogkeresztúr culture cattle were the far most common domestic species, the caprovines were much rarer, the pig was very rare, and the ratio of dog was extremely low. In the Černavoda III–Boleráz group the caprovines were the most common domestic animals followed them rather closely by the cattle, the pig was much rarer, and the dog and horse (this was one of the earliest occurrences of the latter species in Hungary) were very rare. The domestic fauna of the Černavoda III–Boleráz group refers to an explicitly mobile way of life of the population, and besides this its high caprovine ratio strongly resembles that of the Körös and Pécel cultures in Hungary, and first of all that of the Černavoda culture in Romania.

As regards the domestic animal species, cattle, pig and sheep show a very big size variation, and the local domestication of the first two species can also be supposed on the basis of the appearance of freshly domesticated individuals. Under prehistoric circumstances the horses are large, resembling the domestic horses of the Aeneolithic in the Ukraine and those of the Early Bronze Age in Hungary. The dogs are small or medium-size animals showing no traces of local domestication. Among the wild animals aurochs and red deer are represented by bones of small and large individuals alike. The only roe deer remain, an antler fragment, would be a good trophy today, the wild swine bones are from a small individual.

As regards the use of the different species, all wild species were hunted for their meat, and meat was also the only use of pig, the primary exploitation of cattle, sheep, and goat, and finally the secondary use of horse and dog. Besides this, cattle were milked and probably used as a draught animal, too, goat could also be a milking animal, and the secondary use of sheep could be their wool. The primary use of horse was its draught power, that of dog was house and herd watching and also hunting companionship.

MEASUREMENTS

Cattle

Atlas

Measurements: 1. length of arcus ventralis
2. length of arcus dorsalis
3. breadth of cranial articular surface
4. breadth of caudal articular surface

	1	2	3	4
Černavoda III-Boleráz group	37	42	100.5	92

Scapula

Measurements: 1. breadth of angulus articularis
2. diameter of facies articularis

	1	2
Bodrogkeresztúr culture	70.5	49*

Radius

Measurements: 1. breadth of proximal epiphysis
2. breadth of distal epiphysis
3. diameter of proximal epiphysis
4. diameter of distal epiphysis

	1	2	3	4
Bodrogkeresztúr culture	82*	—	43*	—
Černavoda III–Boleráz group	81	—	40*	—
Černavoda III–Boleráz group	—	71.5	—	44
Černavoda III–Boleráz group	—	75	—	45
Černavoda III–Boleráz group	—	77	—	50

* Approximately

Metacarpus

Measurements: 1. greatest length
2. breadth of proximal epiphysis
3. smallest breadth of diaphysis
4. breadth of distal epiphysis
5. diameter of proximal epiphysis
6. smallest diameter of diaphysis
7. diameter of distal epiphysis

	1	2	3	4	5	6	7
Bodrogkeresztúr culture	—	54.5	—	—	36	—	—
Bodrogkeresztúr culture	—	57	—	—	37.5	—	—
Bodrogkeresztúr culture	—	64	—	—	41	—	—
Bodrogkeresztúr culture	—	—	—	60	—	—	35
Černavoda III–Boleráz group	210	—	32	—	37.5	—	—
Černavoda III–Boleráz group	—	58	—	—	38	—	—
Černavoda III–Boleráz group	—	—	—	68	—	27	36
Černavoda III–Boleráz group	—	—	—	71	—	—	38

Tibia

Measurements: 1. breadth of proximal epiphysis
2. breadth of distal epiphysis
3. diameter of proximal epiphysis
4. diameter of distal epiphysis

	1	2	3	4
Černavoda III–Boleráz group	95	—	94	—
Černavoda III–Boleráz group	—	66	—	50.5
Černavoda III–Boleráz group	—	75	—	54

Astragalus

Measurements: 1. greatest length
2. greatest breadth
3. greatest diameter

	1	2	3
Bodrogkeresztúr culture	68.5	45.5	38
Černavoda III–Boleráz group	76	51	43
Černavoda III–Boleráz group	70.5	49	40

Metatarsus

Measurements: 1. breadth of proximal epiphysis
2. smallest breadth of diaphysis
3. breadth of distal epiphysis
4. diameter of proximal epiphysis
5. smallest diameter of diaphysis
6. diameter of distal epiphysis

	1	2	3	4	5	6
Bodrogkeresztúr culture	46	28	—	44.5	—	—
Bodrogkeresztúr culture	—	—	66	—	—	37
Černavoda III–Boleráz group	46	—	—	44	—	—
Černavoda III–Boleráz group	50.5	28	—	48	—	—
Černavoda III–Boleráz group	—	—	58	—	—	33
Černavoda III–Boleráz group	—	—	61	—	29.5	36

Sheep

Horn-core

Measurements: 1. greatest length
2. greatest diameter
3. smallest diameter

	1	2	3
Černavoda III–Boleráz group	100*	33	19

Epistropheus

Measurements: 1. length of body
2. length of arch
3. length of dens
4. breadth of dens
5. breadth of caput craniale
6. breadth of fossa caudalis
7. height of caput craniale
8. height of fossa caudalis

	1	2	3	4	5	6	7	8
Černavoda III–Boleráz group	54.5	34	10	20.5	43	23	28.5	18

Scapula

Measurements: 1. smallest breadth of collum scapulae
2. breadth of angulus articularis
3. diameter of facies articularis

	1	2	3
Černavoda III–Boleráz group	19	29	19

Humerus

Measurements: 1. smallest breadth of diaphysis
2. breadth of distal epiphysis
3. smallest diameter of diaphysis
4. diameter of distal epiphysis

	1	2	3	4
Černavoda III–Boleráz group	12	25	12.5	22
Černavoda III–Boleráz group	14	27	12.5	22.5
Černavoda III–Boleráz group	—	27	—	23
Černavoda III–Boleráz group	14	27.5	14	24
Černavoda III–Boleráz group	13	28.5	13.5	26
Černavoda III–Boleráz group	15	30	16	25.5
Černavoda III–Boleráz group	—	30.5	—	26.5
Černavoda III–Boleráz group	16.5	32	18	28

Metacarpus

Measurements: 1. greatest length
2. breadth of proximal epiphysis
3. smallest breadth of diaphysis
4. breadth of distal epiphysis
5. diameter of proximal epiphysis
6. smallest diameter of diaphysis
7. diameter of distal epiphysis

* Approximately

	1	2	3	4	5	6	
Černavoda III–Boleráz group	—	20	12.8	—	14	—	—
Černavoda III–Boleráz group	—	—	—	21.3	—	8	13.7
Černavoda III–Boleráz group	114	20	11	—	15	—	14.5
Černavoda III–Boleráz group	134*	24.5	15.8	26	—	10.2	—
Černavoda III–Boleráz group	—	22.5	—	—	16	—	—

Metatarsus

Measurements: the same as those of the metacarpus

	1	2	3	4	5	6	7
Bodrogkeresztúr culture	111.5	17	10.5	20	16.5	8.2	14
Černavoda III–Boleráz group	—	—	—	20.8	—	9	14.5
Černavoda III–Boleráz group	115.5	16.2	10.3	19.8	16.5	8	13.8
Černavoda III–Boleráz group	149.2	19.8	11.5	24	20	9.8	16.2
Černavoda III–Boleráz group	—	18.7	—	—	19	—	—
Černavoda III–Boleráz group	—	20	12	—	20.3	—	—
Černavoda III–Boleráz group	—	20	12.2	—	19.8	—	—
Černavoda III–Boleráz group	—	21	12.2	—	21	10.8	—

Goat

Humerus

Measurements: 1. breadth of distal epiphysis
2. diameter of distal epiphysis

	1	2
Černavoda III–Boleráz group	29	25
Černavoda III–Boleráz group	30.5	25.5

Pig

Upper teeth

Measurements: 1. $M_1 - M_3$
2. length of M_3

	1	2
Černavoda III–Boleráz group	64	30

Mandibula

Measurement: length of M_3

Černavoda III–Boleráz group	31

Scapula

Measurements: 1. smallest breadth of collum scapulae
2. breadth of angulus articularis
3. diameter of facies articularis

	1	2	
Černavoda III–Boleráz group	23	37*	25*

* Approixmately

Humerus
Measurements: 1. breadth of distal epiphysis
2. diameter of distal epiphysis

	1	2
Černavoda III–Boleráz group	40	42

Tibia
Measurements: the same as those of the humerus

	1	2
Černavoda III–Boleráz group	32.5	30

Astragalus
Measurements: 1. greatest length
2. greatest breadth
3. greatest diameter

	1	2	3
Černavoda III–Boleráz group	45	26.5	24.5
Černavoda III–Boleráz group	47*	—	26

Horse

Radius
Measurements: 1. breadth of distal epiphysis
2. diameter of distal epiphysis

	1	
Černavoda III–Boleráz group	74	48

Metacarpus
Measurements: the same as those of the radius

	1	2
Černavoda III–Boleráz group	50	37

Tibia
Measurements: the same as those of the radius

	1	2
Černavoda III–Boleráz group	77	50.5

Dog

Lower teeth
Measurements: 1. $P_1 - P_4$
2. $M_1 - M_3$
3. length of M_1

		2	3
Černavoda III–Boleráz group	35	31	19.5

Epistropheus

Measurements: 1. length of body
2. length of arch
3. length of dens
4. breadth of dens
5. breadth of caput craniale
6. breadth of fossa caudalis
7. height of caput craniale
8. height of fossa caudalis

	1	2	3	4	5	6	7	8
Černavoda III–Boleráz group	42	17	10	6	24.5	15	12.5	10

Scapula

Measurements: 1. smallest breadth of collum scapulae
2. breadth of angulus articularis
3. diameter of facies articularis

	1	2	3
Bodrogkeresztúr culture	18.2	—	12.2
Černavoda III–Boleráz group	18	23*	12.5

Humerus

Measurements: 1. greatest length
2. breadth of proximal epiphysis
3. smallest breadth of diaphysis
4. breadth of distal epiphysis
5. diameter of proximal epiphysis
6. smallest diameter of diaphysis
7. breadth of distal epiphysis

	1	2	3	4	5	6	7
Černavoda III Boleráz group	145	25	10.5	26	34	11	22.3
Černavoda III Boleráz group	—	—	11.5	25.5	—	10.8	23
Černavoda III Boleráz group	—	—	11.5	26.5	—	13	21

Aurochs

Metacarpus

Measurements: 1. breadth of proximal epiphysis
2. diameter of proximal epiphysis

	1	2
Černavoda III–Boleráz group	72.5	47.5

Calcaneus

Measurements: 1. greatest length
2. greatest breadth
3. greatest diameter

	1	2	3
Černavoda III Boleráz group	151	54	60

* Approximately

Red deer

Scapula
Measurements: 1. breadth of angulus articularis
2. diameter of facies articularis

	1	2
Černavoda III–Boleráz group	62	47*

Calcaneus
Measurements: 1. greatest length
2. greatest breadth
3. greatest diameter

	1	2	3
Černavoda III–Boleráz group	131	41	44.5
Černavoda III–Boleráz group	135	43	49

Brown hare

Femur
Measurements: 1. breadth of proximal epiphysis
2. diameter of proximal epiphysis

	1	2
Bodrogkeresztúr culture	28	14

Tibia
Measurements: the same as those of the femur

	1	2
Bodrogkeresztúr culture	21.3	23.3

* Approximately

ABBREVIATIONS USED IN THE BIBLIOGRAPHY

AAH = Acta Archaeologica Academiae Scientiarum Hungaricae
Actes Beograd = Actes du VIII[e] Congrès International des Sciences Prehistoriques et Protohistoriques II, Beograd
Amer. Anthrop. = American Anthropologist
Arch. Ért. = Archaeologiai Értesítő
A. sz, = Agrártörténeti Szemle
BASPR = Bulletin of the American School of Prehistoric Research, Cambridge
Dolg. = Dolgozatok (Szeged)
Materiale = Materiale si Čerčetari Archeologice, Bukarest
Wiad. Arch, = Wiadomosci Archeologiczne, Warszawa
БМОИП = Бюллетень Московского Общества Испытателей Природы. Отдел биологии, Москва
КСИА = Краткие Сообщения Института Археологии, Москва

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CARTOGRAPHICAL DATA OF THE KURGANS IN THE TISZA REGION

by Dénes Virágh

INTRODUCTION

The various formations of the surface of the earth are usually made by natural forces. They may be the result of internal eruptions of volcanos, crustal movements, or external forces, like water (erosion) and wind (deflation). But there are surface formations which cannot possibly have been created by the activity of natural forces, and have to be considered as being of artificial origin. The characteristic occurrence of these formations is the well-known cone-shaped mound with more or less round-shaped base. These mounds caught the attention of the people who usually considered them the remnants of old times, and in the Hungarian Plain called them "Cumanian barrows".

The first archaeological map of Hungary was constructed by L. F. Marsigli, an Italian military engineer, under the title "Theatrum Antiquitatum Romanorum in Hungaria Sive mappa Geographica Regionum Danubio circum Pannoniarum, Daciarum, Mysiarum in quibus antiquitates Romanae suis singulae figuris in loco reperiuntur". The map indicates groups of barrows between Viddin and Edirne, calling them artificial "Colles manufacti".[1]

In Hungary barrows of this kind can be found by the thousand. Attempts to clarify their character, origin and age were already made in the middle of the 19th century. The Hungarian Academy of Sciences, after its meeting of February 22, 1847, issued a memorandum in the interest of the national monuments. In this issue mention was made of "the artificial barrows occurring here and there in smaller or bigger groups (so-called Cumanian barrows) in which excavations could unearth values."[2] It was one of the tasks of the Archaeological Committee "to get to know about the barrows".[3] The first map of the barrows was made by J. Varsányi. A few months after the first appeal, i.e. in May, 1847, he made the map of the barrows between Érd and Százhalombatta only a few months after the Academy's issue.[4] A few months later J. Luczenbacher started excavations in the area, but serious research started only at the beginning of the 1860s.[5] The first excavations made it clear that the barrows contained graves.[6] In certain areas counting and mapping of the barrows was also started.[7] The results were summarized by F. Römer in 1876, and by G. Nagy in 1914.[8]

The present study analyses the barrows found in the part of the Tisza region belonging to Hungary. Research of major importance was done by I. Györffy and L. Zoltai, while the excavations are mainly the work of A. Jósa and L. Zoltai.[9]

After Zoltai, excavations and mappings paused for a long time. There were some occasional excavations in the 1950s. The collection of literary and cartographical material was initiated by V. Balás while systematic excavations were started by Gyula Gazdapusztai.[11]

The archaeological topography of Békés county made it necessary to start collecting cartographical data in 1972. Beside the need for topographical data, research was very important because deep ploughing and other earh tworks had destroyed quite a lot of kurgans and the remaining ones were also in great danger. This made the survey of the distribution of the kurgans so urgent. The cadaster of the barrows will be very useful for further research too.

The barrows discovered in Hungary date back to different times. The original burials excavated in the kurgan cemeteries point to the possible Copper Age

[1] Marsigli 1728.
[2] Arch. Közl. 1 (1859), pp. 6–7.
[3] Arch. Közl. 1 (1859) p. 9.
[4] Varsányi, J., Kunhalmok érdi és battai határban–Barrows around Érd and Batta. OSzKK, Fol. Hung. 1110/6.
[5] Luczenbacher 1847.
[6] See note 6 in the paper by I. Ecsedy in the present volume.
[7] Dudás 1886; Dudás 1890; Darnay 1905; Szeghalmi 1912; Römer 1878, Römer mentions a number of maps representing the barrows of certain areas and barrow fields. He published a few but these are — except for B. Szívós's map showing barrows in Hajdúszoboszló — not barrows of the Tisza region.
[8] Gárdonyi 1914.
[9] Györffy 1921. For the bibliography of Jósa and Kalicz, see Kalicz 1968, pp. 15–20.
[10] I would like to thank here V. Balás for enabling us to use his data.
[11] Gazdapusztai's work see in Ecsedy–Virágh 1975, note 7.

origin of most of the Tisza region kurgans[12] in spite of the small number of the excavations. The present study does not want to raise prehistorical problems, the cartographical research of the kurgans has the role to supply archaeological research with data.[13]

The first map of Hungary, an excellent one in its time, based on surveying was made by Lazarus Rosetus (Lázár deák), the secretary of Tamás Bakócz, the archbishop of Esztergom, between 1510 and 1520, and his map was first published in Ingolstadt in 1528.[14] On this map, north-east of the village of Csorba, south-east of Fegyvernek, there are three small cone-shaped barrows connected with each other. Their shape is different from that of the hills on the map. (The representation of the relief on the map is from side view as it was done on all the maps of the time.) There is a church on or behind one of the barrows, indicating that there must have been a village. The legend beside the barrows says "Banhalom". It is approximately the area where the barrow "Bánhalom" is found today (near Kenderes). The three barrows represented here obviously refer to the large group of barrows which can be found nearby. The naming can also be traced on the maps made in the 16–18th centuries, based on Lázár's map. The map made in 1785 includes the same barrow as "Panhalma".[15]

The maps made in the 18th century, both civil or military, display the larger barrows of the area; some of them include even the smaller ones. Generally the barrows are outlined (except in the first military survey maps) by star-like hachuring, and their names are often given. A similar method can be observed in the maps made in the 1850s and 1870s.[16]

In the same way are denoted the barrows on a number of barrow maps made in the previous century. On the maps of the third military survey (1866–1889) the barrows are not represented by a conventional sign — they are represented as elements of a relief — but a hachured relief representation is applied. After some corrections, these maps became the basis for the military maps in the first half of the 20th century, but there were contour-line military maps made in Hungary between the two world wars, too. The new topographical maps are also contour-line ones; so, if allowed by the scale and the contour interval the barrows are also represented by contour-lines.

The larger the scale and the more detailed the relief-representation, the easier is to notice the barrows and to read their data. On the older maps (18–19th centuries), representing the barrows as prominent objects, it is easy to notice them, but it is quite difficult to identify them on the modern maps, especially where no names are given or the names have changed. Naturally, only the larger barrows are represented on these maps. Unfortunately, it is possible that some tells were also called "barrows" and sometimes natural mounds might have been identified with barrows, too. These maps give only the name and the place of the barrows. The only reference to their scale is that they are orienting objects, so they are easily noticeable.

From the maps which represent their objects by hachuring, more exact data can be gained. The maps based on the third military survey are equipped with grid coordinates, too. The place of the barrows is identifiable independently of the changes which took place in the course of time. The maps with a scale of 1 : 75,000 give only the name and perhaps the height of the barrow; the ones with a scale 1 : 25,000 give the approximate diameter of the barrow, too. In the research of the barrows the contour-line maps can be best applied, on this the approximate height of the barrows can also be measured with an accuracy depending on the contour interval. The topographical maps with 1 : 10,000 scale make it possible to identify the majority of the barrows smaller than 1 m.

In the course of our research we have analysed more than a thousand map sheets. Our main sources were topographical maps published after 1957 (scales 1 : 10,000 and 1 : 25,000) as well as maps published before 1945 (scale 1 : 25,000), we projected over them also the barrows found on the old maps. Interesting data were gained from the large-scale (1 : 1,000; 1 : 2,000) irrigation maps of the 1950s.

On these maps the basic contour interval is 10 cm, so even the smallest barrows can be noticed on them. The special importance of these maps is that they represent areas which have been badly destroyed by various earth works.[17]

Grid co-ordinates of such barrows could also be obtained by applying the data of the old maps to modern ones. This way barrows originally not indicated on the new maps could also be represented.

We compiled a list of the barrows that contains their grid co-ordinates measured on the map, with an 0.1 km (in the case of the old barrows no more

[12] Ecsedy–Virágh 1975, the smaller barrows ("laponyagok") are, according to excavations carried out up to now, later ones, see Zoltai 1938, p. 7.

[13] My thanks are due to I. Ecsedy for data concerning archaeological finds.

[14] Stegena 1971; Hrenkó 1974.

[15] I. mil.

[16] Rómer 1878.

[17] When we could not judge the size of the barrow on the basis of the maps, we used survey data. This method was applied in the case of the barrows from the surroundings of Debrecen, where we used data collected by L. Zoltai. In the course of data collection we noted the balk names, region names and the number of the map where the barrow was found.

found on any maps with 1 km) accuracy, the measurable diameter (D), the relative height (H) in metres, the name of the barrow, the date of excavations and literature.[18] The listed barrows were put on a 1 : 100,000 scale outline map.[19] A preliminary report on the preparatory work was published in 1975.[20]

We were in the lucky situation of being able to use the results of field survey done by I. Torma and his collaborators in the Szeghalom district.

On comparing the barrows surveyed with the ones identified on the maps, the conclusions are as follows:

1. Some of the larger mounds are not barrows, but tell-settlements.

2. A number of mounds, mainly those smaller than 1 m in height and assumed to be barrows judging from the map, proved to be of natural origin.

3. There are a number of very small barrows that could not be identified even on large-scale maps of 1 : 10,000.

4. There are quite a lot of barrows the identification of which was facilitated by previous map studies.

5. The diameter measured on the map is usually larger than the actual diameter.

6. Due to optical illusion, the barrows in flat areas appear considerably larger than they actually are; by erosion the barrows lost their original height and gained in diameter. This phenomenon was observed in the neighbourhood of Szeghalom (see the Szeghalom barrows on the map).[21]

After the finishing of our data collection and the compilation of the barrow register the surveys of J. Makkay and his collaborators have also resulted in similar experiences in the Szarvas district of Békés county.[22]

It was clear from the beginning that map data relating to sand dunes are not likely to yield good results. In such areas the wind often produces surface formations that are represented on a contour-line or hachuring map as barrows. However, it is well known, especially from the excavations by Jósa and Vécsey, that barrows occur also on sand dunes.

We considered it reasonable to include in the cadaster all the mounds that are called "barrow" ("halom" in Hungarian). However, a field survey in 1973 in Szabolcs county convinced us that sand dunes are also often called barrows. In the area of sand dunes a field survey is necessary to identify the kurgans. (Geographists consider these areas sandy loess.[23]) For this reason, no data of the Nyírség sand dunes have been collected. On the other hand, we have given the data of kurgan excavations by N. Kalicz and J. Vécsey.[24]

Our list is made in such a way that in the future it can be supplemented by further data. The Tisza region is taken as one unit geographically (but not archaeologically). The villages of each county are numbered from N to S. The barrows of each village are numbered starting from No. 1. Villages of the right side of the Tisza river are not included in the cadaster.

In the course of further research projects the area of investigation will be extended to the left bank of the Tisza river and to the territories of the Great Hungarian Plain beyond the present borderline of Hungary.

The list of place-names is based on the political map of Hungary issued in 1973 (scale 1 : 525,000). Beside the names of the villages, their numbers within the county and the abbreviated name of the county are given. The limited extent of the present paper does not allow the publication of all the collected data. Therefore, the barrows are listed in groups and according to their relative height and their diameter. The total number of barrows in the territory of each village is given in parentheses. Beside the number of each barrow are given the name (if known), the excavation data, and references concerning maps made before 1900 (if any).

A separate map (based on F. Szentes' geology map) shows the sandy loess areas not studied by our cartographical method (Fig. 1). The representations of the barrows of a smaller, characteristic area as shown by maps of different dates serve to illustrate the method applied (Figs 2–6).

[18] In the Archives of the Archaeological Institute of the Hungarian Academy of Sciences.
[19] Ibidem.
[20] Ecsedy–Virágh 1975.
[21] My thanks are due to I. Torma for supplying me with survey data.
[22] Information by J. Makkay.
[23] Pécsi 1972.
[24] Kalicz 1968, pp. 15–20; Vécsey 1868.
[25] Together with the villages of Erdőhát (Tiszahát, Upper Tisza region).

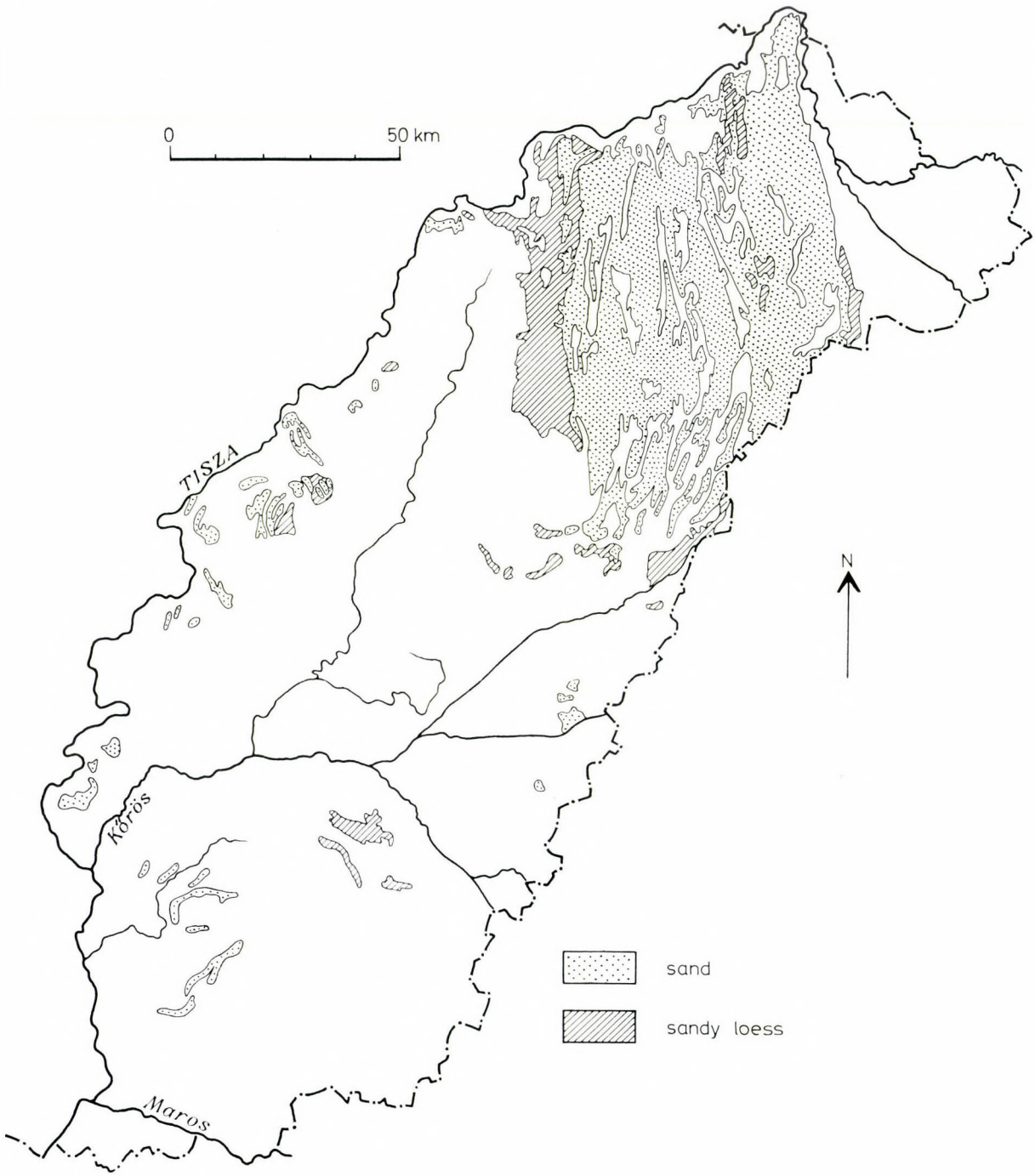

Fig. 1. Trans-Tisza area covered with sand (I) and sandy loess (II)

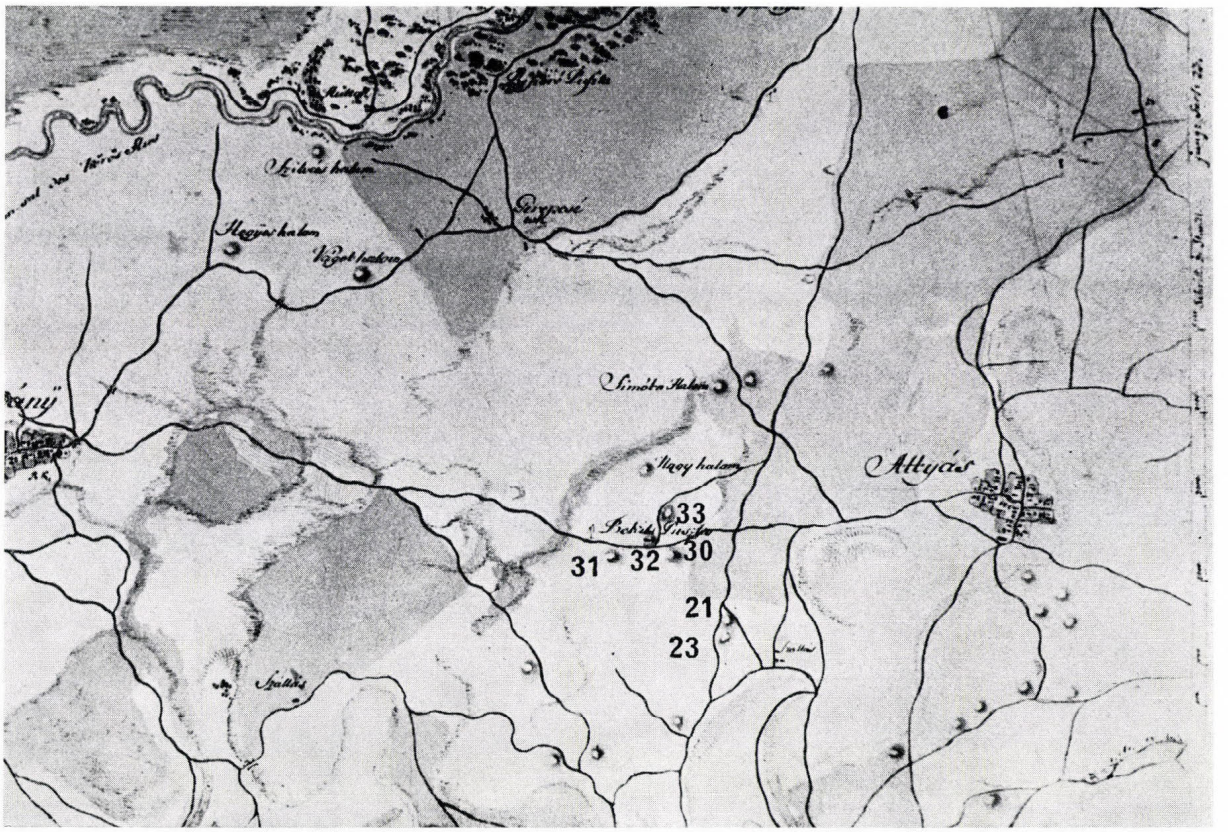

Fig. 2. Barrows near the settlement Geszt (I. mil.)

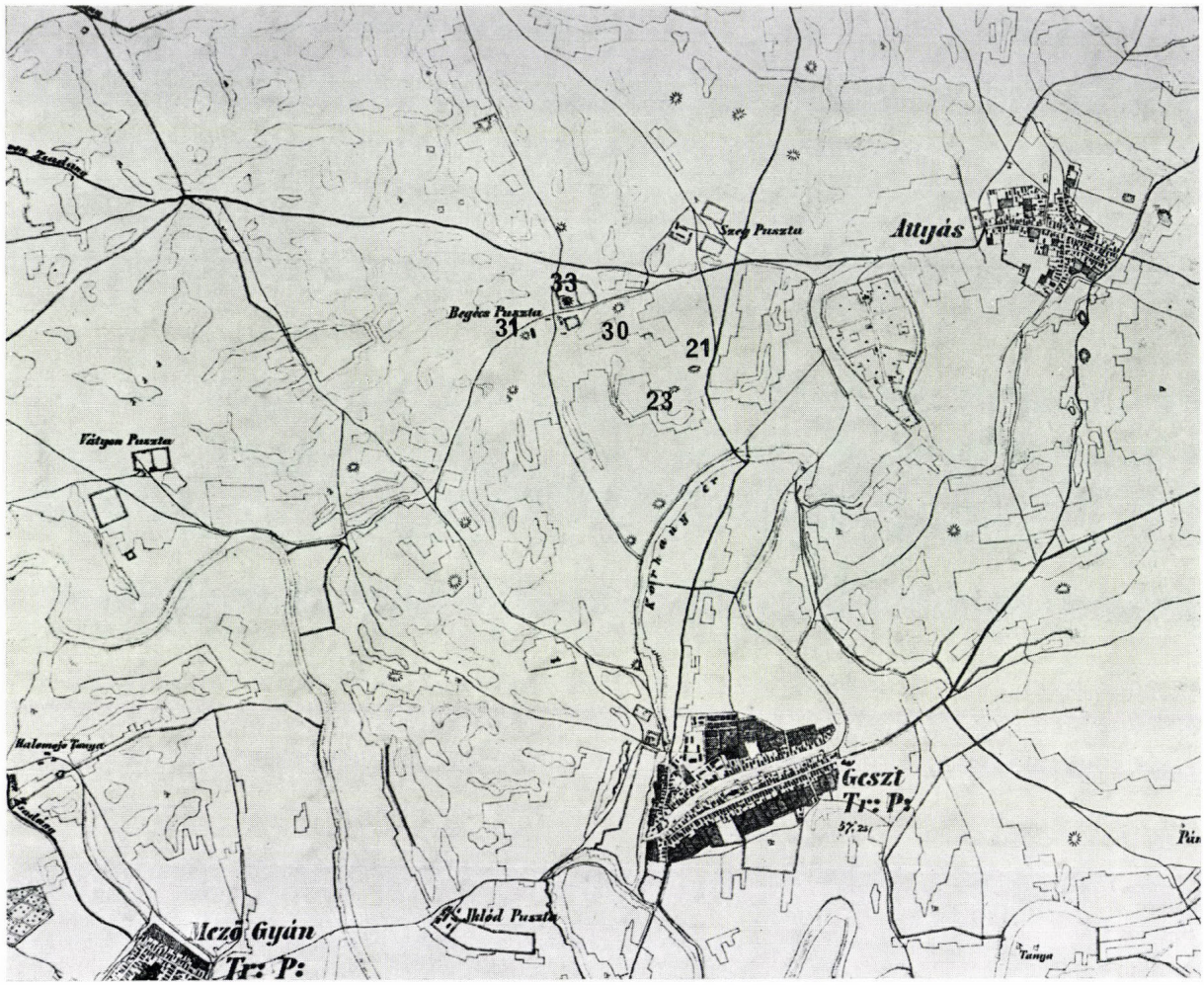

Fig. 3. Barrows near the settlement Geszt (II. mil.)

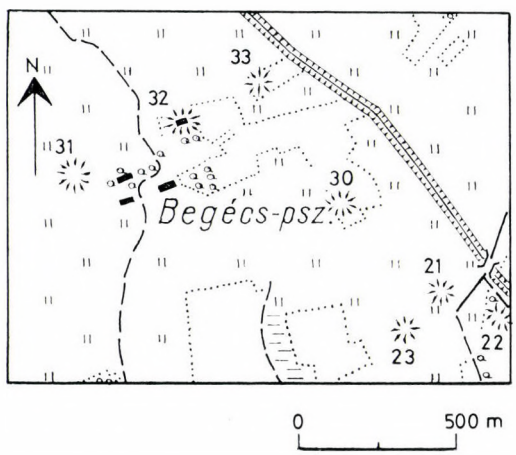

Fig. 4. Barrows near the settlement Geszt (map according to the third military survey, scale 1 : 25,000)

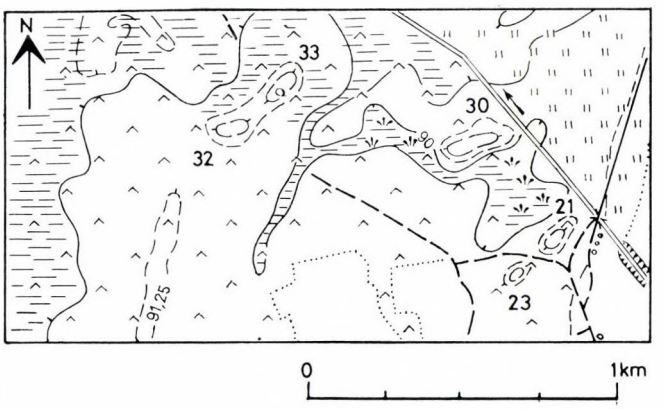

Fig. 5. Barrows near the settlement Geszt
(topographical map, after 1950, scale 1 : 25 000)

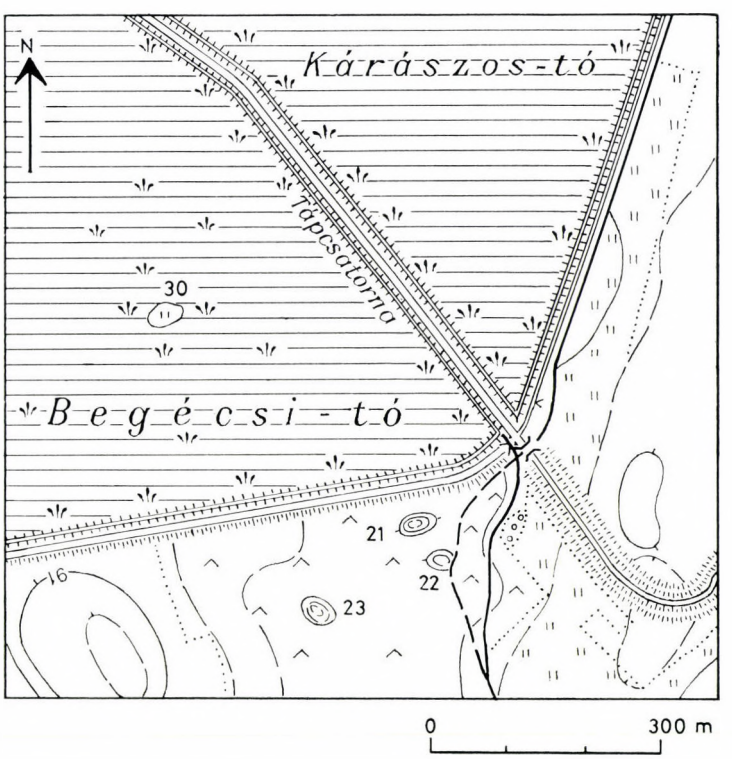

Fig. 6. Barrows near the settlement Geszt
(topographical map, after 1960, scale 1 : 10 000)

CADASTER OF TUMULI IN THE TISZA REGION

I. Szabolcs-Szatmár county

The area of the settlements mentioned below is completely covered by sand-heaps, data collection was impossible:

1. Zsurk, 2. Záhony, 3. Győröcske, 4. Tiszaszentmárton, 5. Tiszabezdéd, 6. Eperjeske, 7. Tuzsér, 8. Mándok, 9. Tiszamogyorós, 11. Komoró, 12. Benk, 16. Tornyospálca, 23. Jéke, 33. Nyírlövő, 34. Pap, 37. Tiszatelek, 38. Ibrány, 39. Paszab, 40. Tiszabercel, 41. Gávavencsellő, 42. Balsa, 47. Buj, 48. Nagyhalász, 49. Tiszarád, 50. Vasmegyer, 51. Beszterec, 52. Kék, 57. Anarcs, 58. Szabolcsbáka, 59. Lövőpetri, 68. Gemse, 69. Gyulaháza, 74. Ilk, 75. Nyírmada, 76. Nyírkarász, 77. Nyírtass, 78. Berkesz, 79. Nyírbogdány, 80. Kemecse, 81. Kótaj, 82. Székely, 83. Ramocsaháza, 84. Laskod, 85. Petneháza, 86. Nyírtelek, 87. Tiszaeszlár, 91. Nagycserkesz, 92. Nyíregyháza, 93. Nyírpazony, 94. Nyírtura, 95. Sényő, 96. Nyírtét, 97. Nyírjákó, 98. Rohod, 99. Pusztadobos, 100. Nagydobos, 118. Nyírparasznya, 119. Vaja, 120. Baktalórántháza, 121. Nyírkércs, 122. Nyíribrony, 123. Oros, 124. Napkor, 125. Apagy, 126. Levelek, 128. Besenyőd, 129. Őr, 130. Papos, 169. Jármi, 170. Magy, 171. Ófehértó, 172. Kántorjánosi, 173. Hodász, 174. Nyírmeggyes, 175. Nyírcsaholy, 193. Nyírcsászári, 194. Nyírkáta, 195. Nyírderzs, 196. Nyírgyulaj, 197. Máriapócs, 198. Pócspetri, 199. Kállósemjén, 200. Nagykáta, 201. Kálmánháza, 202. Újfehértó, 203. Érpatak, 204. Biri, 205. Kisléta, 206. Nyírbogát, 207. Nyírbátor, 208. Nyírvasvári, 209. Terem, 218. Nyírpilis, 219. Piricse, 220. Encsencs, 221. Nyírgelse, 222. Szakoly, 223. Balkány, 224. Geszteréd, 225. Bököny, 226. Nyírmihálydi, 227. Nyírlugos, 228. Nyírbéltek, 229. Ömböly, 230. Penészlek.

Tumuli were not found on the map of the following settlements:

10. Lónya, 18. Mátyus, 19. Tiszakerecsény, 25. Tiszaadony, 26. Barabás, 27. Beregdaróc, 28. Belényes, 29. Vámosatya, 30. Tiszaszalka, 31. Tiszavid, 36. Dombrád, 60. Beregsurány, 61. Márokpapi, 62. Csaroda, 63. Tákos, 64. Vásárosnamény, 65. Kisvarsány, 66. Nagyvarsány, 67. Gyüre, 70. Tarpa, 71. Fejércse, 72. Hete, 73. Jánd, 101. Olcsva, 102. Olcsvaapáti, 103. Gulács, 104. Tivadar, 105. Szatmárcseke, 106. Tiszakóród, 107. Tiszacsécse, 108. Milota, 109. Tiszabecs, 110. Uszka, 111. Sonkád, 112. Kölcse, 113. Túristvándi, 114. Nagyar, 115. Kisar, 116. Panyola, 117. Szamosszeg, 132. Szamoskér, 133. Kérsemjén, 134. Nábrád, 135. Fehérgyarmat, 136. Penyige, 137. Kömörő, 138. Fülesd, 139. Botpalád, 140. Magosliget, 141. Kispalád, 142. Kishódos, 143. Nagyhódos, 144. Tisztaberek, 145. Túrricse, 146. Garbolc, 147. Csaholc, 148. Vámosoroszi, 149. Kisszekeres, 150. Nemesborzava, 151. Mánd, 152. Nagyszekeres, 153. Zsarolyán, 154. Darnó, 155. Kisnamény, 156. Méhtelek, 157. Rozsály, 158. Gacsály, 159. Jánkmajtis, 160. Szamosújlak, 161. Gyügye, 162. Cégénydányád, 163. Fülpösdaróc, 164. Géberjén, 165. Tunyogmatolcs, 166. Győrtelek, 167. Kocsord, 168. Mátészalka, 176. Nagyecsed, 177. Ökörítófülpös, 178. Rápolt, 179. Szamossályi, 180. Hermánszeg, 181. Császló, 182. Zajta, 183. Csegöld, 184. Csengersima, 185. Nagygéc, 186. Komlódtótfalu, 187. Szamosbecs, 188. Szamostatárfalva, 189. Szamosangyalos, 190. Pátyod, 191. Porcsalma, 192. Fábiánháza, 210. Tiborszállás, 211. Tyukod, 212. Csenger, 213. Csengerújfalu, 214. Ura, 215. Mérk, 216. Vállaj, 217. Aporliget.

Data collection on the map of the following settlements was not done since the area of these settlements is covered by sand-heaps. Tumuli were not found on the map of the areas which are not covered by sand-heaps:

13. Szabolcsveresmart, 14. Döge, 15. Fényeslitke, 17. Mezőladány, 20. Tiszakanyár, 21. Kékcse, 22. Kisvárda, 24. Ujkenéz, 32. Aranyosapáti, 35. Rétközberencs, 43. Szabolcs, 44. Timár, 45. Rakamaz, 46. Tiszanagyfalu, 53. Demecser, 54. Gégény, 55. Pátroha, 56. Ajak, 131. Ópályi.

41. *Gávavencsellő* (1). D = ?, H = 7 m: 1 (Katóh., Nagy Magos-h. — exc. A. Jósa — Jósa 1915, p. 198, Jósa 1958, pp. 105–110, Kalicz 1968, p. 17, pd. 4).

47. *Buj* (1). D = 100 m, H = 7 m: 1 (Fekete-h. — exc. A. Jósa 1900 — Jósa 1915, p. 198, Jósa 1958, pp. 166–178, Kalicz 1968, p. 17, pd. 2).

76. *Nyírkarász* (1). D = 40 m, H = 5 m: 1 (Garah. — exc. A. Jósa 1894 — Jósa 1915, pp. 136–137, Kalicz 1968, p. 17, pd. 9).

87. *Tiszaeszlár* (2). D = 80 m, H = 3 m: 1 (Póty-h. — exc. J. Pongrác 1888 — Jósa 1958, pp. 59–62, Kalicz 1968, p. 17, pd. 3); D = 60 m, H = = 8 m: 2 (Bas-h., Kis bazs-h. — exc. A. Jósa — Jósa 1915, p. 201, Jósa 1958, pp. 62–64, Kalicz 1968, p. 17, pd. 5).

88. *Tiszadob* (15). D = 80–150 m, H = 1–3 m: 1 (Akasztó-h), 2 (Csikor-h.), 8, 12, 13; D = 50–100 m, H = 0–1 m: 2, 3, 4, 5, 6, 7, 9, 10, 11; Only the name of the area, tumulus on the map was not found: 14 (Katahalma).

89. *Tiszadada* (10). D = 100–150 m, H = 1–3 m: 6 and 7 (Kétökör-h.), D = 30–70 m, H = 0–1 m: 1, 2, 3, 4 (Mona halma), 5, 8, 9, 10.

90. *Tiszalök* (1). D = 120 m, H = 5 m: 1 (Botos-h., Nagy Botos-h., II. mil.); most of the area of the settlement is covered by sand heaps, data collection on the map was not done.

123. *Oros* (1). D = ?, H = 5 m: 1 (Névtelen-h., — exc. A. Jósa — Jósa 1910, pp. 4–8, Kalicz 1968, p. 17, pd. 8).

127. *Tiszavasvári* (29). D = 40–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 6, 7, 16, 17 (Kashalma, Kas-h., II. mil.); D = 80–120 m, H = 1–3 m: 8 (Bede-h.), 9, 11, 15 (Deák-h., II. mil.), 18 (Középles-h., cut-across), 23, 24, 27 (Kis Pupos-h.), 28, 29 (Akasztó-domb, I. mil.); D = 120–150 m, H = 5 m: 25, 26 (Nagy Pupos-h., I. mil.); destroyed: 12, 13, 14, 22.

200. *Nagykálló* (2). D = 50 m, H = ?: 1 (Nagy-korhány, — exc. A. Jósa — Jósa 1915, p. 201, Jósa 1958, pp. 67–69, Kalicz 1968, p. 17, pd. 7).

224. *Geszteréd* (6). D = ?, H = 4 m: 1 (exc. J. Vécsey 1868 — Vécsey); D = ?, H = ?: 2, 3, 4, 5, 6 (tumuli 2–6: Vécsey). Tumuli on the map could not be identified, according to Vécsey they are in the western part of the settlement.

II. Borsod-Abaúj-Zemplén county

(Research was carried out in the Trans-Tisza area only.)

1. *Tiszapalkonya*, 2. *Tiszatarján*, 4. *Ároktő*, 5. *Tiszadorogma:* no tumuli were found on the maps of the settlements.

3. *Tiszakeszi* (2). D = 40–80 m, H = 0–1 m: 1, 2.

III. Hajdú-Bihar county

1. *Tiszagyulaháza*. No tumuli were found on the maps of the settlement.

2. *Újtikos* (5). D = 40–80 m, H = 0–1 m: 1, 2, 3, 4, 5.

3. *Polgár* (34). D = 40–80 m, H = 0–1 m: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (Bágy-h.), 12, 13, 14, 15, 16, 19, 21, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34; D = 80–150 m, H = 1–2 m: 11, 17 (Nagy Homok-h., Ásott-h., I. mil., II. mil.), 18 (Bivaly-h., I. mil.), 20 (Császár-h., I. mil., II. mil.), 22 (Nagy Bogát-h.), 24 (Kis Csősz-h.), 29.

4. *Görbeháza* (5). D = 60–100 m, H = 0–1 m: 1, 2, 3, 4, 5.

5. *Hajdúnánás* (44). D = 50–100 m, H = 0–1 m: 1 (Büdösdomb), 4, 5, 6, 7, 11, 17 (Veres-h.), 23, 25, 26, 28 (Kis Süldős-h., I. mil.), 30 (Kislopó-h.), 31, 32, 34, 38 (I. mil.), 39, 42, 43, 44; D = 80–150 m, H = 1–3 m: 15 (Dinnyés-h., II. mil.), 18 (Rothadt-h., I. mil., II. mil.), 21, 24 (Köves-h., Süldős-h., II. mil.), 29. (Nagylopó-h., Vágott telek-h., II. mil.), 37 (Kosár-h., I. mil., II. mil.); D = 60 m, H = 3 m: 40 (Cseh-h., II. mil.); D = 80–150 m, H = 3–5 m: 2 (Zöld-h.), 13 (Utasér-h.), 14 (Lyukas-h., II. mil.), 19 (I. mil.), 20 (Kis Fürj-h., I. mil.), 33 (Kakas-h.), 41 (Mézes máj-h., Mézes májhát, II. mil.); D = 150 m, H = 8–12 m: 16 (Fekete-h., Nagy Fekete-h., I. mil., II. mil.), 22 (Nagy Vidi-h., I. mil., II. mil.), 35 (Fürj-h., Pap-h., I. mil., II. mil.); destroyed: 3, 6, 9 (Szállás-h., II. mil., perhaps tell), 10, 12, 27, 36. The eastern side of the settlement is covered by sand-heaps.

6. *Hajdúdorog* (1). D = 100 m, H = 2 m: 1 (Nagyállás-h., perhaps tell). Most of the area in the settlement is covered by sand-heaps, data collection on the map was not done.

7. *Téglás*. The area is covered by sand-heaps; data collection on the map was not done.

8. *Hajdúvid* (2). D = 100 m, H = 0–1 m: 2 (Dávidka-1., II. mil.); D = 80 m, H = 5 m: 1 (Mélyföldes-h., I. mil.). In the area of the settlement which is covered by sand-heaps data collection was not done.

9. *Hajdúböszörmény* (25). D = 40–150 m, H = 0–1 m: 1, 5, 7, 8, 9, 11, 12, 13, 14, 15 (Gát-h., Újgát-h., Böszörmény, II. mil.), 16 (Brassó-h.), 18, 22; D = 60–200 m, H = 1–3 m: 2, 3, 4 (Pródi-h., Kis Pródi-h., II. mil.), 6, 20, 21 (disturbed), 24 (Nagy Süldős-h.), 25 (Kis Vidi-h., I. mil., II. mil.); D = 120 m, H = 4 m: 23 (Köves-h., I. mil.); D = 120 m, H = 8–10 m: 17 (Strázsa-h., I. mil., II. mil.), 19 (Pródi-h.); destroyed: 10. In the eastern part of the settlement wich is covered by sand-heaps data collection was not done.

10. *Újszentmargita* (34). D = 40–100 m, H = 0–1 m: 1, 2, 4, 5, 6, 9, 12, 13, 18, 20, 21, 23, 27, 28, 29, 30, 31, 32, 33; D = 60–120 m, H = 1–3 m: 3, 7, 8 (Lyukas-h., I. mil.), 10 and 11 (Kettős-h., I. mil., II. mil., Zoltai 1938), 14 (Margita-domb), 15 (Király-h.), 16 (Grüger-h.), 17 (Rosszfali-h.), 19 (I. mil.), 22, 24, 25, 26; D = 120 m, H = 4 m: 34 (Szandalik-h.).

11. *Tiszacsege* (40). D = 50–100 m, H = 0–1 m: 8 (Orpolya-h., I. mil., II. mil., Tiszacsege, Zoltai 1938, e), 16 (Lyukas-h., II. mil.), 19, 23, 24, 28 (Ócsa-h., Zoltai 1938, f), 29, 30, 31, 32, 33, 34, 35, 36 (cut across), 38, 39, 40; D = 50–150 m, H = 1–3 m: 2 (Kása-h., Tiszacsege), 3 and 4 (Kettős-h., Tiszacsege, Csiszár), 7 (Tiszacsege), 9 (Hármas kecskés-h., Kecskés hármas-h., Zoltai 1938, k), 11 (Kacskó-h., Kacsó-h., Tiszacsege, Csiszár, I. mil., II. mil., Zoltai 1938, g), 13 (Bonca-h., Bonta-h.), 14 (Godolya-h., Godolya-hát, Godolyás-hát, I. mil., Zoltai 1938, 66), 18, 20, 21, 25 (Hármas kecskés-h. etc. cf.: tumuli Nos 9 and 26), 27 (Széles-h., Szilos-h., Szilos, I. mil., II. mil., Zoltai 1938, d), 37; D = 100–150 m, H = 3–5 m: 1 (Mélyföldes-h., Nagy Mélyföldes-h., Alut halma, Csiszár 1787, I. mil., Zoltai 1938, 152), 6 (Deák halma, Deák Ferenc halma, Ferenc deák halma, Csiszár, Zoltai 1938, c), 10 (Sólyom-h., Tiszacsege, I. mil., II. mil., Zoltai

1938, b), 12 (Varga-h., Tiszacsege, I. mil., II. mil., Zoltai 1938, i, disturbed), 15, 17 (I. mil.), 26 (cf.: tumuli Nos. 9 and 25); D = 150 m, H = 7 m: 22 (Filagóriás); destroyed: 5.

12. *Egyek* (81). D = 30–80 m, H = 0–1 m: 1, 13, 16 (Kétökör-h., Kétökrü-h., Kétöklü-h., Nagyökör-h., together with tumulus 15, Zoltai 1938, 109), 21, 22, 27, 30, 32, 33, 34, 37, 41 (Kisökör-h., Kis kétökrü-h., Zoltai 1938, 118), 43 (Magos határ, Zoltai 1938, 145), 47, 48, 49, 50 (Bojár-laponyagok, Bujár-laponyagok, together with tumuli 47–50, No. 50 — exc. Zoltai — Zoltai 1923, Zoltai 1938, 26), 52 (I. mil.), 53 (with a church on it — exc. L. Zoltai 1905 — Zoltai 1907, p. 180, Zoltai 1938, 172), 54 (Zoltai 1938, 172), 56 (Tiszacsege, I. mil., Zoltai 1938, 17), 58, 60, 62, 63, 70 (Zoltai 1938, 160), 72 (Zoltai 1938, 35), 79 (Duna-h. — exc. L. Zoltai 1923 — Zoltai 1923, Zoltai 1938, 48, I. mil., II. mil.), 81; D = 40–100 m, H = 1–3 m: 3 (Görbeszék-h., Görbe-h., I. mil., Zoltai 1938, 70), 4 (Kis szék-h.), 8 (Gulyakuti-h.), 9 (Konc-h., I. mil.), 12 (Csóré-h., Zoltai 1938, 39), 14, 18 (Fene-h.), 19, 20, 23, 24, 25, 26, 28, and 29 (Nyerges-h.), 31, 35 (with a church on it), 36, 38, 39, 40, 44, 46 (I. mil.), 57 (Tiszacsege, I. mil., Zoltai 1938, 17), 59 (Tiszacsege), 61, 64 (Nyárjas-h., Eperjes-h., Zoltai 1938, 167), 65 (Sós-h., I. mil., Zoltai 1938, 199), 67 (Csonka-h., Kis Csonka-h., Zoltai 1938, 38), 68 (Kis mérföldes-h., Kis mélyföldes-h., I. mil., Zoltai 1928, 153), 73 (Tiszacsege), 74 (Fene-h., Tiszacsege, I. mil., II. mil., Zoltai 1938, 56, Kalicz 1968, p. 17, pd. 24), 75 (Kenderes-h., Kender-h., Zoltai 1938, 106), 76 (Strázsa-h.,), 80; D = 60–100 m, H = 3–5 m: 5 (Nagy Szék-h., I. mil.), 15 (cf.: tumulus No. 16), 17 (Pap h.,), 45 (I. mil., II. mil.), 51 (Szöghatár, Szeghalom, Cserepes dombja, I. mil., II. mil., Zoltai 1938, 209), 66 (Csipő-h., Birtokper, Zoltai 1938, 34), 77 (Pecenpál-halma, Pecen Pál-h., Pözsöm-h., I. mil., II. mil., Zoltai 1938, 179); D = 100–120 m, H = 5–7 m: 7 (Cseppentő-h.), 55 (Zoltai 1938, 172, I. mil.), 71 (Meggyes-h., Meggyesi-h., I. mil., Zoltai 1938, 149); D = 100–150 m, H = 7–10 m: 6 (Tökös-h.), 10 (Gyenge-h., I. mil., Zoltai 1938), 11 (Földvár-h., Egyeki földvár-h., Földvári-h., Egyeki nagy-h., I. mil., Zoltai 1938, 57); destroyed: 2 (Ásott-h., Zoltai 1938, 10), 42 (Lyukas-h., Zoltai 1938, 96), 69 (Zoltai 1938, 160), 78 (Ásott-h., Zoltai 1938, 10).

13. *Balmazújváros* (39). D = 40–150 m, H = 0–1 m: 1–8 (Kenézlaponyák, II. mil., tumulus No. 9 belongs here, too), 10 (Tacsilló-h., cut across, II. mil.), 11, 13, 17–18 (Kettős-h., II. mil.), 19, 22–23 (Kettős-h.), 24, 25, 26, 27 (I. mil., cut across by a canal), 28, 29, 30, 31, 35, 36, 38, 39; D = 80–140 m, H = 1–3 m: 9 (cf.: tumuli Nos 1–8), 12, 14, 15 (Szőrös-h., II. mil.), 16, 20; D = 100 m, H = 3–4m: 21, (Kárhozott-h., Kárhozat halma, Nagy-h. — exc. J. Csalog — Csalog 1954, pp. 37–44, Birtokper, Ruttkay, I. mil., Zoltai 1938, 102, Kalicz 1968, p. 17, pd. 26), 33 (Háti-h., Káti-h., I. mil., II. mil., Böszörmény); destroyed: 32 (Vinnyó-h., Vinyó-h., I. mil., Zoltai 1938, 244), 34 (Malátom-h., Nagy Kadaras, I. mil.).

14. *Hortobágy* (320). D = 40–100 m, H = 0–1 m: 2, 3, 4, 8, 9, 10, 12, 13, 14, 17, 24 (Szász-h., Szásztelek, Szász János laponyagja, Zoltai 1938, 206), 30–42 (Kistatárülések, Zoltai 1938, 224), 57 (Sáros-h., I. mil.), 58, 59, 60, 63, 74 (Kövecses-l., Kis Szálka-h., Ruttkay, Birtokper, Zoltai 1938), 75, 76, 77, 79 (Kincses-l., Zoltai 1938, 116), 82–84 (Halászlaponyagok — exc. L. Zoltai — Zoltai 1924, p. 8, Zoltai 1938, 77), 86, 87, 88, 89–90 (Mérges-h., Mérges-l., Feke-föld halma, Birtokper, Zoltai 1938, 156), 96, 97 (Árkus laponyagja, Zoltai 1938, 7), 98 (Polturás-l., Zoltai 1938, 185), 101 (Zoltai 1938, 116), 103, 104, 105, 106, 107, 108, 109, 110, 111, 113 and 118–320 (Small tumuli in 14 groups between tumuli Nos 113 and 117. A lot of them were excavated by Zoltai, many are destroyed; Ruttkay, Birtokper, Zoltai 1938, 4); D = 60–120 m, H = 1–3 m: 1 (Halas-l., Halasfenék-h., Birtokper, I. mil., Zoltai 1938, 75), 5 (Sárosér-h., Keserű-h., Keserű-l., Birtokper, I. mil., Zoltai 1938, 105), 6 (Kis Kenderátó-h., Birtokper, I. mil., Zoltai 1938, 105), 7 (on three village borderlines), 11, 15 (Papegyházi-h. — exc. L. Zoltai — Zoltai 1910, Zoltai 1938, 177), 16, 19 (Méhes h. — exc. 1911 L. Zoltai — Zoltai 1911, p. 16, Zoltai 1938, 150), 22 (Köves-h., Csécshalma church was on it — exc. 1908 L. Zoltai — Zoltai 1909, pp. 29–32, Zoltai 1938, 130), 23, (Bajnok-h., Bajnok-l. — exc. 1909, L. Zoltai — Zoltai 1909, pp. 22–23, Zoltai 1938, 11, I. mil.), 25–29 (Nagytatárülések, Négyes-h., Négyes I. mil.), 25–29 (Nagytatárülések, Négyes-h., Négyes-l., Zoltai 1938, p. 223), 34–46 (Pipások — exc. 1908–1911 L. Zoltai — Birtokper, Zoltai 1908, Zoltai 1910, pp. 36–38, Zoltai 1938, 182), 51 (Belső Hármas-h., I. mil., Zoltai 1938, 80), 52 (Parajos-h., Birtokper, I. mil., Zoltai 1938, 178), 54, 56 (Heverő-l., Nagy Kép-h., Zoltai 1938, 88), 61, 65 (Százköblös-h., Rác-l., Mátai-l., Zoltai 1938, 192), 66 (Kun György-h., Kun György-l., I. mil., Zoltai 1938, 133), 67 (Zoltai 1938, 192), 70 (Borsós h., Borsós-l., Birtokper, Zoltai 1938, 22), 72 (Kincses domb, Zámi-l., Zoltai 1938, 236), 85 (Halász-l., cf.: tumuli Nos 82–84), 92–93 (Zoltai 1938, 22), 94 (Zoltai 1938, 226), 95 (Pente laponyagja, Zoltai 1938, 180), 99 (Köves-h., Birtokper, Zoltai 1938, 129), 102 (Zámi templomdomb, church hill, Zámi telek, — exc. L. Zoltai — Zoltai 1908, Zoltai 1938, 237), 112, 116 (Kandra-h., Féllaponyag — exc. 1910 Zoltai — Zoltai 1938, 101); D = 80–100 m, H = 3–5 m: 18 (Nagy Kenderátó-h., Birtokper, Zoltai 1938, 104), 20 (Faluvég-h., Zoltai 1938, 50),

21 (Csécs h., Csécs halma, Birtokper, Zoltai 1938, 32), 47–48 (Kettős-h., I. mil., Zoltai 1938, 110), 49 (Külső hármas-h., Zoltai 1938, 78), 50 (Közép hármas-h., Zoltai 1938, 79), 69 (Bivaly-h., Mátai-h., Árpád-h., Birtokper, I. mil., Zoltai 1938, 19); destroyed: 53, 55, 62, 64, 68 (Gyováti-h., Zoltai 1938, 72), 71, 73, 80, 100, 114–115 (Zoltai 1938, 58), 117 and tumuli Nos 118–320 — among these are many small tumuli — Birtokper, Ruttkay, Zoltai 1938, 4).

15. *Józsa* (1). D = 100 m, H = 5 m: 1 (Csege-h., Csegei-h., Thege-h., Zoltai 1938, n).

16. *Hajdúhadház*, 17. *Hajdúsámson*, 18. *Nyíradony*, 19. *Nyírmártonfalva*, 20. *Nyíracsád*, 21. *Fülöp*, 22. *Nyírábrány*, 23. *Vámospércs:* data collection was not done because the area is covered by sand-heaps.

24. *Debrecen* (67). Most of the area of the town is covered by sand-heaps; the tumuli mentioned below were described by Zoltai. D = 30–80 m, H = 0–1.5 m: 12, 13, 25, 34–36 (could not be identified on the map, cf.: Zoltai 1938), 44–67 (exc. 1924 L. Zoltai — Zoltai 1938), 73 (at Halápi telek); D = 50–150 m, H = 1.5–5.0 m: 2 Füle halma, (Zoltai 1938, 61), 3 (Geszterédi-h., Zoltai 1938, 65), 4 (Ormós halma — exc. 1907 L. Zoltai — Zoltai 1938, 173), 5 (Nagy Sándor halma, Zoltai 1938, 165), 7 (Dinnyés-h. — exc. 1907 L. Zoltai — Zoltai 1938, 44, Kalicz 1968, p. 17, pd. 23), 9 (Szántay-h. — exc. 1927 L. Zoltai — Zoltai 1927, Zoltai 1938, 204, Kalicz 1968, p. 17, pd. 8), 10 (László-h. — exc. 1927 L. Zoltai — Zoltai 1938, p. 136, Zoltai 1927, p. 48, Kalicz 1968, p. 17), 11 (Rác-l., Zoltai 1938, 193), 14 (Zoltai 1938), 15 (Köves-l. — exc. 1924 L. Zoltai — disturbed graves, foundations of a church, stamped mud, Zoltai 1938, 131, Zoltai 1924, p. 9), 16 (Kondás-l., Zoltai 1938, 124), 17 (Tetves-l., Zoltai 1938, 230), 20 (Kistelek-h., Zoltai 1938, 120), 21 (Határ-h., Zoltai 1938, 83), 22 (Ménes-h., Tornyos-domb, Zoltai 1938, 154), 23 (Zoltai 1938, 127), 24 (Zoltai 1938), 26 (Mogyorós-h., Zoltai 1938, 159), 27–31 (Korhányok, Kettős-h., Ásott-h., not even Zoltai could identify these destroyed names, Zoltai 1938, pd. 9, 112 and 125), 32 (Zoltai 1938), 33 (Szepes-h., Szepesi telek — exc. 1907 L. Zoltai — Zoltai 1910, Zoltai 1938, 216, Kalicz 1968, p. 17, pd. 13), 38 (Zoltai 1938), 39 (in the same place), 41 (Kovács-h., Zoltai 1938, 127), 42 (Kis-h., Zoltai 1938, 117), 43 (Zoltai 1938); D = 60–120 m, H = 5–10 m: 18 (Basa halma — exc. L. Zoltai 1906 — Zoltai 1907, 26–28, Zoltai 1938, 18), 19 (Kamarás halma, Zoltai 1938, 98), 37 (Szepes-h., Pércsi nagy-h. — exc. 1907 L. Zoltai — cf.: literature for tumulus No. 33); partly or completely destroyed, the measurements are not known: 1 (Köves-l. — exc. 1912 L. Zoltai — Zoltai 1912, Zoltai 1938, 132, I. mil., the church of Hosszúmacs was on it in the Middle Ages), 6 (Zoltai 1938, 173), 8 (Zoltai 1938, 44); only a place-name, may have been a tumulus, according to Zoltai: 40 (Sántakata ülése, Zoltai 1938, 195).

25. *Nagyhegyes* (40). D = 40–100 m, H = 0–1 m: 1, 2 (Arcu Péter halma, Birtokper, I. mil., Zoltai 1938, 6), 3, 4 ,5, 6, 7 (Határ-l., Szöghatárdomb, Szög-h., Zoltai 1938, 84), 12 (Zoltai 1938, 238), 13, 14 (Kis Szálka-h., Nyírő-l., Ruttkay, Zoltai 1938, 203), 16 (I. mil.), 17 (Koronás h., I. mil., Zoltai 1938, 126), 18 (I. mil., Zoltai 1938, 87), 19 (Zoltai 1938, 238), 21 (Zoltai 1938, 47), 22 (Sós-l., II. mil., Zoltai 1938), 23 (Borosfok, Birtokper), 24, 25 (Zoltai 1938), 26 (Zoltai 1938) 27 (Zoltai 1938), 28, 29, 30, 31, 32, 33, 34, 36, 37, 39 (I. mil.) 40 (Zoltai 1938); D = 70–120 m, H = 1–3 m: 9 (Szőrös-h., Nyüvedi-h., Zoltai 1938, 171), 15 (Kis Szálka-h., — exc. Sőregi — J. Sőregi: *DMÉ* 1934, pp. 105–147, Zoltai 1938, 69 and 203, Ruttkay "Kis Szálka vulgo Lófasz-laponyag"), 35; D = 80–150 m, H = 3–5 m: 8 (Szálka-h., Nagy Szálka-h., Birtokper, I. mil., Zoltai 1938, 202), 11 (Őrhalom, Pince-h., Zoltai 1938, 175), 20 (Dóka-h., Kadarcs-h., Kadarcs-l., I. mil., Zoltai 1938, 47); D = 80 m, H = 6 m: 38 (Hegyes-h., I. mil., Zoltai 1938, 87); D = 100 m, H = 9 m: 10 (Vajda-h., Szivós-l., Zoltai 1938, 238).

26. *Hajdúszoboszló* (83). D = 40–140 m, H = 0–1 m: 7 (Zsoldos-h., I. mil., Szivós 1876, 9), 17 Árkos-h., Árkus h., I. mil., Szivós, 27), 21, 27 (I. mil.), 30, 32 (Szivós, 23), 34 (I. mil.), 35, 37, 38, 41 (Szivós, 12), 42 (I. mil.), 46 (Szivós, 10, Zoltai 1938), 52 (I. mil., Zoltai 1938), 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 66, 69 (Zoltai 1938, 238), 72 (Zoltai 1938), 74 (I. mil.), 76, 77, 78, 79, 80, 81; D = 50–160 m, H = 1–3 m: 2 (Járó-h., I. mil., Szivós, 5), 8 (Bárány h., Szivós, 28), 10 (Szívós, 30), 12 (Csontos-h., I. mil., Zoltai 1938, Szivós, 21), 13 (Hegyes-h., Zoltai 1938, Szivós 16), 14 (Tekintő h., I. mil., Szivós, 17), 15 (Laponyag-h., I. mil., Zoltai 1938), 16 (Szőrös-laponyag h., Pap-laponya, I. mil., Szivós, 25), 18 (Kurta-h., Kurta-l., I. mil.), 20, 22, 24 (Szivós, 24), 25 (I. mil.) 26 (I. mil., Szivós, 15), 28, 29, 31, 36, 39, 40 (Szivós, 31), 45 (Hármas-l., Szívós, 22, Zoltai 1938, 82), 47 (Szivós, 4), 48 (Szívós, 6), 49 (I. mil., Szivós, 18), 51 (I. mil., Zoltai 1938), 61 (Pali-h.,) 65 (Csikér-l.), 67 (Szik-l., Zoltai 1938), 68 (Faluvég-l.), 70 (I. mil., Zoltai 1938), 73 (Kun Pál halma, Kun Pál-h., I., II. mil., Szivós, 4, Zoltai 1938, 134), 75, 82 (Baló-h.); D = 130–140 m, H = 3–5 m: 19 (Papné-h., I. mil., Szivós, 7), 23 (Mihály-h., I. mil., Szivós, 29); D = 80–200 m, H = 5–7 m: 1 (Borsós-h., I. mil.), 3 (Korpád h., I. mil., Szivós, 8), 9 (Giród-h., I. mil., Szivós, 27), 71 (Citra-h., Citra halma — exc. 1905. Z. Medve and M. Steinfeld — Zoltai 1907, p. 25, Zoltai 1938, 29, I. mil., II. mil.); D = 70–120 m, H = 5–7 m: 4–5 (Kéthalom, I. mil., Zoltai 1938,

Szivós, 13 and 14), 6 (Nyéki-h., I. mil., Szivós, 11, Zoltai 1938), 50 (I. mil., Zoltai 1938); destroyed: 43 (Szivós, 1876, 19), 44 (Szivós, 20).

27. *Ebes* (9). D = 60–200 m, H = 1.5–3.0 m: 2, 3 (Zoltai 1938), 4, 5 (I. mil., Zoltai 1938), 6 (Zoltai 1938), 7 (Mérföld-h., Mérföldes-h., Ebesi nagy-h., Zoltai 1938, 155), 8 (Szőrös-h., Zoltai 1938, 222), 9 (Farkas-l., Zoltai 1938, 53); D = 120 m, H = 5 m : 1 (Zoltai 1938).

28. *Nádudvar* (108). D = 40–120 m, H = 0–1 m: 17 (Külső-h., I. mil., Zoltai 1938), 19 (I. mil.), 20, 27 (I. mil.), 28 (Sujmos-h., I. mil.), 29 (I. mil.), 32 (Zöld-h., Györffy), 35 (I. mil.), 36 (Laponyag, I. mil.), 38, 39, 40, 42, 44 (Kisborzas-h., Birtokper 1760, Zoltai 1938, 24), 48 (Zoltai 1938, 180), 49 (I. mil.), 51, 52, 53, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 71, 73, 74, 76, 77, 78, 79, 81, 83, 84, 85, 87, 88, 91, 93, 94, 95, 96, 97, 99, 100, 103, 104, 105, 106; D = 50–150 m, H = 1–3 m: 4 (Nagy Darvas-h., Darvas-h., I. mil., Zoltai 1938, 1), 5 (Égett-h.), 7 (Szabolcsok, together with tumulus No. 6, Zoltai 1938, 201, I. mil.), 10 (Sebesér-h., I. mil., Zoltai 1938), 15 (Rab-h., I. mil.), 21 (Német-h., Györffy), 23 (Halász-h., Cseke-h.), 24 (Endre-h., I. mil., Zoltai 1938), 25 (Tas-h., I. mil.), 26 (I. mil.), 31 (Szabolcs h., I.), 33 (Györffy), 34 (I. mil.), 37 (Akasztó h., I. mil.), 41, 45 (Szeghatár, Lovász-l., Zoltai 1938), 47 (Teke szarva halma, Zoltai 1938, 226), 50 (I. mil.), 54, 56, 69, 70, 72, 75, 80, 82, 86, 89, 92, 98, 101, 102 (Kék-l.), 107 (Deme-fél-halom, Zoltai 1938), 108; D = 70–120 m, H = 3–5 m: 1 (Ágota-h., Nagy Ágota-h., Karcag 1859, Györffy), 3 (Mihály-h., I. mil.), 6. (Köves-h., Zoltai 1938, 201, according to Zoltai, a "Szabolcs" together with tumulus No. 7), 8 (Hegyes-h., I. mil.), 9 (Bűte-h., Nagy-h., I. mil.), 11 (Nagyág-h., Zoltai 1938), 12 (Szentiván-h.), 13 (Siter-h., Sétérhalma, I. mil., Zoltai 1938, m), 14 (Belső-h., I. mil.), 16 (Boda-h., I. mil.), 18 (Lapos-h., I. mil.), 22 (Csipe-h., I. mil. "Czepe hal"), 43 (Nagyborzas-h., Birtokper, Zoltai 1938, 23), 46 (Nádas h., I mil., Zoltai 1938, 142); D = 100–130 m, H = 5–7 m: 2 (Tökhalom, I. mil.), 30 (Eperjes-h., Eperjesi h., I. mil.).

29. *Mikepércs* (12). D = 60–100 m, H = 0–2 m: 6, 7, 8, 9, 10, 11, 12 (6–12: Testhalmok, Zoltai 1938, p. 51); D = 80–150 m, H = 3–6 m: 1 (Puci-h.), 2 (Dóci-h.), 4, 5.

30. *Sárand* (10). D = 100–120 m, H = 2–3 m: 2 (Szabó-h.), 4, 6, 7, 9 (Szarka-h.), 10 (Balcsa-h.); D = 80–100 m, H = 3–5 m: 1 (Török-domb, Lyukas-h.), 8 (Kornyó-h.); D = 100–120 m, H = 5–8 m: 3 (Tornyos-h.), 5 (Lénárt-h.).

31. *Hajdúbagos* (3). D = 100 m, H = 2 m: 2 (Darabos-h.); D = 150 m, H = 5 m: 3 (Szőke-h.); D = D 120 m, H = 10 m: (Kecskeorr-h., Kecskeőr-h.). The collection of material was done only in the southern part which is not covered by sand-heaps.

32. *Hosszúpályi* (15). D = 40–60 m, H = 0–1 m: 3, 5; D = 50–120 m, H = 1–3 m: 1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13 (Bajonta-h.), 14 (Lyukas-h.); D = 100 m, H = 3.5 m 15 (Csonka-h.). The collection of material in the northern and eastern parts of the settlement was not done as those areas are covered by sand-heaps.

33. *Monostorpályi*, 34. *Újléta*, 35. *Bagamér*, 36. *Álmosd*, 37. *Kokad;* the area of these settlements is covered by sand-heaps; the collection of material on the map was not done.

38. *Létavértes* (9). D = 40–100 m, H = 0–1 m: 2, 3, 4, 7, 8; D = 50–70 m, H = 1–3 m: 5, 6, 9; D = 120 m, H = 4 m: 1 (Laponya-h.). In the northern part of the surroundings of the settlement, where the area is covered by sand-heaps, the collection of material on the map was not done.

39. *Pocsaj* (21). D = 30–70 m, H = 0–1 m: 6, 7, 8, 9, 10, 12, 13, 14, 16, 17; D = 50–140 m, H = 1–3 m: 1 (Bársony-h.), 2 (Ebéd-h.), 3, 4, 5, 15 (Ebéd-h.), 18, 19, 20, 21; D = 150 m, H = 4 m: 11.

40. *Esztár* (13). D = 40–50 m, H = 0–1 m: 1, 2, 12; D = 25–120 m, H = 1–3 m: 3, 4, 5, 6, 7, 8, 9, 10, 11; D = 120 m, H = 5 m: 13.

41. *Konyár* (29). D = 30–50 m, H = 0–1 m: 2, 6, 12, 13, 19, 20, 22, 27; D = 50–120 m, H = 1–3m: 4, 5, 7, 8, 9, 10, 11, 14, 15, 16 (Hegyes-h.), 17, 18, 21 (Törvénydomb), 23, 24, 28 (Akasztó-h.), 29 (with a church on it); D = 100 m, H = 3–5 m: 3, 26 (Kis Korhány); D = 100 m, H = 6 m: 1 (Gyopáros-h., Gyapáros-h.); D = 100 m, H = 10 m: 25 (Nagy Korhány).

42. *Derecske* (39). D = 40–120 m, H = 0–1 m: 2, 4, 11, 13 (Lyukas-domb, Lyukas-h.), 14, 17 (Molnár-domb), 18 (Kődomb, Rómer, p. 151, with a medieval church and cemetery on it), 19, 20, 21, 22, 23, 25, 26, 37, 38, 39; D = 60–200 m, H = 1–3 : 3, 6 (I. mil.), 8, 9, 12, 16, 24, 27 (Zoltai 1938), 28, 29, 31, 32–33 (Kettős-h., Rómer), 35; D = 100–200 m, H = 3–5 m: 7 (Lyukas h., Rómer), 30 (Botos h.), 34 (Kápolnás-h.), 36; D = 80–100 m, H = 6–7 m: 1 (Kerekes-h., I. mil.), 5, 15; destroyed: 10 (I. mil.).

43. *Hajdúszovát* (8). D = 50–100 m, H = 0–1 m: 4 (I. mil.), 7, 8, (I. mil.); D = 70–100 m, H = 1–3 m: 1 (Szőrös-h., I. mil.), 2 (Bas-h., Bárs-h., I. mil.), 3 (Panyi-h., I. mil.), 5 (Kis hegyes-h., I. mil.), 6 (Nagy hegyes-h., I. mil.).

44. *Kaba* (24). D = 60 m, H = 0–1 m: 2, 5–24 (Tatárülések, Zoltai 1938, p. 51; on the maps neither the tumuli nor the name "Tatárülések" were found; they are perhaps destroyed); D = 70–100 m, H = 1–2 m: 3, 4; destroyed: 1 (I. mil.).

45. *Püspökladány* (45). D = 40–100 m, H = 0–1 m: 8, 20, 21, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45; D = 40–200 m, H = 1–3 m: 1 (Borzas-h., Görbe-hegy), 4 (Váradi-h., I. mil.), 6, 12, 13, 14, 15, 16, 17, 18 (Bojár-h., I. mil., "Makot

hal"), 19 (Sas-h., I. mil., Zoltai 1938), 22, 24; D = 80–100 m, H = 3–5 m: 2–3 (Kettős h., I. mil. tumulus No. 3 Borsos-h.), 9 (Makkod-h., I. mil.), 11 (Mérges-h., I. mil.); D = 100–150 m, H = 5–6 m: 7 (Nyakvágó-h., I. mil.), 10 (Kelenc-h., Eperjes-h., I. mil.); destroyed: 5 (I. mil.), 23 (I. mil.), 25 (I. mil.).

46. *Bárand* (7). D = 50–70 m, H = 0–1 m: 3, 5, 6, 7; D = 80–100 m, H = 3 m: 2 (Futok-h.), 4 (Két halom, together with tumulus No. 5, I. mil.); D = 90 m, H = 4 m: 1 (Bárand-h., I. mil.).

47. *Tetétlen* (1). D = 100 m, H = 1 m: 1.

48. *Földes* (22). D = 50–100 m, H = 0–1 m: 2, 12, 13, 15, 16, 17 ("Denies-hal" I. mil.), 18, 19 (I. mil.); D = 60–120 m, H = 1–2 m: 1 (Csöre-h., I. mil.), 3 (Határ-h., I. mil.), 5 (Mogyorósi-h., Magyar-h., I. mil.), 6 (I. mil.), 8, 11 (Soma-h., I. mil.), 14 (Gyilkos-h., I. mil.); D = 60–100 m, H = 4 m: 4 (Veres-h., I.), 9, 10 (I. mil.); D = 140–150 m, H = 8–10 m: 7 (Gyepáros-h., Nagy Gyapáros-h., I. mil.), 22 (Inacs-h., I. mil.); destroyed: 20 and 21 (I. mil.).

49. *Tépe* (5). D = 60 m, H = 0–1 m: 2, 3, 4; D = 100–150 m, H = 4–5 m: 1 (Gál-h., Gát-h.), 5 (in the place called "Halomalja").

50. *Kismarja* (41). D = 30–80 m, H = 0–1 m: 1, 2, 6, 10, 12, 13, 16, 17, 19, 21, 22, 24, 25, 26, 28 (cut across by a road), 29, 30, 31, 34, 35, 36, 37, 39, 40; D = 80–100 m, H = 1–3 m: 3 (Ladamir-h.), 4 (Bodrás-h.), 5 (I. mil.), 7, 8, 9, 15, 18 (I. mil.), 20, 23, 27, 32, 38, 41; D = 80–100 m, H = 3–5 m: 11 and 14 (I. mil., Kettős-h.), 33 (in "Korhány" garden).

51. *Hencida* (28). D = 30–100 m, H = 0–1 m: 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25 (I. mil., "Zuk halom"), 27, 28; D = 60–100 m, H = 1–3 m: 1, 2, 3, 4, 5, 8, 19; D = 100 m, H = 5 m: 26 (Mondró-h., Mondró-domb).

52. *Gáborján* (18). D = 30–100 m, H = 0–1 m: 3, 4, 5, 6, 7 (Korhány), 8, 10, 11, 12, 13, 14, 16, 17; D = 60–100 m, H = 1–3 m: 1 and 2 (Kettős-h.), 9, 15, 18.

53. *Szentpéterszeg* (11). D = 30–100 m, H = 0–1 m: 1, 2, 3, 5, 7 (Csókus-h., disturbed), 8, 9, 10; D = 80–100 m, H = 1–3 m: 4 (Henc-h.), 6, 11.

54. *Berettyóújtalu* (60). D = 30–100 m, H = 0–1 m: 5, 6, 9 (I. mil.), 12 (Török-h.), 13, 15, 16, 19, 20, 22, 23, 25, 26, 27, 28, 29, 30, 31, 34, 35, 37, 38, 40, 41, 43, 44, 45, 46, 47, 49, 50, 51, 53, 57, 58, 59, 60, 61 (tumuli Nos 57–61, cf. Zoltai 1938, p. 51); D = 40–100 m, H = 1–3 m: 8, 10 (I. mil.), 11 (I. mil.), 14 (Dusnok-h., I. mil.), 17 and 18 (Nagy Kettős-h., I. mil.), 21, 24, 32 (on it the ruins of Kalas-torony, Zoltai 1938, p. 51), 33 (Zoltai 1938), 36, 39 (I. mil.), 42, 48 (Rózsa-h., Bócs-h., I. mil. "Kis Botzy halom"), 54 (Korhán-h., I. mil.), 56 (Péntek-h., I. mil.); D = 80–100 m, H = 3–5 m: 7 (Andaházi-h., I. mil.), 52 (Vertán-h., Jákó-h., I. mil., Nagy Botzy-halom); destroyed: 1, 2, 3, 4 (Nos 1–4 I. mil.).

55. *Sáp* (1). D = 60 m, H = 1 m: 1.

56. *Bihardancsháza* (2). D = 120 m, H = 2 m; 2; D = 150 m, H = 5 m: 1 (Halomszer, I. mil. Kalo Halom).

57. *Nagyrábé* (9). D = 60–80 m, H = 0–1 m: 2 (Fekete-h., I. mil. Szállás), 7, 8, 9; D = 80–120 m, H = 1–3 m: 3 (Puszta-h., I. mil. "Kis Rábe"), 6 (Eserő-h., Telek-h., I. mil.); D = 120–150 m, H = 5–6 m: 1 (Béka-h., Békás-h., I. mil.), 4 (Csata-h., I. mil. "Rábe-hal"), 5 (Sólyom-h., I. mil. "Nagy Rábe-hal").

58. *Biharnagybajom* (15). D = 50–100 m, H = 0–1 m: 8, 10, 12, 13, 14, 15; D = 60–100 m, H = 1–3 m: 1 (Akasztó-h., I. mil.), 4, 5 (Nagy-h., Nagy Boros-h., I. mil.), 6 (Dobti-h., Boros-h., I. mil.), 11 (Sima-h.); D = 120–200 m, H = 5 m: 3 (Török-h., I. mil.), 9 (Görbe-h., I. mil. "Gárbó hal"); D = 120 m, H = 10 m: 2 (Szőllő-h., I. mil.).

59. *Sárrétudvari* (22). D = 50–100 m, H = 0–1 m: 2 (Kis Hangács-h., I. mil.), 4 and 5 (Kettős-h., together with tumulus No. 3, Hármas-h., I. mil.), 12 (Csillányos-h.), 14 (Balázs-h.), 17, 18, 19, 20, 21; D = 50–100 m, H = 1–3 m: 1 (Nagy Hangács-h., Hangács-h., I. mil.), 3 (Domonkos-h., together with tumuli Nos 4 and 5, Hármas-h., I. mil.), 6 (Ökrös-h., I. mil.), 7 (Tikicsér-h., I. mil. "Tigiczij hal"), 8 (Nyársas-h.), 9 (Poros-h.), 13, 16; D = 60–120 m, H = 4 m: 10 (I. mil.), 11 (Őr-h., I. mil.), 15 (Félhalom); D = 60 m, H = 7 m: 22 (Bas-h. — exc. 1910. L. Zoltai — destroyed, Zoltai 1910, Kalicz 1968, p. 17, pd. 12).

60. *Szerep* (13). D = 60–90 m, H = 0–1 m: 11 (Pap h., Madaras-h., J. Tót), 12, 13; D = 70–100 m, H = 1–2 m: 1, 2, 3 (Nos 1–3, J. Tót), 5 (Zöld-h., J. Tót), 7 (Kis laponyag, J. Tót), 8 (J. Tót), 10 (J. Tót); destroyed: 4, 6, 9 (Besenyő-domb, tumuli Nos 4, 6 and 9, cf. J. Tót).

61. *Bihartorda* (4). D = 20–100 m, H = 0–1 m: 1, 2, 3, 4.

62. *Bakonszeg* (16). D = 30–80 m, H = 0–1 m: 1, 2, 5 (Lengyel-h.), 7, 8, 10 (I. mil.), 11 (I. mil.), 12 (I. mil.), 14 (I. mil.), 15, 16; D = 80–120 m, H = 1–3 m: 3 (I. mil.), 4, 6 (Perjes-h., I. mil.), 9 (I. mil.); D = 120 m, H = 4 m: 13 (Kádár-h.).

63. *Váncsod* (5). D = 50–100 m, H = 0–1 m: 1, 2, 3, 4, 5.

64. *Bojt* (16). D = 30–100 m, H = 0–1 m: 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15; D = 80 m, H = 1–2 m: 1, 8, 16.

65. *Nagykereki* (9). D = 40–80 m, H = 0–1 m: 1, 2, 3, 4, 6, 7, 8, 9; D = 100–200 m, H = 3–5 m: 1 (Kígyós-h., I. mil.), 5 (I. mil., "Ewa halom", disturbed).

66. *Ártánd* (10). D = 70–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 7, 9, 10, 11; D = 80–120 m, H = 1–2 m: 2, 6, 8.

67. *Bedő* (14). D = 40–100 m, H = 0–1 m: 1, 4,

6, 8 (with a church on it), 9, 10, 11, 12, 13, 14; D = 80–100 m, H = 1–2 m: 2, 3, 5 (Nagy-h.), 7 (Temetődomb).

68. *Biharkeresztes* (21). D = 50–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 6, 7 (Halom), 11, 12, 13, 14, 16, 17, 18, 19 (cut across by a road), 21; D = 80–100 m, H = 1–2 m: 8, 9, 11, 15, 20; D = 120 m, H = 4 m: 10 (I. mil.).

69. *Mezőpeterd* (5). D = 50–60 m, H = 0–1 m: 1, 3, 4, 5; D = 80 m, H = 1.5 m: 2 (with a church on it).

70. *Told* (2). D = 50–60 m, H = 0–1 m: 1, 2.

71. *Mezősas* (6). D = 50–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 6.

72. *Furta* (6). D = 50–60 m, H = 0–1 m: 3, 4, 5, 6; D = 70 m, H = 1.5 m: 2; destroyed: 1 (I. mil.).

73. *Zsáka* (9). D = 30–70 m, H = 0–1 m: 2, 3, 4, (Nos 2–4 together, Három test-h., I. mil.), 5, 7; D = 80–150 m, H = 1–3 m: 1, 8, 9 (Király-domb, I. mil.); destroyed: 6 (I. mil.).

74. *Darvas* (9). D = 80–100 m, H = 0–1 m: 2 (Papok-hegye), 3, 5 (Temető-h., I. mil.), 6 (I. mil.), 8 (I. mil.); D = 80–120 m, H = 1–2 m: 1, 4 (Csontos-h.), 7, 9.

75. *Vekerd* (1). D = 40 m, H = 1 m: 1 (I. mil.).

76. *Csökmő* (19). D = 40–100 m, H = 0–1 m: 1 (Káposztás-domb), 5, 8, 10 (I. mil.), 11 (I. mil.), 12 (Nagy Borsó-h., I. mil.), 17; D = 70–150 m, H = 1–3 m: 1, 2 (Laponyag), 3, 6, 7 (Sóstó-h., I. mil.), 9 (I. mil.), 13, 14, 15, 16, 18, 19.

77. *Újiráz* (1). D = 80 m, H = 1.7 m: 1.

78. *Komádi* (24). D = 30–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24; D = 100 m, H = 1.4 m: 10.

79. *Magyarhomorog* (14). D = 40–100 m, H = 0–1 m: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14; D = 150 m, H = 2 m: 4.

80. *Körösszakál* (6). D = 30–80 m, H = 0–1 m: 1, 2, 4, 5, 6; D = 70 m, H = 2 m: 3.

81. *Körösszegapáti* (24). D = 40–120 m, H = 0–1 m: 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19, 22, 23; D = 70–80 m, H = 1–2 m: 1, 9, 14, 20–21 (Kettős-h.), 24.

82. *Berekböszörmény* (25). D = 40–120 m, H = 0–1 m: 1, 3, 4, 7, 8, 9, 10, 18, 19, 20, 22, 23, 24, 25; D = 80–150 m, H = 1–3 m: 2 (Korhány-h.), 5 (Hegyes-h.), 6 (Gyopáros-h.), 15, 17, 21; destroyed: 16.

IV. Szolnok county

1. *Tiszafüred* (87). D = 40–100 m, H = 0–1 m: 3, 4 (Kollát-h.), 15, 40, 53, 54, 55, 56, 82, 85, 87; D = 50–100 m, H = 1–3 m: 2, 5, 11 (Kis Duna-h., I. mil.), 14, 16, 17 (cut across by a road), 18, 19 (on the topographical map it is Duna-h.), 20, 21 (Miklós-h.), 22, 23, 24, 25, 27, 28, 29, 30, 32 (I. mil.), 33 (Kócs-h., Kócsi-h., I. mil.), 35, 36, 37, 39, 41, 43 (I. mil.), 44, 45, 46 (I. mil.), 47 (cut across by a road), 48, 49, 50, 52 (Porosállás-h.), 58, 59, 61 (Csengő-h.), 62 (cut across by a road), 63, 64, 65, 66, 67 (Nagyállás-h., Nagyállás, I. mil.), 68 (Róka-h., Kisbence-h.), 69 (I. mil.), 70 (I. mil.), 74 (Hármas-h.), 75, 77 (Lyukas-h., Birtokper 1760, Zoltai 1938), 78 (Sas-h., Sas-l., Bíró Gáspár laponyagja, Birtokper, Zoltai 1938), 79 (Faluvég halma, I. mil.), 81 (I. mil.), 83 (Kondás-h., Kondás-l., Zoltai 1938); D = 200 m, H = 2 m: 1 (Szilhát-h.); D = 80–100 m, H = 3–5 m: 9 (Kadi-h., I. mil.), 10 (Duna-h., I. mil.), 34 (Jánosállás-h.), 38, 57, 71 (Kosár-h., I. mil.), 72 (Békés-h., I. mil.), 76 (Nagybence-h., Bence laponyagja, Birtokper); D = 90–120 m, H = 5–7 m: 6 (Bodzás-h., I. mil.), 7 (Vadas-h., I. mil.), 8 (Kétökrű-h., Ásott-h., I. mil.), 12 (Rókás-h., "Gerge-h.", I. mil.), 26, 31 (Kis Földvári-h., Zoltai 1938), 60 (Lapos-h., I. mil.), 73 (Fősarkad-h., I. mil.), 80 (Nagy-h., I. mil.), 84 (Nyírházi-h., I. mil.), 86 (ibid.); D = 100 m, H = 11 m: 42 (I. mil.); destroyed: 51 (I. mil.).

2. *Tiszaszőllős* (12). D = 60–70 m, H = 0–1 m: 1 (I. mil.), 6 (I. mil.); D = 80–100 m, H = 1–3 m: 3, 5 (Cigány-h.), 7 (Lyukas-h.), 8 (I. mil.), 10 (Balázs-h.), 11 (Bosnyák-h.), 12; D = 200 m, H = 2 m: 2 (Nagy-h., Domaházi-h., I. mil.); D = 120 m, H = 6 m: 4 (Kakucs-h.); destroyed: 9.

3. *Tiszaderzs* (1). 1 (Halász-h., destroyed).

4. *Tiszaigar* (27). D = 80 m, H = 0–1 m: 4, 5; D = 70–100 m, H = 1–3 m: 1 (Csókás-h., I. mil.), 6, 7 (I. mil.), 8, 9, 10, 11, 12 (I. mil.), 13, 14 (Tetves-h., I. mil.), 15, 16 (Kis Déka-h., I. mil.), 21 (I. mil., cut across by a road), 24, 25, 26, 27; D = 80–100 m, H = 3–5 m: 3 (Kettős-h., together with tumulus No. 2), 17 (Déka-h., Dékány-h., I. mil.), 18 (Korda-h., Csorda-h., I. mil.), 20 (I. mil.), 23 (Péntek-h.); D = 100–120 m, H = 6 m: 2 (Kettős-h., together with tumulus No. 3), 19 (Zobolyák-h., I. mil.); D = 100 m, H = 8 m: 22 (Csárda-h.).

5. *Nagyiván* (15). D = 40–80 m, H = 0–1 m: 2, 3, 4, 5, 6, 7, 10; D = 70–100 m, H = 1–3 m: 1 (Karsai-h., I. mil.), 9 (Pap-h.), 11 (Kása-h.), 12, 15 (Mérges-h., Száraz-h., I. mil.); D = 60–100 m, H = 5–7 m: 8 (Kissarkad-h., I. mil.), 13 (Bürök-h., Bedekovich, I. mil., "Börög-halom"), 14 (I. mil.).

6. *Tiszaörs* (26). D = 60–90 m, H = 0–1 m: 10, 11, 17 (I. mil.), 19 (I. mil.); D = 70–150 m, H = 1–3 m: 3, 4 (Kenderföld-h., cut across by a road), 6, 7, 8 (cut across by a road), 9, 12 (tumuli Nos 6–13: Kilences-h., I. mil.), 14, 15 (Nagyállás-h.), 16, 18, 20 (Fekete-h., I. mil.), 21 (Nádas-h., I. mil.), 22 (Karcagúti-h.), 25; D = 120–150 m, H = 3–5 m: 1 (Hegyes-h., Kegyes-h.), 5, 23 (Ferenci-h.), 24 (Görög-h.), 26; D = 80–120 m, H = 6 m: 2, 13.

7. *Tiszaszentimre* (14). D = 80 m, H = 0–1 m: 6, 7; D = 100–120 m, H = 1–3 m: 1 (Eperjes-h., I.

mil.), 3 (Bolond-h., Botond-h.), 4, 5, 8 (cut across by a road, I. mil.), 9 (Leke-h., I. mil.), 11 (Szökő-h., I. mil.), 12 (Szék-h., I. mil.), 13 (Kettős-h., together with tumulus No. 14, I. mil.); D = 110–120 m, H = 3–5 m: 10, 14; destroyed: 2 (Fábián-h., I. mil.). The south-western part of the settlement is covered by sand-heaps; some of the tumuli might be sand-heaps.

8. *Abádszalók* (17). D = 60–130 m, H = 1–3 m: 1 (Szanyi-h., I. mil.), 2 (Szökő-h., I. mil.), 4 (I. mil.), 5 (Király-h., I. mil.), 6 (Dobi-h.), 7 (Dobi-h., on the new topographical map this tumulus is called so), 8 (Csordás-h.), 9, 12 (Kecskés- and Homok-h., Kecskés-h., I. mil.); D = 60–120 m, H = 3–5 m, 10 (Egyes-porcságos-h.), 14 (Pap-h.), 15 (Gulyás-h.), 16 (Kettős-h. together with barrow No. 1 at Tomajmonostora, I. mil.), 17 (Kis-fás-h., with a chapel on it); D = 120 m, H = 7 m: 3 (Puna-h. I. mil.). The area of the settlement is partly covered by sand-heaps.

9. *Tiszabura* (2). D = 100 m, H = 5–6 m: 1 (Felső-nyakas-h., II. mil.), 2 (Nyakas-h., I. mil.). Most of the area of the settlement is covered by sand-heaps, data collection on the map was not done.

10. *Tomajmonostora* (2). D = 80 m, H = 2 m: 1 (Kettős-h., together with barrow No. 16 at Abádszalók); D = 150 m, H = 6.5: 2 (Porcságos-h.). Most of the area of the settlement is covered by sand-heaps, data collection on the map was not done.

11. *Kunmadaras* (28). D = 40–120 m, H = 0–1 m: 1, 15, 16 (Kiskövess-h.), 20 (Luca-h., Bedekovich 1786, I. mil., Lucza Laponyag), 22, 27 (I. mil.); D = 60–100 m. H = 1–3 m: 2 (I. mil.), 3–4 (Kettős-h., I. mil.), 5, 6, 8 (Közép-hármas-h., according to mil. I. barrows 7, 8, 9 are together Hármas-h.), 12, 14 (Nagy köves-h., Bedekovich I. mil.), 17 (Széklaponyag-h., Bedekovich), 19 (Bogárzó-h.), 23 (Zöld-h., Zöld-l., I. mil., Györffy), 24 (Berek-h., Bereg-h., I. mil., Györffy), 25 (Gervely-h., Györffy), 26 (I. mil.), 28 (Hegyes-h., I. mil.); D = 100–120 m, H = 3–5 m: 7 (Bedekovich, I. mil.), 10 (Bedekovich, I. mil.), 11 (Határ-h., on a triple border, cut across by a road, I. mil.), 13 (Nagy Füves-h., Bedekovich, Karcag, Györffy), 18 (Kis-füves-h., Dögös-h., Bedekovich, I. mil.), 21.

12. *Karcag* (134). D = 40–100 m, H = 0–1 m: 2 (I. mil.), 3 (Ködszállási-l., Györffy), 19, 25 (Vedres-l., Györffy), 28 (Egyes-h., Bedekovich, I. mil., Karcag, Györffy), 29 (Csattog-h., Bedekovich, I. mil. "Kariatok hal", Karcag), 31 (Karcag), 32 (Bedekovich), 33 (Aranyos-h., Alsó Aranycs-h., Bedekovich, I. mil., Karcag, Györffy), 34 (Felső Aranyos-h., Györffy), 35 (Györffy), 38, 39 (Bedekovich, Karcag), 41–42 (Hármas-h. together with barrow No. 40., Bedekovich, Györffy, I. mil., Karcag), 46, 48 (Kis lőzér-h., Györffy), 49 (Lőzér-h., I. mil., Bedekovich, Karcag, Györffy), 52, 53, 54, 56, 57 (Ferde-h., Györffy), 59, 60, 61, 62 (Berec-l., Györffy), 63 (Sároséri-h., Györffy), 64 (Kova-l., Györffy), 67, 68, 69, 70, 71, 72 (Kis-Ágota-h., Györffy), 73, 74, 75, 76, 78, 80, 85 (Németh-l., Györffy), 86, 93 (Hegyesbori-h., Györffy), 94, 95 (Bedekovich), 96 (Györffy), 100, 101 (Szőllő-h., Györffy), 103 (Tarattyó-h., Karcag, Györffy), 109 (Bedekovich, Karcag), 117 (Pintyó-h., Bibic-h., Bedekovich, Györffy), 124 (Sik-l., Györffy), 125 (Bócsai szik-l., Györffy), 126 (Borsi-h., I. mil. „Szig. Lapunja" = Sziget-l.?, Karcag, Bócsai-h., Györffy), 127 (Szilasi-l., Szilas-l., Györffy), 128 (Karcag), 129 (Tajti Pál-l., Györffy), 133 (Bedekovich, Karcag), 134 (Karcag); D = 60–120 m, H = 1–3 m: 4 (Szentmiklósi-h., I. mil., Szent Miklós-h., Györffy), 8 (Kunvágta-h., Kanvágta-h., I. mil., Karcag, Györffy), 14, 15, 20 (Kis-Görgető-h., Bedekovich, Karcag, Györffy, Nagy Görgető-h.), 21 (Nagy Görgető-h., Bedekovich, Karcag, Györffy, Kis Görgető-h.), 22 (Kis Organdó-h., Kis Organda-h., Bedekovich, Györffy), 24 (Templom-h., Bedekovich, I. mil., Karcag, Györffy), 26, 27 (Kettős-h., Györffy), 30 (Tetves-l., Györffy), 37 (Bedekovich), 43 (Disznó-h., Györffy), 47 (Kis-Cigány-h., Györffy), 50 (Cigány-h., Nagy Cigány-h., Bedekovich, I. mil., Karcag, Györffy) 51, 55 (Bengecség-hát, Bengecseg-h., Bedekovich, Karcag, Györffy), 58 (Telek-h., Fekete-h., I. mil., Karcag), 65 (Taskond-h., Györffy), 66, 67, 81, 82 (Cigány-h., Bedekovich, Györffy), 83 (Sárga-h., I. mil., Györffy), 84 (Magyarkai-h., Magyarka-h., I. mil., Györffy), 87 (Bengecsek-l., Györffy), 88 (Györffy), 90 (Hegyesbori kis-h., Hegyesbori-l., Bedekovich, I. mil., Karcag, Györffy), 91 (Péntek-h., Bedekovich, Karcag, Györffy), 92 (Rózsa-h., Karcag), 99 (Kápolna-h., Kappanos-h., I. mil., Karcag), 106 (Apavára-h., Karcag, Györffy), 110 (Tibuc-h., Tibusz-h., Bedekovich, I. mil., Györffy), 111 (Bócsai-h., Bedekovich, I. mil.) 112 (Papné halma, Györffy), 113 (Vermes-h., Verem-l., Györffy, Bedekovich), 114–115 (Kontai kettős-h., Kettős-h., Györffy), 116 (Konta-h., Bedekovich, Györffy), 118 (Köves-h., Köves-l., Bedekovich, Györffy, I. mil.), 119 (Csikéri-l., Csikere-l., I. mil., Karcag, Györffy), 131 (Csárda-l., Györffy); D = 90–200 m, H = 3–5 m: 6 (Nagy Pincés-h., Bedekovich, Györffy), 9 (Bugyogói-h. — exc. 1962 by Zs. Csalog — Csalog 1963, p. 304, Györffy, Kalicz 1968, p. 17, pd. 27), 16 (Ecse-h., Bedekovich, Karcag, Györffy), 17 (Telek-h., Bedekovich, Karcag, Györffy) 23 (Nagy-Organdó-h., Nagy Organda-h., Organda-h., Bedekovich, I. mil., Karcag, Györffy), 36 (Zádor-h., I. mil., Györffy), 40 (Hármas-h. see with barrows Nos 41 and 42), 89 (Hegyesbori nagy-h., Bedekovich, Györffy, I. mil. "Nagy Hegyes"); destroyed: 1 (Túzok-l., Györffy) 7 (Kis pincés-h., Györffy), 10 (Söre-l., Györffy, Bedekovich), 11 (Bedekovich), 44 (Karcag), 45 (Karcag "laponyag"), 97 (Bedekovich) 98 (Bedekovich), 102 (Vermes-h., Györffy), 104 (Gábor-h., Györffy), 105 (Kormáncsok-l., Györffy), 107 (Tövises-l., Györffy),

108 (Dráva-l., Bedekovich, I. mil., Györffy), 120 (Csikere telki-l., Györffy), 121 (Kecskeri-l., Györffy), 122, 123 (Koszu hármas, Kurva-h., I. mil., Györffy), 130 (Tiszta-l., Györffy), 132 (Kenderáztató-l., Györffy).

13. *Kúnhegyes* (26). D = 70–80 m, H = 0–1 m: 10 (Kis laponyag-kút), 25 (Csődör-h., Gödör-l.); D = 60–150 m, H = 1–3 m: 1 (Vágott-h.), 2 (Kormó-h., I. mil., "Rossy-laponyag"), 3, 4, 5 (Homok-h., Pénzes-h., I. mil.), 11–12 (Kis Kettős-h.), 14–15 (Hármas-h., together with barrow No. 13, I. mil., Miklós-h.), 17 (Fehér-h.), 20 (Kis Purgány-h.), 21, 23 (Nagyállás, Bedekovich), 24 (Rátz-h., I. mil., Kis Jaj-h.); D = 80–200 m, H = 3–5 m: 6 (I. mil., Czibak-h.), 7 (Kettős-h., together with barrow No. 8, I. mil.), 9 (Akasztó-h.), 18 (Törökbori-h., Bedekovich, I. mil.), 19 (Nagy-Purgány-h., I. mil., "Nagy-Borga-hal"), 26 (Kőhalom, I. mil.); D = 100–120 m, H = 5–7 m: 8 (Kettős-h., with barrow No. 7, I. mil.), 13 (Hármas-h., see at barrows Nos 14–15), 22 (Jaj-h., Bedekovich, I. mil., Györffy).

14. *Tiszagyenda* (2). D = 80 m, H = 1.5 m: 2 (Gara-h., I. mil., "Dravusz Hal"); D = 120 m, H = 4 m: 1 (Bors-h.).

15. *Tiszaroff* (2). D = 80 m, H = 5.5 m: 1 (Örvényes-h.); D = ? H = ?: 2 (Nagyhalom — exc. L. Selmeczi — *Jászkunság* XIII (1967) 4, p. 168, could not be identified on the perused maps). Most of the area of the settlement is covered with sand-heaps so further collection of data on the map could not be carried out.

16. *Kőtelek*. On the left bank no barrows were found on the map.

17. *Tiszabő* (9). D = 70–80 m, H = 0–1 m: 8, 9; D = 100–120 m, H = 1–3 m: 4 (Telek halma, I. mil., "Dusztelek halma"), 5, 7 (Jaj-h., I. mil.); D = 80–120 m, H = 3–5 m: 1 (Tamás András-h.), 2 (Meleg-h.), 3 (Kép-h., I. mil.), 6 (Tinta-h., I. mil., "Pinta hal").

18. *Kenderes* (7). D = 60–100 m, H = 0–1 m: 1, 2, 5 (Kettős-h., together with barrow No. 6); D = 70–150 m, H = 1–3 m: 4, 6 (see at barrow No. 5), 7; D = 120 m, H = 7 m: 3 (Bánhalom, Lázár deák, I. mil.).

19. *Kisújszállás* (12). D = 80–100 m, H = 0–1 m: 5 (Akasztó-h., Galpár-h., SzÁL 107/1), 6 (Bedekovich, I. mil.), 9 (Bedekovich, I. mil.), 10, 11 (Bedekovich); D = 80–100 m, H = 1–3 m: 1, 2 (Aszóli-l.), 4 (I. mil.), 8 (Igarió-l., Bedekovich, I. mil., SzÁL 107/1); D = 100–120 m, H = 3–5 m: 3 (Közép-h., I. mil., SzÁL 107/1); destroyed: 12.

20. *Örményes* (3). D = 60–120 m, H = 0–1 m: 2, 3; D = 100 m, H = 4 m: 1 (Büdös-h., I. mil.).

21. *Fegyvernek* (12). D = 100 m, H = 0–1 m: 6, 9; D = 80–150 m, H = 1–3 m: 2 (Kettős-h., together with barrow No. 3., I. mil.), 4 (Fekete-h., I. mil.), 5, 7, 8, 10; D = 110–150 m, H = 3–5 m: 1 (Eperjesi-h.), 11 (I. mil., "Herva hal"); D = 100 m, H = 6 m: 12 (Nagy Koller-h., Nagy-h., I. mil.); D = 150 m, H = 9 m: 3 (Kettős-h., see at barrow No. 2).

22. *Nagykörü*. In the Trans-Tisza area no barrows were found on the map.

23. *Tiszapüspöki* (1). D = 100 m, H = 1.5 m: 1.

24. *Szajol* (5) D = 80 m, H = 1 m: 3; D = 60–100 m, H = 1–3 m: 2, 4, 5; D = 120 m, H = 4 m: 1 (Tenyői-h.).

25. *Törökszentmiklós* (24). D = 60–100 m, H = 0–1 m: 4, 12, 13, 17; D = 60–120 m, H = 1–3 m: 1, 2, 3, 5 (Varga-h., I. mil.), 9, 10 (Dinnyés-h., I. mil., Jeney-h.), 11 (Pozderka-h.), 14 (Barta-h., I. mil.), 16, 18 (Turi-h.), 19 (Tinoka-h., I. mil.), 21 (I. mil.), 22–23 (Kettős-h., I. mil.), 24; D = 100–120 m, H = 5 m: 8 (Földvári-h., I. mil.), 20 (Darancsok halma, I. mil.), D = 100 m, H = 7 m: 15 (I. mil.).

26. *Kuncsorba* (4). D = 60 m, H = 1 m: 2; D = 80–100 m, H = 1–3 m: 1 (Csorbai-h., I. mil.), 3–4 (Csorbai kettős h., I. mil., cut across by a road).

27. *Túrkeve* (33). D = 50–100 m, H = 0–1 m: 2 (Kecse-l., SzÁL 107/1), 4 (Bedekovich), 5, 6, 7, 8, 10 (Török-h., Terek h., Tere-h.), 11, 12, 13 (Bedekovich), 17 (I. mil., Kis kabai-h.), 20 (Bedekovich), 22 (Lőrinc-h., I. mil.), 23, 28 (Szalay-h., Fekete-h., I. mil.), 33; D = 60–120 m, H = 1–3 m: 1 (Gástyás-h., I. mil., SzÁL 107/1) 3 (Kőhalom, SzÁL 107/1), 9, 14, 15 (Legény-h.), 21 (Akasztó-h., I. mil., Bedekovich), 24 (Pohamaró-h., Bedekovich, I. mil., Dob-h.), 26 (Bétserke-h., I. mil.), 29 (Közép-h., Bedekovich), 30 (Turkeddi Nagy-h., Tyukodi Nagy-h.), 32 (Közép-h., Bedekovich, I. mil.); D = 80–120 m, H = 3–5 m: 25 (Pásztó-h.), 27 (Kender-h., I. mil., according to the new topographical map it is Szalay-h.), 31 (Sárgaparti-h., I. mil., Bedekovich); destroyed: 16 (Kabai-h., I. mil.), 18 (Bedekovich), 19 (Bedekovich).

28. *Kétpó* (3). D = 50–100 m, H = 0–1 m: 2, 3; D = 100 m, H = 3 m: 1 (Póhalom, I. mil.).

29. *Tiszatenyő* (8). D = 60–80 m, H = 0–1 m: 3, 4; D = 60–80 m; H = 1–3 m: 2 (Öcsödi kettős-h., with barrow, No. 1., I. mil.), 5, 6 (Köves-h., I. mil.), 7, 8 (Kerekegyházi kettős-h., Földvári kettős-h., I. mil.); D = 140 m, H = 5 m: 1 (see at barrow No. 2).

30. *Szolnok* (1). D = 80 m, H = 3 m: 1 (Beke-h., I. mil., " . . . Gát-halom"). The Trans-Tisza area is mostly covered with sand-heaps.

31. *Rákóczifalva* (1). D = 100 m, H = 6.5 m: 1 (I. mil., "Pety-halom"). Data collection was not done in the western side of the settlement where the area is covered with sand-heaps.

32. *Kengyel* (14). D = 70–100 m, H = 1–3 m: 2 (Beszélő-h., Besselő-h., cut across by a road), 3, 5, 7, 8, 9, 10, 11 (Kaszader, I. mil., "Lukasz hal"), 13, 14; D = 100–120 m, H = 3–5 m: 1 (Godó-h.), 4, 12; D = 100 m, H = 9 m: 6.

33. *Rákócziújfalu* (8). D = 80–100 m, H = 0–1 m: 7 (I. mil.), 8 (Törvény-h., I. mil.); D = 80–100 m, H = 1–3 m: 1–2 (Varsányi kettős-h., I. mil.), 3 (I. mil.), 5 (I. mil.), 6 (I. mil.); D = 100 m, H = 5 m: 4 (I. mil.).

34. *Martfű* (1). D = 70 m, H = 2 m: 1 (Zsófia-h.).

35. *Mezőhék* (6). D = 80 m, H = 1 m: 5 (Kolart-h.); D = 80–100 m, H = 1–3 m: 1 (Csicsó-h., Menyecske-h.), 4 (Kis-h., I. mil., Csortván-h.); D = 80–150 m, H = 3–5 m: 2 Kalapos-h., I. mil.), 3 (Hek-h., I. mil., Bedekovich 1786): D = 100 m, H = 6 m: 6 (Hangacs-h., I. mil.).

36. *Mezőtúr* (31). D = 40–100 m, H = 0–1 m: 14, 20, 26, 27 (Kis-h., I. mil.), 28, 29, 30 (Csengettyű-kettős-h.); D = 60–120 m, H = 1–3 m: 3 (Bordács-h., I. mil.), 6 (Nagy-h., Pap-h.), 9 (Bari-h., Bári-h., I. mil.), 10, 11 (Elő-h., I. mil.), 13 (Törő-h., I. mil. "Toro-hal"), 16 (Cséh-h., I. mil. "Csek-hal"), 17 (Ducz-h., I. mil., Duczy-hal), 18 (Bence-h., Nagy Bence-h., I. mil., destroyed), 19 (Korhány-h., I. mil., "Nagy Korhány"), 21, 22 (Bári kettős-h., I. mil.), 24 (Gyilkos-h., Nagy Gyilkos-h., Bedekovich 1786, I. mil., "Gyigos laponyag hal"); D = 100–120 m, H = 3–5 m: 2 (Kengyel-h.), 4 (Marazd-h., Marasz-h), 13 (Közép-h., I. mil.), 15 (Leske-h., I. mil.), 23 (Vasad-h.); destroyed: 5, 7, 8 (all I. mil.), 25 (Hegyes-l., Bedekovich), 31 (Túri-h.).

37. *Mesterszállás* (6). D = 50–80 m, H = 0–1 m: 1 (Fekete-h., I. mil.), 6; D = 80–100 m, H = 1–3 m: 2 (Gorbej-h., I. mil.), 4 (Lackó-h., I. mil.), 5; destroyed: 3 (Korhány-h., Nagyszállás-h., I. mil.).

38. *Öcsöd* (25). D = 80–150 m, H = 1–3 m: 1, 4 (Hegyes-h., I. mil.), 9, 10 (Kettős-h.), 11 (Tarcsai-h., Tarósai-h.), 12 (Csova-h., I. mil.), 13 (I. mil.), 18 (Kohás-h., Kovás-h. ?, I. mil.), 21 (Sz6r-h.), 22 (Kék-h., I. mil.), 23 (Tégla-h.), 25; D = 80–120 m, H = 3–5 m: 5 (Vágod-h., I. mil.), 6 (Közép-h., I. mil.), 7 (Kajla-h., I. mil.), 8 (Átalag-h., Átalák-h., I. mil. "attalo-hal"), 15 (Báboczka-h., I. mil., Bedekovich); D = 80 m, H = 5–6 m: 2 (I. mil., Büdös-h.), 17 (Nagy-h., Rózsadomb, Bedekovich, I. mil.); destroyed: 3 (Bedekovich), 14, 16, 19, 20 (I. mil.).

39. *Tiszaföldvár* (20). D = 80–100 m, H = 0–1 m: 5 (Kunhalom, I. mil.), 19; D = 80–100 m, H = 1–3 m: 1, 2, 3, 4, 7, 8 (Tasi-h.), 9, 10 (Vágod-h.), 11, 12, 13, 14, 17 (I. mil.), 18; D = 120–150 m, H = 3–5 m: 6 ("Halomház" in the courtyard), 16; destroyed: 15 (Tetves-h., I. mil.), 20 (Őze-h., Őzeny-h.).

40. *Cibakháza* (6). D = 80 m, H = 1 m: 6; D = 60–80 m, H = 1–3 m: 1 (Sóska-h.), 4 (Egyes-h., I. mil.), 5 (Homok-h., I. mil.); D = 80 m, H = 4 m: 2, 3 (Kettős-h.).

41. *Nagyrév* (1). D = 80 m, H = 1 m: 1.

42. *Tiszainoka* (3) D = 80 m, H = 1–3 m: 1 (Fekete-h.), 2 (Csikó-h., I. mil.), 3.

43. *Tiszakürt* (1). D = 100 m, H = 1.5 m: 1. The southern part of the village is covered with sand-heaps so data collection on the map was not carried out there.

44. *Cserkeszőllő* (3). D = 80 m, H = 1–3 m: 1 (Cserge-h., Csörge-h., I. mil., Kalicz 1957, p. 39), 3; D = 100 m, H = 3.8 m: 2 (Rába-h., I. mil.). Most of the area of the settlement is covered with sandheaps. Data collection on the map was not done.

45. *Kunszentmárton* (41). D = 20–100 m, H = 0–1 m: 4, 5, 7 (Koplaló-h.), 30–32 (Hármas-h. with barrow No. 31., I. mil.), 40 (I. mil.); D = 30–100 m, H = 1–3 m: 1 (Bató-h., I. mil.), 2, 3 (Gyügér-h., Gyügeri-h., I. mil., Borvás-h.), 8, 9, 12 (Kalicz, 1957, pd. 3), 13, 14 (I. mil.), 15, 16, 19 (Nagy-h., Bedekovich), 20 (Bedekovich), 22, 23 (Kis János-h.), 24 (Telek-h., I. mil., Rómer, p. 152), 25, 28, 29 (cut across by a road), 31 (see at barrows 31 and 32), 34 (Bedekovich), 38; D = 60–120 m, H = 3–5 m: 6 (Gyalu-h., I. mil.), 18 (Kettős-h., with barrow No. 17, I. mil.), 26 (Kölény-h., Köttöny-h.), 27; D = 80–120 m, H = 5–7 m: 17 (see at barrow No. 18), 41 (Nádas-h.); destroyed: 10 (Tetü-h., only name), 11 (I. mil.), 35 (I. mil.), 36 (Bedekovich), 37 (Bedekovich), 39 (Bedekovich and I. mil.).

No barrows were found on the maps the of settlements of 46. *Tiszaug*, 47. *Tiszasas*, 48. *Csépa*.

49. *Szelevény* (3). D = 60–80 m, H = 1–3 m: 1 (Kun-h.), 2 (Vég-h., I. mil.); destroyed: 3.

V. Békés county

1. *Bucsa* (4). D = 50 m, H = 0–1 m: 3 (MRT 2/1. pd), 4 (MRT 2/18. pd); D = 100 m, H = 1–3 m: 1 (Csuka-h., Györffy, MRT 2/1. pd), 2 (MRT 2/15. pd).

2. *Ecsegfalva* (4). D = 80 m, H = 1 m: 1 (MRT 4/24. pd); D = 40–80 m, H = 1–3 m: (Böcskei-l., Böcskei-h., I. mil., II. mil., MRT 4/5. pd.), 4 (Bokros-h., Emőd-h. — exc. J. Szabó 1960 — MRT 4/13. pd); D = 60 m, H = 5 m: 3 (Egyház-h., Egyház-halma, I. mil., MRT 4/1. pd.).

3. *Kertészsziget* (5). D = 40–70 m, H = 0–1 m: 2 (MRT 6/3. pd.) 3 (MRT 6/11. pd.), 4 (Ösvény-h., MRT 6/6 pd.), 5 (MRT 6/12. pd.); D = 100 m, H = 4 m: 1 (Akasztó-h., MRT 6/3. pd.).

4. *Füzesgyarmat* (45). D = 20–40 m, H = 0–1 m: 17 (MRT 5/75. pd.), 22 (Mester-h., I. mil., MRT 5/64. pd.), 24 (MRT 5/60. pd., cut across by a road), 27 (MRT 5/72. pd.), 28 (MRT 5/70. pd.), 31 (MRT 5/88. pd.), 34 (MRT 5/89. pd.), 36 (I. mil. "Dig hal", MRT 5/99. pd.), 37 (MRT 5/78. pd.), 38 (MRT 5/91. pd.) 41 (MRT 5/100. pd.), 44 (MRT 5/102. pd.), 45 (MRT 5/104. pd.); D = 40–80, H = 0–1 m: 1 (MRT 5/39. pd.), 23 (MRT 5/60. pd.), 25 (MRT 5/66. pd., cut across by a canal), 26 (MRT 5/68. pd.) 29 (MRT 5/73 pd.), 30 (MRT 5/27. pd.), 32 (MRT 5/76. pd., II.

mil.) 35 (MRT 5/93. pd.), 40 (MRT 5/79. pd.), 43 (MRT 5/101. pd., only a small part of it is still there, southern and northern parts were removed); D = 40–80 m, H = 1–3 m: 3 (MRT 5/6. pd.), 4 (Jány-h., II. mil., MRT 5/13. pd.), 7 (cut across by a canal, MRT 5/54. pd.), 8 (Fürj-h., I. mil. "Furer hal", II. mil., MRT 5/17. pd.), 10 (MRT 5/82. pd.), 11 (Mihály-h., I. mil., MRT 5/81. pd.), 12 (MRT 5/61. pd.), badly disturbed, partly ploughed away), 14 (II. mil., MRT 5/28. pd.), 15 (Márton-h., II. mil., MRT 5/86. pd.), 18 (MRT 5/32. pd.), 19 (Gorzás-h., I. mil. "Gordas-hal", MRT 5/40. pd.), 39 (MRT 5/29. pd.), 42 (I. mil., "Zuka hal", MRT 5/59. pd.); D = 150 m, H = 3 m: 2 (Pap-h., I. mil., MRT 5/5. pd.); D = 60 m, H = 3–5 m: 5 and 6 (Kettős-h., MRT 5/14. pd.), 9 (MRT 5/15. pd.), 13 (Bárdos-h., Bárda-h., I. mil., II. mil., MRT 5/25. pd.), 16 (Korhány-h., I. mil., II. mil., MRT 5/30. pd.), 20 (Sütő-h., Sütött-h., I. mil., II. mil., MRT 5/38. pd.). Barrows Nos. 24–30, 33–35, 37, 38, 40, 41, 44 and 45 were described according to local reference-books.

5. *Szeghalom* (63). D = 20–40 m, H = 0–1 m: 2 (MRT 11/36. pd.), 20 (MRT 11/71. pd.), 24 (MRT 11/39. pd.), 32 (Cebe-tanyai-h. — exc. I. Ecsedy 1971 — MRT 11/82. pd.), 35 (MRT 11/119. pd.), 36 (MRT 11/128. pd.), 38 (MRT 11/139. pd.), 39 (MRT 11/142. pd.), 40 (MRT 11/143. pd.), 43 (MRT 11/151. pd.), 50 (I. mil., "Kis Lukácza", MRT 11/196. pd.), 55 (MRT 11/213. pd.); D = 40–80 m, H = 0–1 m: 1, 27 (MRT 11/3a. pd.), 45 (MRT 11/155. pd.), 46 (MRT 11/156. pd.), 49 (MRT 11/186. pd.), 51 (MRT 11/206. pd.), 52 (MRT 11/207. pd.), 53 (MRT 11/208. pd.), 57 (MRT 11/215. pd.), 59 (MRT 11/217. pd.), 60 (MRT 11/218. pd.), 67 (MRT 11/43. pd.); D = 20–40 m, H = 1–3 m: 12 (MRT 11/34. pd.), 15 (Pap-h., II. mil., MRT 11/14. pd.), 16 (Pakác-h., II. mil., MRT 11/9. pd.), 23 (MRT 11/38. pd.), 30 (MRT 11/109. pd.), 41 (MRT 11/144. pd.), 42 (MRT 11/150. pd.), 44 (MRT 11/154. pd.); D = 40–80 m, H = 1–3 m: 5/I. mil., "Kis Balkány", MRT 11/32. pd.), 6 (Pap-h., MRT 11/31. pd.), 8 (MRT 11/29. pd.), 9 (Turbuc-h., MRT 11/27. pd.), 10 (MRT 11/28. pd.), 11 (MRT 11/35. pd.), 19 (MRT 11/69. pd.), I. mil. "Czebehal"), 22 (MRT 11/23. pd.), 26 (Földi-h., II. mil., MRT 11/5. pd.), 28 (MRT 11/21, pd.), 29 (MRT 11/22, pd.), 31 (I. mil. "Nagy Lukácza", MRT 11/45. pd.), 33 (MRT 11/46. pd.), 34 (Cigány-h., MRT 11/68. pd.), 37 (MRT 11/133. pd.), 47 (Ködmönös-h., MRT 11/157. pd.), 48 (Torda-h., MRT 11/185. pd., the grave of A. Péter), 56 (MRT 11/214. pd.), 58 (MRT 11/216. pd., partly carried away), 62 (I. mil., MRT 11/81. pd.); D = 40–120 m, H = 1–3 m: 13 (Szivós-h., I. mil. "Czebe Laponya", MRT 11/13. pd.), 54 (MRT 11/209. pd.); D = 70–80 m, H = 3–5 m: 3 (Geszlencés-h., I. mil., MRT 11/44. pd.), 7 (Benc-h., I. mil., Sáros-h., MRT 11/30. pd.), 13 (Bálint h., I. mil., II. mil., MRT 11/24, pd.), 17 and 18 (Kettős-h., II. mil., MRT 11/15. pd.), 21 (Korhány-h., I. mil., II. mil., MRT 11/72 pd.); D = 100–120 m, H = 6–8 m: 4 (Balkán-h., I. mil., II. mil., MRT 11/33. pd.), 25 (Dió-h., I. mil., II. mil., MRT 11/1. pd.); destroyed: 63 (I. mil.). Barrows Nos 35, 38, 43, 45, 46, 49, 51, 52, 54–57 and 62 are described according to local reference-books (MRT).

6. *Dévaványa* (74). D = 20–40 m, H = 0–1 m: 6 (Szik-h., MRT 3/53. pd.), 7 (MRT 3/123. pd.), 13 (MRT 3/193. pd.), 35 (Borbély-h., MRT 3/11. pd.), 44 (MRT 3/89. pd.), 47, 50 (MRT 3/184. pd.), 60 (MRT 3/94. pd.), 62 (MRT 3/96. pd.), 64 (MRT 3/55. pd., ploughed), 67 (MRT 3/195. pd.), 68 (MRT 3/142. pd.), 70 (MRT 3/182. pd.), 71 (MRT 3/182. pd.); D = 40–80 m, H = 0–1 m: 8 (II. mil., MRT 3/130. pd.), 36 (Katona-h., I. mil., MRT 3/183. pd., eastern side MRT 3/155. pd., I. mil.), 9, 10 (MRT 3/42. pd.), 12 (MRT 3/40. pd.), 14 (MRT 3/193. pd.), 16 (MRT 3/72. pd.), 18 (MRT 3/84. pd.), 19 (MRT 3/93. pd.), 21 (MRT 3/139. pd.), 22 (MRT 3/70. pd.), 23 (Besenyő-h., MRT 3/190. pd.), 24 (MRT 3/105. pd., I. mil. "Rácz Laponya"), 26 (MRT 3/26. pd.), 27 (Laponyag, MRT 3/27. pd.), 28 (Bogáros-h., MRT 3/87. pd.), 29 (MRT 3/134. pd.), 31 (Dékány-h., MRT 3/82. pd.), 32 (Szilágyi-h., MRT 3/83. pd.), 33 (MRT 3/173. pd.), 34 (MRT 3/173. pd.), 38 (Kis Dögös-h., I. mil., MRT 3/18. pd.), 39 (MRT 3/20. pd.), 40 (MRT 3/131. pd., disturbed), 42 (MRT 3/60. pd.), 45 (I. mil., 3/19. pd.), 48 (MRT 3/158. pd.), 53 (MRT 3/21. pd.), 54 (MRT 3/44. pd.), 55 (MRT 3/61. pd.), 56 (MRT 3/75. pd.), 57 (MRT 3/76. pd.), 58 (MRT 3/81. pd.), 59 (MRT 3/85. pd.), 63 (MRT 3/48. pd.), 65 (MRT 3/57. pd.), 74 (MRT 3/93. pd.), 75 (MRT 3/93. pd.); D = 40–80 m, H = 3–5 m: 2 (Köles-h., I. mil., II. mil., MRT 3/56. pd.), 11 (Berek-h., MRT 3/41. pd.), 15 (Csordagyepi-h., Csorda-h., MRT 3/71. pd.), 17 (Csorda-h., I. mil., MRT 3/73. pd.), 25 (Hajós-h., MRT 3/86. pd.), 30 (Őrhalom, I. mil. Kis Őrhalom, MRT 3/77. pd.), 41 (Sártó-h. — exc. S. Gallus 1936. MNM A. 76. D. II. — I. mil., II. mil., MRT 3/7. pd.), 43 (Doszta-h., I. mil., II. mil. "Tolsztoj-h.", MRT 3/90. pd.), 49 (Boda-tanya-halma, MRT 3/166. pd., parts are carried away); D = 80–120 m, H = 3–5 m: 4 and 5 (Kéthalom, I. mil., MRT 3/58. and 3/59. pd.); D = 100–120 m, H = 5–7 m: 20 (Barcé-h., — exc. I. Ecsedy 1969 — I. mil., II. mil., MRT 3/49. pd.), 72 (Templom-domb, — exc. P. Frenyó 1887, *Arch. Ért.* 1888, pp. 53–57, MRT 3/200. pd.); barrows Nos. 50, 53, 57, 60, 61, 62, 66, 67, 69, 73, 74, 75 are described only in a local reference-book (MRT).

7. *Gyoma* (69). D = 40–80 m, H = 0–1 m: 5, 13, 15, 16, 17, 26 (Külső-Szeg-h., I. mil.), 29 (Dögös-h., I. mil.), 35, 40, 41, 42, 43, 47, 48 (Elő-h., I. mil., II. mil.), 52, 55 (Bodor-h.), 56, 58, 59, 61; D = 80–100 m, H = 0–1 m: 36, 37 (Szih-h., I. mil. Külső Szeg-h.), 53, 54, 57, 60 (I. mil. "Senar allas"), 62, 64 (I. mil.), 65 (Eb-h.), 66 (Őzedi-h., I. mil. "Őzet-h.", II.

mil.), 69; D = 40–80 m, H = 1–3 m: 8, 9, 10 (Lyukas-h.), 11 (Hegyes-h., I. mil.), 12, 14 (Fenékőrlő-h.), 18 (I. mil.), 20, 21, 22, 27, 30, 34, 38 (I. mil.), 39, 44 and 45 (Kis Két-h., I. mil.), 50 (Ásott-h., I. mil.), 67; D = 80–120 m, H = 1–3 m: 1 (Remete-h.), 2 (Határ-h., Kántor-h., I. mil.), 3 (Kengyel-h., I. mil.), 23, 24 (Réz-h., Réde-h., Rédey-h.), 28, 31, 32, 33, 49 (Egei-h., I. mil., II. mil.), 63 (Szalmágyi-h., I. mil.), 68 (cut across); D = 70–120 m, H = 3–5 m: 7 (I. mil.), 19 (Magas-h.), 25 (Pó-h., I. mil., II. mil.), 46 (Rigó-h.), 51 (Keselyűs-h., I. mil. "Kesperis hal"); D = 100 m, H = 7 m: 6 (Tere-h., Terek-h., I. mil.); destroyed: 4.

8. *Endrőd* (20). D = 40–100 m, H = 0–1 m: 2, 5, 8 (Köles-h., I. mil. Keles-h.), 12, 14, 17, 18, 20 (I. mil.); D = 60–100 m, H = 1–3 m: 3, 7 (Lyukas-h., Berki-h.), 9, 10 (Koplaló-h., I. mil.), 15 (I. mil.), 19 (Vaszkó-h.); D = 80–100 m, H = 3–5 m: 1, 4 (Polyák-h.), 11 (Simai-h.), 13 (Pap-h.); D = 80 m, H = 5,5 m: 16 (I. mil. Sós-h.); destroyed: 6 (Egyház-h.).

9. *Körösladány* (37): D = 20–40 m, H = 0–1 m: 18 (MRT 7/55. pd.), 21 (MRT 7/57. pd.), 22 (MRT 7/56. pd.), 23 (MRT 7/54. pd.), 25 (MRT 7/66. pd.), 26 (MRT 7/67. pd.), 27 (MRT 7/68. pd.), 28 (MRT 7/73. pd.), 30 (MRT 7/87. pd.), 31 (MRT 7/90. pd.), 32 (MRT 7/99. pd.), 34 and 35 (MRT 7/103. pd.), 36 (MRT 7/109. pd.), D = 40–60 m, H = 0–1 m: 2 (I. mil., Csámpó-h., MRT 7/69. pd.), 8 (MRT 7/63. pd.), 14 (MRT 7/91. pd.), 24 (MRT 7/44. pd.), 33 (MRT 7/100. pd.); D = 40–120 m, H = 1–3 m: 1 (Rév-h., Mácsa-h., I. mil. Revé-h., MRT 7/5. pd.), 4 (I. mil., II. mil.), 5 (I. mil. Tokéri-l.), 7 (MRT 7/72. pd.), 9 (György-kéri-h., II. mil., MRT 7/64. pd.), 10 (Kisrét-h., MRT 7/89. pd.), 11 (MRT 7/92. pd.), 12 (Sárrét-h., Nagyrét-h., I. mil., MRT 7/94. pd.), 13 (Gombos-h., Csikó-h., I. mil., MRT 7/93. pd.), 15 (MRT 7/96. pd.), 16 (Köves-h., I. mil., MRT 7/84. pd.), 17 (Édes-h., Citra-h., I. mil., 7/114. pd.), 19 (MRT 7/50. pd.), 20 (Gombás-h., I. mil., MRT 7/110. pd.), 29 (MRT 7/77. pd.), 37 (Paphalma, I. mil., II. mil., MRT 7/112. pd.); D = 100 m, H = 3–5 m: 3 (Édes-h., I. mil., II. mil., MRT 7/1. pd.), 6 (Korhány-h., I. mil., MRT 7/2. pd.), 25, 26, 27, 31–35 barrows are described according to local reference-books only (MRT).

10. *Vésztő* (27). D = 20–40 m, H = 0–1 m: 5, 14 MRT 12/42. pd.), 15 (MRT 12/54. pd.), 16 (MRT 12/55. pd., on the map published in 1964. H = 1.8 m), 18 (Mészáros-h., II. mil., MRT 12/57. pd.), 19 (MRT 12/58. pd.), 23 (MRT 12/11. pd.), 24 (MRT 12/114. pd.), 25 (MRT 12/115. pd.); D = 40–60 m, H = 0–1 m: 4 (MRT 12/23. pd.), 6, 7 (MRT 12/25. pd.), 20 (MRT 12/59. pd.), 21 (MRT 12/91. pd.), 22 (MRT 12/92. pd.), 26 (MRT 12/116. pd.); D = 40–120 m, H = 1–3 m: 1 (MRT 12/5. pd.), 2 (MRT 12/6. pd.), 3 (Szuhai-h., MRT 12/11. pd.), 8 (Nagy-h., I. mil. "Aklay hal", MRT 12/27. pd.), 9 (I. mil., MRT 12/31. pd.), 11 (MRT 12/34. pd.), 12 (I. mil., MRT 12/35. pd.), 13 (Kalap-h., MRT 12/40. pd.), 17 (MRT 12/56. pd.), 27 (Pányád-h., I. mil. "Panyat hal", II. mil., MRT 12/120. pd.); D = 80 m, H = 4 m: 10 (Góti-h., I. mil., MRT 12/32. pd.). — Barrows 15, 17, 19 and 21 are described by local reference-books only (MRT).

11. *Körösújfalu* (20). D = 10–40 m, H = 0–1 m: 8 (MRT 9/23. pd.), 9 (MRT 9/23. pd.), 12 (MRT 9/24. pd.), 14 (MRT 9/27. pd.), 15 (MRT 9/28. pd.), 16 (MRT 9/29. pd.), 17 (MRT 9/30. pd.), 18 (MRT 9/31. pd.), 19 (MRT 9/35. pd.); D = 40–60 m, H = 0–1 m: 5 (MRT 9/37. pd.), 6 (MRT 9/19. pd.), 10 (MRT 9/1. pd.), 11 (MRT 9/13. pd.), 13 (MRT 9/21. pd.), 20 (MRT 9/20. pd.); D = 40–80 m, H = 1–3 m: 2 (MRT 9/33. pd.), 3 (MRT 9/14. pd.), 4 (MRT 9/36. pd.), 7 (MRT 9/2. pd.); D = 80 m, H = 5.5 m: 1 (Templom-h., I. mil., MRT 9/15. pd., there was a church on it in the Middle Ages). Barrows 7, 8, 9, 12–20 are described according to local reference-books only (MRT).

12. *Körösnagyharsány* (7). D = 50–100 m, H = 0–1 m: 2 (MRT 8/17. pd.), 3 and 4 (Péntek-domb, MRT 8/15. pd.), 6 (MRT 8/12. pd.); D = 50–60 m, H = 1–3 m: 1 (I. mil., MRT 8/5. pd.), 5 (MRT 8/13. pd.), 7 (I. mil., MRT 8/11. pd.).

13. *Biharugra* (42). D = 30–60 m, H = 0–1 m: 3 (MRT 1/42. pd.), 8 (MRT 1/29. pd.), 12 (MRT 1/45. pd.), 15 (MRT 1/48. pd.), 16 (MRT 1/37. pd.), 18 (MRT 1/5. pd.), 22 (MRT 1/34. pd.), 32 (MRT 1/44. pd.), 34 (MRT 1/50. pd.), 37 (MRT 1/3. pd.), 38 (MRT 1/42. pd., I. mil. "Feje Szakaló halom"), 42 (MRT 1/32. pd.); D = 60–80 m, H = 0–1 m: 10 (MRT 1/40. pd.), 11 (Pocsai-h., I. mil., MRT 1/41. pd.), 21 (MRT 1/56. pd.), 35 (MRT 1/50. pd.), 39 (MRT 1/38. pd.), 40 (MRT 1/50. pd.); D = 40–100 m, H = 1–3 m: 5 (MRT 1/25. pd.), 6 (MRT 1/26. pd.), 7 (I. mil., MRT 1/27. pd., only 0.4 m high today), 9 (MRT 1/28. pd.), 13 (MRT 1/46. pd.), 14 (MRT 1/47. pd.) 17 (MRT 1/4. pd.), 19 (MRT 1/3. pd.), 20 (MRT 1/54. pd.), 23 (MRT 1/35. pd.), 25 (MRT 1/22. pd.), 26 (MRT 1/30. pd.), 27 (I. mil., MRT 1/11. pd., ploughed), 28 (MRT 1/9. pd., only 0.5 m high today), 29 (Strázsa-h., I. mil., MRT 1/10. pd.), 30 (I. mil., MRT 1/13. pd.), 31 (I. mil. Töviskes-h., MRT 1/43. pd.), 33 (Rózsás-h., MRT 1/15. pd.), 36 (Zöld-h., MRT 1/16. pd.), 41 (MRT 1/12. pd.); D = 80 m, H = 3–5 m: 2 (I. mil., MRT 1/21. pd.), 4 (I. mil., MRT 1/23. pd.); D = 80 m, H = 6 m: 1 and 24 (Négyesi kettős-h., MRT 1/19. pd.).

14. *Zsadány* (22). D = 25–50 m, H = 0–1 m: 13, MRT 13/7. pd.), 15 (MRT 13/32. pd.), 16 (MRT 13/32. pd.), 17 (MRT 13/36. pd.), 18 (MRT 13/51. pd.), 19 (MRT 13/52. pd.), 20 (MRT 13/54. pd.), 21 (MRT 13/55. pd.), 22 (MRT 13/56. pd.); D = 50–70 m, H = 0–1 m: 4 (MRT 13/17. pd.), 9 (Szilvás-h., 13/13. pd.), 14 (MRT 13/57. pd.); D = 40–80 m, H = 1–3 m: 1 (MRT 13/19. pd.), 2 (MRT 13/18. pd.),

5 (MRT 13/15. pd.), 6 (MRT 13/16. pd.), 7 (MRT 16/14. pd.), 11 (MRT 13/12. pd.); D = 60–90 m, H = 3–4 m: 3 (MRT 13/50. pd.), 10 (Temető-h., MRT 13/53. pd.), 12 (MRT 13/6. pd.). Barrows 16–22 are described according to local reference-books (MRT).

15. *Okány* (4). D = 20–40 m, H = 0–1 m: 1 (MRT 10/17. pd.), 2 (MRT 10/17. pd.), 3 (MRT 10/24. pd.), 4 (MRT 10/31. pd.); barrows Nos. 1, 2, 4 are described according to local reference-books (MRT).

16. *Bélmegyer* (13). D = 40–80 m, H = 0–1 m: 1, 4, 5, 6, 7, 11, 13; D = 150 m, H = 1 m: 9 (Magyar Telek-h., I. mil.); D = 30–80 m, H = 1–3 m: 2, 3; D = 80–120 m, H = 1–3 m: 8 (Csömöki-domb), 10.

17. *Köröstarcsa* (18). D = 40–80 m, H = 0–1 m: 2, 3 (I. mil.), 6, 9 (I. mil.), 10, 12, 14, 15, 16, 17 (I. mil.), 19 (Álmos-h.); D = 80–120 m, H = 1–3 m: 1 (Mérges-h., I. mil., II. mil.), 5 (Kér-h., I. mil. "Tar hal"), 7, 8, 11, 13, 18; D = 80 m, H = 3.5 m: 4 (Hideg-h.).

18. *Csárdaszállás* (12). D = 50–100 m, H = 0–1 m: 7, 9, 11 (Barát-h.); D = 60–100 m, H = 1–3 m: 1, 2 (Vitális-h., I. mil., II. mil.), 3 (I. mil. "Szt. János"), 5 (Tarcsai Fekete-h., Fekete-h., II. mil.), 6, 10, 12 (Temető-h.); D = 80–100 m, H = 3.5 m: 4 (Kut-h., Köves-h.), 8 (Fél-h., I. mil., II. mil.).

19. *Örménykút* (5). D = 80 m, H = 1 m: 5; D = 80–120 m, H = 1–3 m: 2, 3, 4 (Szilaj-h., Szilai-h.); D = 100 m, H = 4 m: 1 (Telek-h., I. mil.).

20. *Szarvas* (29). D = 40–100 m, H = 0–1 m: 1 (I. mil.), 3 (Bogdány-h., Bogdán-h., I. mil., II. mil.), 5, 6 (Dág-laponyag-h., I. mil.), 15 (disturbed), 17 (partly destroyed), 20 (I. mil.), 21 (I. mil.), 22 (I. mil.); D = 40–100 m, H = 1–3 m: 2 (Csikós-h., I. mil., II. mil.), 4 (Bekán-h., Kákai-h., II. mil. "Káka-h.", Szarvas-map "Kákai halmok" together with barrow No. 5.), 9, 10 (Strázsa-h., I. mil., II. mil., Szarvas-map), 11 (Közép-h., II. mil., Szarvas-map), 12 (Cibula-h., Cibulya-h., II. mil. Papné halma, Szarvas-map), 16, 18, 19 (Décsi-h., II. mil., Szarvas-map), 23 (Gyilkos-h., II. mil., Szarvas-map), 24 (Rózsás-h., Rózsási-h., II. mil., Szarvas-map), 26 (Tere-h., Szarvas-map), 27, 28, 29; D = 80–100 m, H = 3–5 m: 8 (Szappanyos-h., Skorka-h., I. mil., II. mil.), 13 (Baltzó-h., in Bakóhalom-dűlő, I. mil., II. mil., Szarvas-map); D = 100 m, H = 5.5 m: 7 (Őrhalom, I. mil.); destroyed: 25 (I. mil.).

21. *Békésszentandrás* (19). D = 50–80 m, H = 0–1 m: 4, 5, 11 (Pintér-h.), 18, 19; D = 60–100 m, H = 1–3 m: 2 (Öcsödi-h., Bedekovich, Szarvas-map), 9 (Bika-h., perhaps tell), 13 (Nádas-h., I. mil., Szarvas-map "Szentesi út halma"), 14 (Kis András-h., II. mil.), 16 (Kovács-l., II. mil.), 17 (Háromserke-l., II. mil.); D = 80–120 m, H = 3–5 m: 6 (Dinnyés-h., Magyaros-h., II. mil.), 7 and 8 (Kettős-h., I. mil., II. mil.), 10 (Szakál-h., Fekete-h., I. mil., II. mil.), 15 (Furugyi-h., Sinkovitz-h., I. mil. "Furo halom"); D = 120 m, H = 6 m: 12 (Gödény-h., I. mil., II. mil., Szarvas-map).

22. *Csabacsüd* (9). D = 20–40 m, H = 0–1 m: 1, 2, 3, 4, 6; D = 40–80 m, H = 0–1 m: 5, 7 (Szőr-h.), 8, 9.

23. *Kardos* (2). D = 80 m, H = 1 m: 2; D = 90 m, H = 1–3 m: 1 (Galó-h., Galló-h., I. mil., II. mil., Szarvas-map).

24. *Hunya* (1). D = 30 m, H = 1.5 m: 1.

25. *Mezőberény* (18). D = 30–80 m, H = 0–1 m: 1, 2 (Álmos-h.), 4 (I. mil.), 5, 6, 7, 9, 10 (Kapony-h.), 11, 15 (Bodzás-h., II. mil.), 16, 17, 18; D = 80–100 m, H = 1–3 m: 3 (Tücsök-h., László-h., — exc. Borbála Maráz 1971 — II. mil.), 8 (Hosszútelki-h.), 13 (Dög-h.); D = 100–120 m, H = 4 m: 12, 14 (Rókás-h., Oláh-h., I. mil., II. mil.).

26. *Békés* (22). D = 20–60 m, H = 0–1 m: 2 (I. mil., II. mil.), 4, 6, 8, 16; D = 60–80 m, H = 0–1 m: 7, 14, 15 (Lapos-domb), 19; D = 30–120 m, H = 1–3 m: 1, 3 (I. mil., II. mil.), 5 (I. mil.), 9 (Bódisné-h., Lencse-h., II. mil.), 10 (I. mil.), 17, 18; destroyed: 11 (I. mil.), 12, 13 (I. mil.), 22 (Vas-h., II. mil.).

27. *Tarhos* (1). D = 80 m, H = 4.5 m: 1 (Törökvár).

28. *Sarkadkeresztúr*. No barrows were found on the maps.

29. *Mezőgyán* (12). D = 30–60 m, H = 0–1 m: 2, 3, 4, 5, 7, 8, 9, 10, 11, 12; D = 50–60 m, H = 1–3 m: 1 (Lencsés-h.), 6 (Gyémánt-h.).

30. *Geszt* (36). D = 30–80 m, H = 0–1 m: 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 (Barrows Nos 9–15 together are Hármas-h.), 16, 19, 20, 26 (a cross on it, I. mil.), 27, 35, 36 (disturbed); D = 40–100 m, H = 1–3 m: 1 (Héhalom, I. mil.), 2 (Héhalom, I. mil. "Vatto hal"), 4 (I. mil.), 17 (on the border), 18, 21, 22, 23, 24, 25; destroyed: 28, 29, 30, 31, 32, 33, 34.

31. *Újszalonta* (3). D = 30–80 m, H = 0–1 m: 1, 2, 3.

32. *Méhkerék* (4). D = 50–60 m, H = 0–1 m: 3, 4; D = 80, H = 1.5 m: 1, 2 (partly destroyed).

33. *Kötegyán* (6). D = 30–100 m, H = 0–1 m: 1, 2, 3 ,4, 5, 6.

34. *Sarkad* (2). D = 50–60 m, H = 0–1 m: (Jerczi deák-h., II. mil.).

35. *Gerla* (3). D = 80 m, H = 1 m: 1; D = 100–120 m, H = 3–5 m: 2 (Veszei-h.), 3

36. *Doboz* (8). D = 50–80 m, H = 0–1 m: 1, 2, 3 (disturbed), 4, 5, 7(a chapel on it); D = 40–80 m, H = 1–2 m: 6, 8.

37. *Murony* (4). D = 30–60 m, H = 0–1 m: 1, 4; D = 80–100 m, H = 1–2 m: 2 and 3 (Földvári-h., I. mil.).

38. *Kamut* (16). D = 30–80 m, H = 0–1 m: 1, 2, 3 (Hegyes-h., II. mil., disturbed), 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16; D = 70 m, H = 1.2 m: 15.

39. *Kondoros* (6). D = 40–80 m, H = 0–1 m: 1, 2, 3, 4, 5, 6.

40. *Nagyszénás* (9). D = 80–120 m, H = 1–3 m: 1 (Szőr-h., I. mil. "Zur hal"), 3, 4, 5 (Őrhalom), 6, 7 (Dögkút-h.), 8 and 9 (Kettős-h., I. mil.); D = 100 m, H = 4 m: 2 (Nádas-h.).

41. *Gádoros* (2). D = 80 m, H = 0–1 m: 1, 2.

42. *Csorvás* (4). D = 50–80 m, H = 1–2 m: 1 (Hihe-h., Hühe-h.), 3 (Hajdúvölgyi-h.), 4; destroyed: 2 (I. mil.).

43. *Kétsoprony* (2). D = 40–80 m, H = 0–1 m: 1, 2.

44. *Telekgerendás* (9). D = 40–100 m, H = 0–1 m: 1, 2, 3, 4, 5, 6, 7, 8; D = 100 m, H = 4.3 m: 9.

45. *Békéscsaba* (3). Destroyed: 1 (Fövényes-h., I. mil., II. mil.), 2 (I. mil.), 3 (I. mil.).

46. *Gyula* (28). D = 40–80 m, H = 0–1 m: 1 (disturbed), 6, 12, 13, 14, 15, 16, 19, 27, 28; D = 60–100 m, H = 1–3 m: 2 (Dézsi-h., II. mil.), 3 (disturbed), 4 (Gyürke-h.), 5, 8 (Keresztes-h.), 9 (cut across by a canal), 10, 17, 18, 25, 26; D = 70–100 m, H = 3–5 m: 7 (Hullató-h.), 22 (Hármas-h.), 23, 24 (Farkas-h.); D = 100–120 m, H = 5–6 m: 20,21; destroyed: 11 (Bíbic-h.)

47. *Gyulavári* (3). D = 60–70 m, H = 0–1 m: 2, 3; D = 100 m, H = 3.5 m: 1.

48. *Szabadkígyós*, 49. *Újkígyós*. No barrows were found on the maps.

50. *Gerendás* (2). D = 50–100 m, H = 1–1.5 m: 1,2 (cut across by a road).

51. *Orosháza* (11). D = 40–80 m, H = 0–1 m: 3, 4, 8 (I. mil.), 9 (I. mil.), 11 (I. mil.); D = 40 m, H = 1.6 m: 7 (I. mil., Héthalmi-dűlő is north of barrows Nos. 7–11); destroyed: 1 (I. mil.), 2 (I. mil. "Kyaparos halom"), 5 (I. mil., in Szőke-halom-dűlő), 6 (I. mil., in Kanász-halom-dűlő), 10 (I. mil.).

52. *Pusztaföldvár*, 53. *Csanádapáca*. No barrows were found on the maps.

54. *Medgyesbodzás* (1). Destroyed: 1 (I. mil.).

55. *Pusztaottlaka* (2). D = 50 m, H = 1 m: 1; D = 80 m, H = 1.5 m: 2.

56. *Kétegyháza* (29). D = 40–100 m, H = 0–1 m: 1, 5, 6, 7, 8, 9, 10, 11, 12 (cemetery chapel on it), 18, 20, 24, 27, 28, 29; D = 50–100 m, H = 1–3 m: 2 (cut across by a canal), 3 (cut across by a canal), 4 (disturbed), 14, 15, 21, 22, 26; D = 60–80 m, H = 3–5 m: 13, 19; D = 70–90 m, H = 5–7 m: 16 (Török-h. — exc.? cut across), 17 (Török-h.), 23 (Hegyes-h., I. mil.); destroyed: 25.

57. *Elek* (4). D = 80 m, H = 1 m: 3 (I. mil.); D = 80–100 m, H = 1–3 m: 1, 2, 4 (János-h., I. mil.).

58. *Medgyesegyháza* (5). D = 50–80 m, H = 0–1 m: 2, 3, 5; D = 80 m, H = 1.6 m: 1; D = 80 m, H = 5 m: 4.

59. *Kardoskút* (11). D = 80–100 m, H = 0–1 m: 1, 2, 3, 4 (in Mézeshalmi-dűlő, Mézes-h.?), 5, 7, 8, 9 (Aranyod-h.), 10, 11; D = 100 m, H = 5 m: 6 (Búcsú-h.).

60. *Békéssámson* (7). D = 50–80 m, H = 0–1 m: 2 (cut across by a canal), 3, 4, 5, 6, 7; D = 100 m, H = 2.7 m: 1.

61. *Tótkomlós* (5). D = 60–70 m, H = 0–1 m: 3, 4, 5; D = 80 m, H = 2.2 m: 1; D = 90 m, H = 4.5 m: 2 (Bartha-h.).

62. *Nagykopáncs* (4). D = 100–150 m, H = 1–2 m: 1 (Kása-h., I. mil.), 2 (Döcöge-h.), 3,4.

63. *Kaszaper* (1). D = 70 m, H = 1 m: 1.

64. *Nagybánhegyes* (1). D = 80 m, H = 1 m: 1.

65. *Magyarbánhegyes* (1). D = 80 m, H = 2 m: 1 (I. mil.).

66. *Almáskamarás*. No barrows were found on the maps.

67. *Nagykamarás* (26). D = 50–80 m, H = 0–1 m: 2, 4, 5, 6, 12, 13, 14, 17, 18, 20, 22, 23, 24 (I. mil.), 26; D = 50–100 m, H = 1–3 m: 1, 3, 7, 8, 9, 11 (cut across exc. ?), 15, 16 (disturbed) 19, 21; D = 70–100 m, H = 3–5 m: 10 (disturbed), 25 (Targyi-h., I. mil.).

68. *Lökösháza* (8). D = 50–80 m, H = 0–1 m: 1, 2, 3, 5, 6, 7; D = 80 m, H = 1.5 m: 4; D = 160 m, H = 9 m: 8 (Tatár-h., I. mil., on the border).

69. *Kevermes* (6). D = 60–80 m, H = 0–1 m: 2, 3, 4 (Partos-h., exc. ? — I. mil.); D = 90–100 m, H = 1–3 m: 5, 6; D = 80 m, H = 3.5 m: 1 (Barta-h., I. mil., disturbed).

70. *Dombiratos* (2). D = 50 m, H = 1 m: 2; D = 90 m, H = 3 m: 1.

71. *Kunágota* (3). D = 60 m, H = 0–1 m: 1, 2, D = 80 m, H = 1.5 m: 3.

72. *Végegyháza* (7). D = 50–80 m, H = 0–1 m: 2, 4, 5, 6; D = 80–100 m, H = 1–2 m: 1 (Zsibrik-domb, Templom-h., I. mil.), 3 (I. mil., barrows Nos. 3–6 in Halmos-dűlő), 7.

73. *Mezőkovácsháza* (2). D = 60 m, H = 1 m: 2; destroyed: 1 (I. mil.).

74. *Magyardombegyház* (3). D = 60–80 m, H = 0–1 m: 2, 3; D = 100 m, H = 2.5 m: 1 (disturbed).

75. *Kisdombegyház* (3). D = 60–70 m, H = 1 m: 1, 2; D = 100 m, H = 3 m: 3 (I. mil., disturbed).

76. *Dombegyház* (12). D = 50–70 m, H = 0–1 m: 3, 4, 5, 9 (disturbed); D = 70–80 m, H = 1–3 m: 1, 2, 6 (Vizes-h.), 10 (perhaps an earth castle), 11 (Attila-h., cut across by a road), 12 (disturbed); D = 80–90 m, H = 4–5 m: 7, 8 (Temető-h., exc. ? I. mil., Fekete-h.).

77. *Battonya* (22). D = 40–80 m, H = 0–1 m: 6, 7, 8, 10, 11, 12, 16, 17, 19; D = 50–100 m, H = 1–3 m: 3 (Battonyai-h., I. mil.), 4, 5, 13, 18, 21 (Hármashatár-h., I. mil., cut accross by a road), 22 (I. mil.); D = 70–100 m, H = 3–5 m: 2, 9, 14

(Sánka-h.), 15, 20 (Cikó-h., I. mil.); D = 100 m, H = 6 m: 1 (I. mil., perhaps tell).

78. *Mezőhegyes* (1). D = 80 m, H = 1 m: 1.

VI. Csongrád county

1. *Csongrád*. No barrows were found on the maps.

2. *Nagytőke* (15). D = 50–100 m, H = 0–1 m: 1 (I. mil.) 2 (Tűzköves-h., I. mil.), 5 (I. mil.), 6 (I. mil.), D = 60–150 m, H = 1–3 m: 3 (I. mil.), 4 (Szedres-h., I. mil.), 10 (Kettős-h., together with barrow No. 9. in Szentes, I. mil.), 14 (Tőkei-h., I. mil.), 15; D = 80–100 m, H = 3–5 m: 7 (Szász-h., I. mil.), 9 (I. mil.), 11, 12; destroyed: 8 (I. mil.), 13 (I. mil.).

3. *Eperjes* (5). D = 80 m, H = 1 m: 3 (Hideg-h.), D = 60–150 m, H = 1–3 m: 2 (Sipos-h.), 4 (Nagy Királyság-h., I. mil.), 5 (Lajos-h.); destroyed: 1 (I. mil.).

4. *Fábiánsebestyén* (10). D = 80–120 m, H = 0–1 m: 1 (Királyság-h.), 5, 8 (Nádas-h.), 9; D = 60–120 m, H = 1–3 m: 2 (Bedekovich, cut across by a road), 3 (Nagy-orom-h.) 6, 7, 10; D = 120 m, H = 4 m: 4 (Borsó-h).

5. *Magyartés*. No barrows were found on the maps.

6. *Szentes* (53). D = 50–100 m, H = 0–1 m: 7, 8, 12 (I. mil.), 13, 25, 28 (Szent László-h.), 29 (Köves-h., I. mil.) 30, 31 (Ráz-h., I. mil.), 32, 35 (I. mil.), 37 (I. mil.), 42, 45 (Kis-laponyag, I. mil.), 47 (I. mil.), 52, 53; D = 70–150 m, H = 1–3 m: 3 (Kettős-h., together with barrow No. 2.), 4 (Disznó-h.), 9 (Kettős-h., together with barrow No. 10 in Nagytőke, I. mil.), 11, 14, 18 (Vörös-h.), 19, 20, 21 (Kettős-h.), 22, 23, 24 (Kis-h.), 33 (Disznó-h.), 34 (Mikec-h., I. mil.), 36, 38, 39, 40, 41, 43, 44 (I. mil.), 48; D = 80–150 m, H = 3–5 m: 2 (see at barrow No. 3.), 6 (Pankota-h., I. mil. "Bánkuti hal"), 10, 15, 16, 17 (Fekete-h., I. mil.), 26 (Dinnyés-h., I. mil.), 50, 51 (Fekete-h., Széna-h., I. mil.); D = 150 m, H = 5–6 m: 46 (Piponya-h., I. mil.), 49 (Józsa-h., I. mil.); D = 100 m, H = 10 m: 27 (Kántor-h., Szent Mihály-h.); destroyed: 1 (I. mil.), 5 (I. mil.).

7. *Árpádhalom* (5). D = 80 m, H = 6 m: 1 (cut across by a road); destroyed: 2, 3, 4, 5 (I. mil. according to it barrows Nos. 1–5 are called Öthalom).

8. *Nagymágócs* (6). D = 60–80 m, H = 0–1 m: 2, 3, 4, 5 (in Apróhalmi-dűlő); D = 80 m, H = 1.5 m: 1 (I. mil.); destroyed: 6 (I. mil.).

9. *Derekegyház* (3). D = 60 m, H = 1 m: 1; D = 100 m, H = 2 m: 2; destroyed: 3 (I. mil. "Gane hal").

10. *Szegvár* (8). D = 70–100 m, H = 1–3 m: 1 (I. mil.), 2, 3, 4 (Balázs-h. ?, I. mil. "Ballas halom"), 5 (Szilas-h., I. mil.), 6 (Füzes-h. ?, I. mil. "Füzes hal"), 7 (I. mil.); destroyed: 8 (I. mil. "Pas hal").

11. *Mindszent* (9). D = 60 m. H = 1 m: 7; D = 60–150 m, H = 1–3 m: 1 (Ludas-h., I. mil., on a triple border, cut across by a road), 2 (Sebők-h., Nagy-h., I. mil.), 3, 5 (I. mil.), 6 (Hegyes-h., I. mil.); D = 100 m, H = 9–10 m: 4 (Álmos-h., I. mil.), 8; destroyed: 9.

12. *Mártély* (8). D = 60–100 m, H = 1–3 m: (Fekete-h., I. mil.), 2 (Tege-h., I. mil.), 3 (I. mil.), 4, 5, 6; destroyed: 7 (I. mil.), 8 (I. mil., Marton-h.).

13. *Hódmezővásárhely* (62). D = 60–120 m, H = 0–1 m: 2 (in Veres-halom-dűlő), 3, 4, 15 (in Szürke-halom-dűlő, I. mil.), 16 (I. mil.), 17 (in Aranytemető-dűlő), 18 (I. mil.), 19 (cut across by a road), 23 (I. mil.), 35, 37, 40, 41 (Sajti-h., I. mil.), 54 (I. mil.), 55, 56, 57, 58, 59, 60; D = 70–120 m, H = 1–3 m: 5 (I. mil.), 7, 8 (I. mil.), 9, 10, 11, 12, 13 (I. mil.), 14, 20, 21, 22, 25, 26, 27 (I. mil.), 28, 29 (Fekete-h., I. mil.), 30 (Ürmös-h., I. mil.), 31 (Tanács-h., I. mil.), 32, 33, 34 (Batidai-h., I. mil.), 38, 39, 61, 62 (Nádas-h.); D = 100–130 m, H = 3–5 m: 1 (Zöld-h., I. mil. "Ordángos hal"), 6 (Bőve-h., I. mil.), 24, 36 (Vermes h., I. mil., disturbed); destroyed: 42 (I. mil.), 43, 44 (I. mil.), 45 (Zöld-h., I. mil.), 46 (I. mil. "Damian hal"), 47 (I. mil.), 48 (I. mil.), 49 (I. mil.), 50 (I. mil.), 51 (I. mil.), 52 (Kis Sas-h., I. mil.), 53 (Mátyás-h., Atyás-h., I. mil.).

14. *Székkutas* (21). D = 80 m, H = 0–1 m: 1, 2, 3, 4, 5 (barrows Nos. 1–5 are called Öthalom, I. mil.), 11, 12, 21; D = 60–150 m, H = 1–3 m: 7 (Monor-h.), 8, 9 (Fekete-h., I. mil.), 10, 13 (Kis-h., I. mil.), 15; D = 200 m, H = 5 m: 6 (Sós-h., I. mil., cut across by a road); D = 120 m, H = 7 m: 14 (Pósa-h., I. mil.); destroyed: 16, 17, 18, 19, 20 (see all in I. mil.).

15. *Nagyér*, 16. *Ambrózfalva*. No barrows were found on the maps.

17. *Makó* (25). D = 60–100 m, H = 0–1 m: 2, 11, 12 (Első-h., ? I. mil. "Elso"), 15 (I. mil.), 18 (I. mil.), 19 (I. mil., "St. Miklos"), 20, 21, 25; D = 70–100 m, H = 1–3 m: 4 (Nagy István-h., I. mil., Halas-h.), 5 (Mars-h., Marsi-h.), 6 (disturbed), 7 (Mikócsa-h.), 9 (Vágott-h., cut across by a road,), 10 (Vas-h., I. mil.), 24 (in Vita-halom-dűlő); D = 100 m, H = 3–5 m: 3 (I. mil., disturbed), 8 (Koronda-h., I. mil.), 16 (Péter-h., Péteri-h., I. mil.); D = 100–150 m, H = 5–6 m: 1 (Sóstó-h., I. mil., "Koszpadi-hal"), 22 and 23 (Kettős-h.); destroyed: 14 (I. mil.), 17 (I. mil.).

18. *Földeák* (6). D = 80–100 m, H = 0–1 m: 2 (I. mil.), 4 (I. mil.); D = 80–120 m, H = 1–3 m: 1 (Dinnyeszög-h., Nádasi-h., I. mil.), 5 (I. mil.), 6 (Kápolna-h.); destroyed: 3 (I. mil.).

19. *Pitvaros* (2). D = 80 m, H = 1.5 m: 2; D = 100 m, H = 4.5 m: 1 (Nagy-h., I. mil.).

20. *Csanádalberti* (3). D = 100 m, H = 2 m: 2 (Zöld-h.), 3 (Bika-h.); D = 110 m, H = 7.5 m: 1 (Fekete-h., I. mil., on a triple border.).

21. *Öföldeák* (11). D = 60–80 m, H = 0–1 m: 1 (Döbörcsök-h.), 2 and 3 (Kéthalom), 4 (I. mil.), 7 (I. mil.), 11; D = 70–80 m, H = 1–3 m: 5 (Máma-h., I. mil.), 6 (I. mil.), 9; D = 80–120 m, H = 4–5 m: 8 (Ágoston-h.), 10.

22. *Maroslele* (9). D = 70–90 m, H = 0–1 m: 1, 2, 7 (Őrhalom, badly destroyed), 8, 9; D = 80–100 m, H = 1–2 m: 3, 4, 5; destroyed: 6 (I. mil. "Vetye hal").

23. *Szeged* (16). D = 60–80 m, H = 0–1 m: 7, 11, 12, 13, 14, 15, 16; D = 80–120 m, H = 1–2 m: 2, 3, 4, 5, 8, 9 (Sir-h.), 10; D = 90–120 m, H = 3–5 m: 1, 6 (Lebő-h., disturbed). Only the barrows found on the left bank of the Tisza River are described.

24. *Királyhegyes* (7). D = 50–80 m, H = 0–1 m: 2 (Csikós-h.,? "Csikóshalmi kút" on it), 4 (Király-h.? I. mil., "Kiralj h.", disturbed), 6, 7; D = 100 m, H = 1.5 m: 1 (Lupuj-h.); D = 80–100 m, H = 3–5 m: 3 (Határ-h., I. mil., Középső-h.), 5 (Középső h.).

25. *Csanádpalota* (6). D = 80 m, H = 1 m: 6 (I. mil.); D = 80–100 m, H = 1–3 m: 2, 3 (disturbed), 4 (Dávid-h., Homok-h., I. mil.); destroyed: 5 (I. mil.).

26. *Kövegy* (2). D = 50–90 m, H = 0–1 m: 1, 2.

27. *Nagylak* (1). D = 70 m, H = 1 m: 1.

28. *Magyarcsanád* (14). D = 60–80 m, H = 0–1 m: 2 (I. mil. "Serban Halom"), 3 (I. mil.), 4 (I. mil. "Maho hal"), 6, 7, 9, 12, 13 (Cigánka-h., I. mil.), 14; D = 60–100 m, H = 1–3 m: 5 (cut across by a canal), 8, 10 (I. mil.); D = 120 m, H = 3.5 m: 11 (I. mil.); D = 120 m, H = 8 m: 1 (Bekai-h., I. mil.).

29. *Apátfalva* (6). D = 50–60 m, H = 0–1 m: 2, 6; D = 60–80 m, H = 1–3 m: 1, 3 (Kaizer-h.), 4, 5 (Bátezi-h., I. mil. "Póleszi-h.").

30. *Kiszombor* (9). D = 70–80 m, H = 0–1 m: 4 (Tanya-h., disturbed), 5, 6, 9; D = 80–100 m, H = 1–3 m: 2, 3, 8 (Király-h.); D = 80–150 m, H = 3–4 m: 1 (Miska, Tóth Miska-h.), 7 (Nagy-h.).

31. *Ferencszállás* (1). D = 80 m, H = 1.5 m: 1 (disturbed).

32. *Klárafalva* (6). D = 40–50 m, H = 0–1 m: 1, 2, 3, 4; D = 80 m, H = 1.2 m: 6; D = 80 m, H = 4.5 m: 5.

33. *Deszk* (7). D = 80 m, H = 1 m: 3; D = 80–100 m, H = 1–2 m: 1 (Vágott-h.), 2, 4, 5 (Zsivityi-h.), 7; D = 140 m, H = 4 m: 6 (Határ-domb).

34. *Újszentiván*. No barrows were found on the maps.

35. *Tiszasziget* (4). D = 90–150 m, H = 1–3 m: 1, 2, 3 (disturbed), 4 (on the border, disturbed).

36. *Kübekháza* (8). D = 60–150 m, H = 1–3 m: 1, 2, 3, 4, 5, 6 (barrows Nos. 1–6 are Hathalom), 7, 8.

ABBREVIATIONS USED IN THE TEXT

exc.	=	excavation
D	=	diameter
h	=	tumulus or barrow
H	=	rough height
I. mil.	=	I. military survey. Kleine Charte des Königreichs Ungarn. Reduziert unter der Direction des Oberst von Neu im Jahre 1785. Photocopies in Hadt. Tt. (B. IX. a. 527).
II. mil.	=	II. military survey. Photocopies in Hadt. Tt. (B. IX. a. 530).
l.	=	"laponyag", small kurgan
pd.	=	place of discovery
Hadt. Tt.	=	Hadtörténelmi Térképtár
HL	=	Hajdú-Bihar megyei Levéltár
MNM	=	Magyar Nemzeti Múzeum (Hungarian National Museum)
OSzKK	=	Országos Széchenyi Könyvtár Kézirattára
SzÁL	=	Szolnok megyei Állami Levéltár
MRT	=	Ecsedy–Kovács–Maráz–Torma: Magyarország Régészeti Topográfiája, 6. A szeghalmi járás

SETTLEMENT NAMES

The names of the settlements in the Tisza region are put in alphabetical order. They are followed by the abbreviation of the name of the county (Cs = Csongrád, BAZ = Borsod-Abaúj-Zemplén, Bé = Békés, HB = Hajdú-Bihar, Szo =Szolnok, SzSz = Szabolcs-Szatmár) and the number of the settlements within the county.

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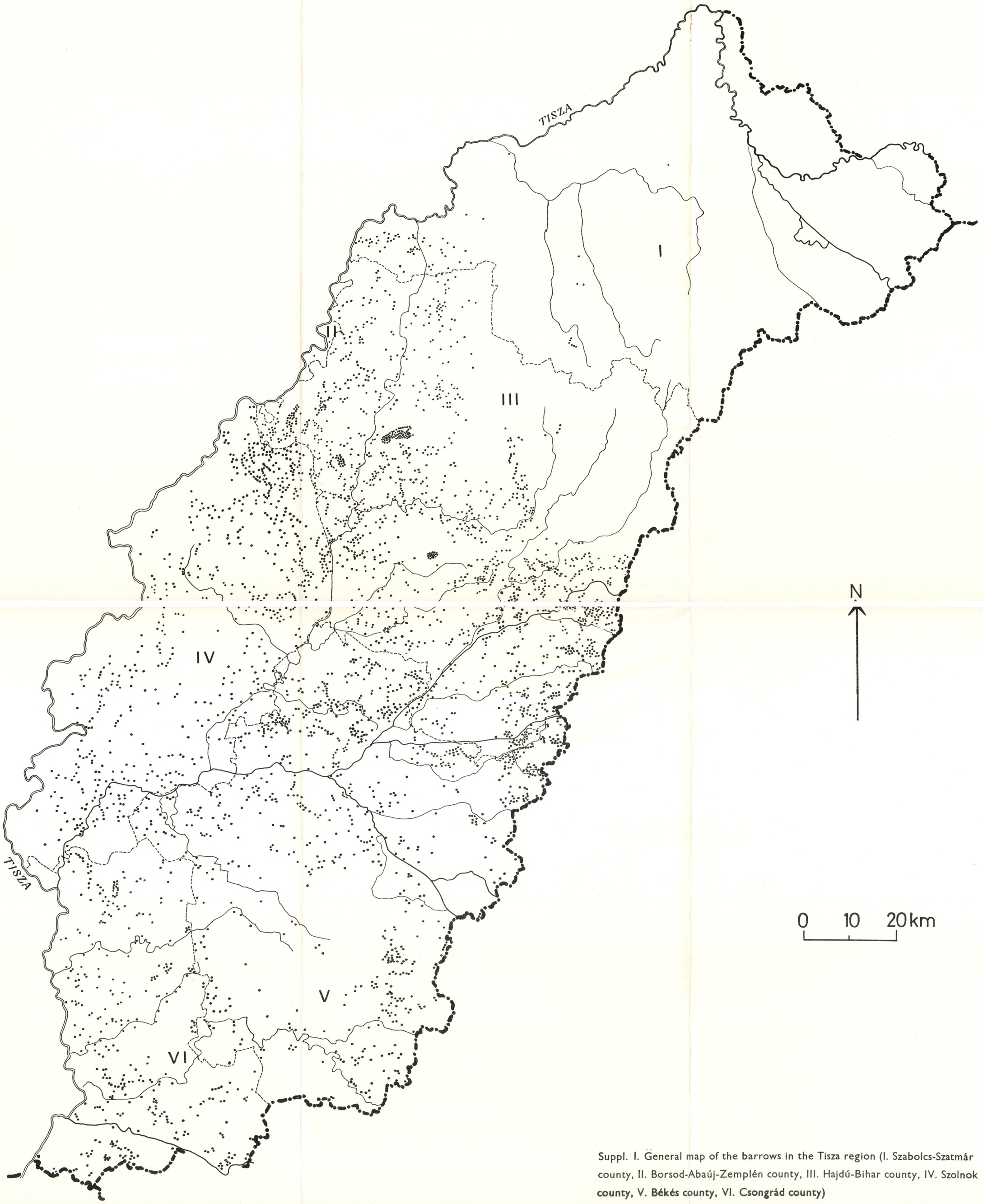

Suppl. I. General map of the barrows in the Tisza region (I. Szabolcs-Szatmár county, II. Borsod-Abaúj-Zemplén county, III. Hajdú-Bihar county, IV. Szolnok county, V. Békés county, VI. Csongrád county)

TISZA

I

II

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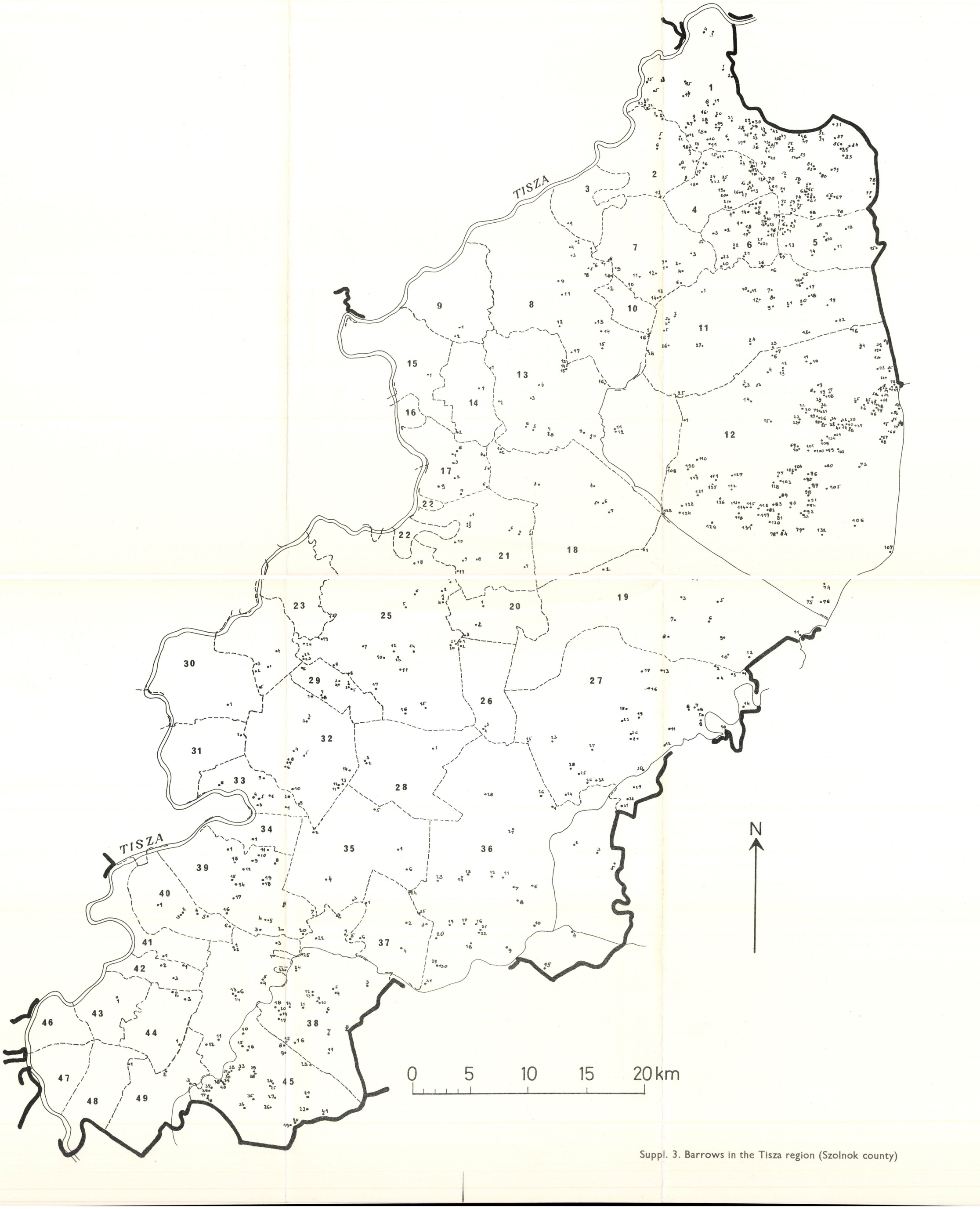
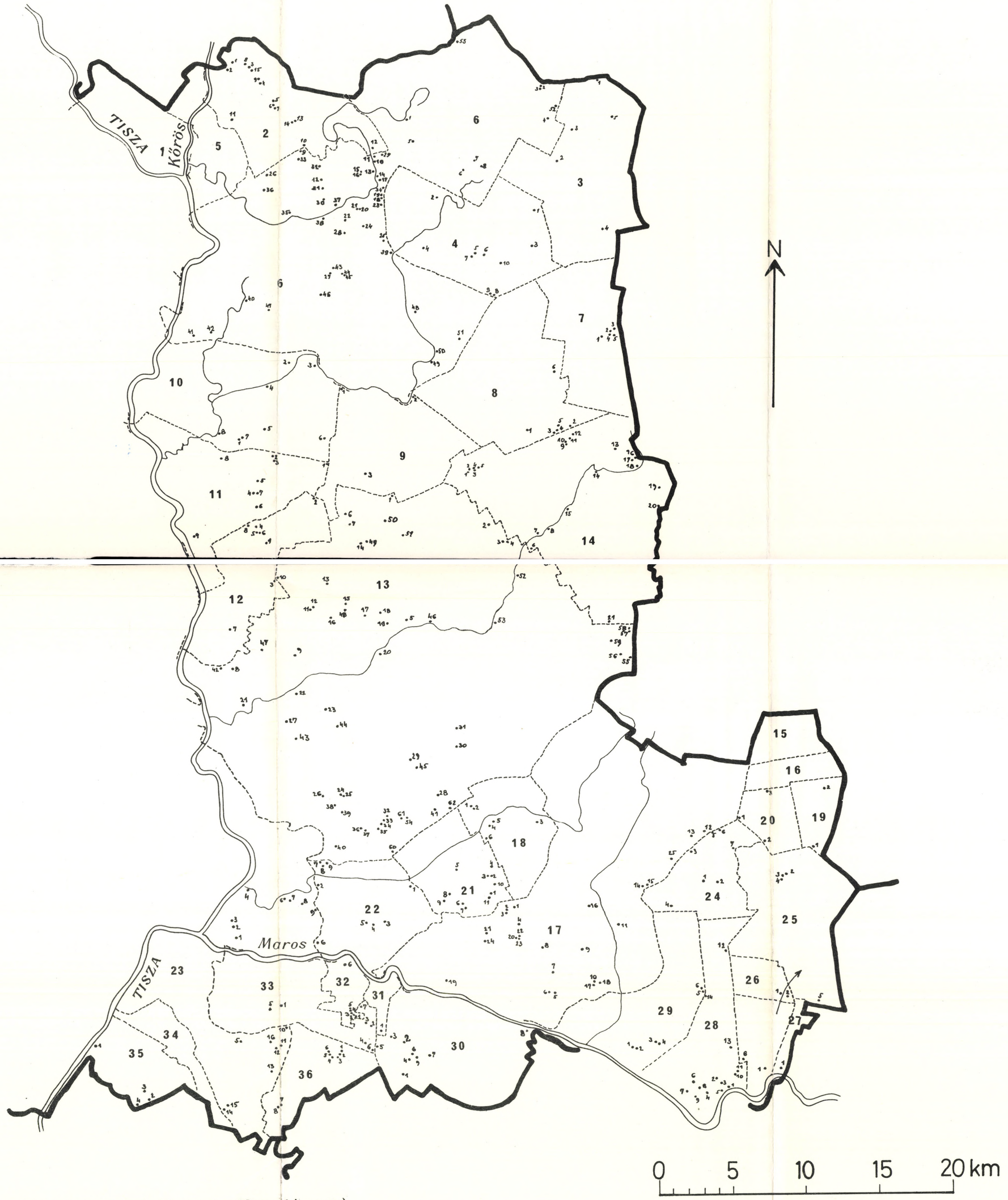
Suppl. 2. Barrows in the Tisza region (I. Szabolcs-Szatmár county, II. Borsod-Abaúj-Zemplén county, III. Hajdú-Bihar county)



Suppl. 3. Barrows in the Tisza region (Szolnok county)

Suppl. 4. Barrows in the Tisza region (Békés county)



Suppl. 5. Barrows in the **Tisza region** (Csongrád county)

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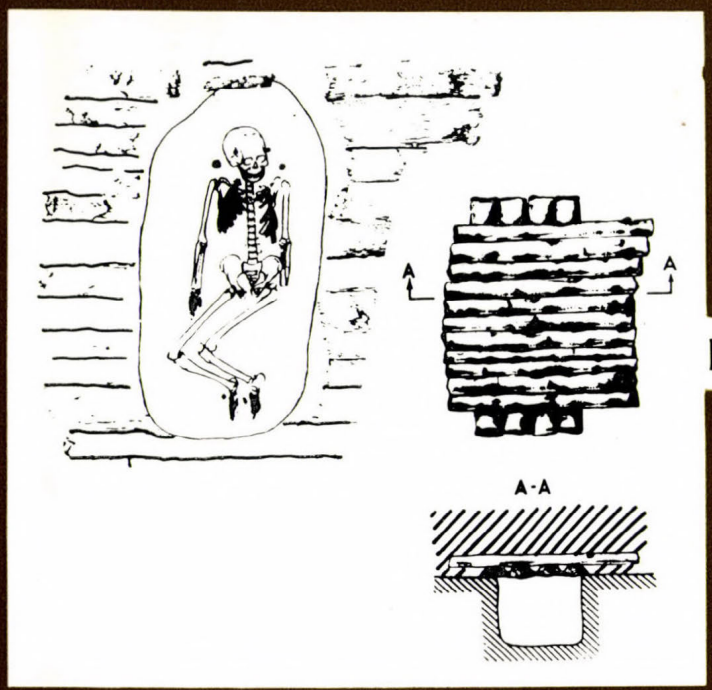

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