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# NEOLITHIC SKELETAL MATERIAL FROM ČIČAROVCE, EAST SLOVAKIA

ABSTRACT. — The studied Middle Neolithic skeletal material found in Čičarovce, East Slovakia, belongs to the Tisza Culture Group. The five skulls morphologically belong to the Central European Early and Middle Neolithic population with high and dolichomorphic braincase, broad nose and low orbits. The find is a further proof that cultural changes need not reflect changes in the population, which remains the same in East Slovakia in the Early and Middle neolithic.

KEY WORDS: Neolithic skeletons - Slovakia - gracile dolichomorphs - Tisza culture.

The Director of the Zemplín Museum in Michalovce Dr. Vizdal, CSc., invited me to study the Neolithic human skeletal material he rescued during the excavation of an archaeological site in Čičarovce, East Slovakia, belonging to the Neolithic Tisza Culture.

The remains belong to four individuals; an additional frontal bone and postcranial remains belonged to a fifth individual, to an adolescent.

Skeleton No. 3 was found by Dr. Vizdal in the central part of the excavated site. It belonged to a man buried in flexed position. According to the situation of the burial Dr. Vizdal interprets it as a shaman burial. Near the head there were two cut antler pieces originally forming part of the head ornament. Below the skeleton he found a layer containing the remains of another individual and a frontal bone (No. 2a). Still deeper there was a third layer with some human bones and a skull (No. 4). Remains No. 1 come from an excavated living site.

All individuals belong to the dolichomorphous type, the skeletons of males are robust, those belonging to females are more gracile. They form part of the Central European Neolithic gracile dolichomorphous population documenting that the cultural differences in this case are the property of a biologically single population. This view is supported by similar situations of other known Neo-Eneolithic skeletal material from Slovakia (Jelínek 1975a, b).

## ČIČAROVCE No. 1

The skull with the lower jaw is well conserved. Only the right part of the frontal bone is damaged, with the upper orbital margin and the supraorbital region missing. The right malar bone is missing, so is also the basal part of the occipital bone and thus the large occipital opening with basion point is not represented. In the lower jaw the head of the left ascending branch is damaged. Part of the alveolar bone with both right incisors and with the right canine is broken off and missing. These are only minor defects of little importance compared with the generally good state of the rest of the skull. There is no doubt that the missing parts were lost during the rescue excavations.

In lateral view the skull is orthognathic with a high and well vaulted front. There are well represented temporal lines on its sides. The vertex of the skull is long, horizontal, it is formed by the corresponding parts of the frontal and parietal bones. The latter are well curved and are slightly flattened in the obelion region. The scale of the occipital bone is smooth, without muscular relief. The scale of the temporal bone is medium-high and well curved. The mastoids are small. The zygomatic arc continues in a slight supramastoid ridge.

In vertical view the braincase has an elongated ovoid shape with mean parietal bosses. On the frontal bone we can see vestiges of the metopic suture. All cranial sutures are in an advanced state of obliteration and are poorly visible. The parietal foramina are not represented. In occipital view the skull is high with its maximum breadth situated between the parietal bosses. The lateral walls of the brain case converge towards the cranial base. The lambdoid suture is complex. There is a wormian bone in both its left and right parts. The external occipital protuberance is week, corresponding to the week muscular relief on the nuchal plane. From the facial skeleton we can see the left half and the upper jaw. The slight glabella (Broca 2) is situated between the mean supraorbital arches. For a female skull these supraorbital arches are very strong. The postorbital constriction of the frontal bone is only slight. The frontal bosses are well represented. The obliterated remains of the metopic suture indicate that originally the whole metopic suture existed. The frontal bone is high and well vaulted. The nasion depression is only slight, with a low and broad nasal root. The left orbit is long and rectangular. The malar bone is gracile, with a slight marginal process. The nasal opening is broad, with simple lower margin and with a mean anterior nasal spine. The upper jaw is high and orthognathic, with a deep canine fossa. The deep upper palate has no relief or torus and the teeth form a regular parabolic arc. They are strongly abraded, especially the incisors and canines. The molar crowns had been used to such a degree that only their roots remained. Both third mollars were in use as their modest attrition demonstrates. The first molars are the biggest and the third molars the smallest in size. There is no caries.

The lower jaw is small with a small chin and with rocking base. The difference between symphyseal and body height behind the second molar is considerable. Both mental foramina are simple and of mean size, situated below the mesial part of the first molar, in the middle of the mandibular body. On the internal side of the mandibular body we see a high bone relief with the mylohyoid ridge with a week mandibular torus and with a deep sublingual fossa. The mental spine is of mean size and a well developed digastric fossa is facing obliquely back and down. The ascending branch is not high and is medium-large, with a shallow sigmoid inci-

sure and with a damaged left mandibular head. The angle of the ascending branch is slightly everted with clear muscular relief for m. massetter. On the internal side of the ascending branch there are strong marks of the bony relief of m. pterygoideus lat. and a mandibular foramen of medium size.

The alveolar process has a slight bony rim. Many of the teeth have tartar, both lingually and buccally. The dental arc has parabolic shape. All teeth are heavily worn, without any caries. Both third molars are in place and in occlusion.

On summing up the principal cranial characters we can say that the skull's height exceeds its breadth and the shape of the skull is generally dolichomorphic. The fine shape is characterized by well vaulted occiput and by high front. The face is orthognathic with a medium-broad nose and low orbit. The occlusion of the strongly abrased teeth is edge to edge. The skull belongs to a female of 40-45 years of age.

#### ČIČAROVCE No. 2

The skull is well preserved, only the right part of the maxilla and the right malar bone are missing. On the cranial base the part of the scale and the body of the occipital bone are missing, i.e. the whole region of the great occipital opening has been lost. The skull is very gracile and the morphology of the vaulted frontal bone and of the facial skeleton, the small mastoids, as well as the smooth vaulted surface of the occiput document that it is without any doubt a female skull. The degree of wear of the two teeth which remained in their sockets and the starting obliteration of the sutures point to an age between 30-40 years.

In lateral view we can see a medium-high and well vaulted front with a flat glabella (Broca 2). The vertex of the skull is long and horizontal, consisting of parts of frontal and parietal bones. The parietal bone is well curved in this view, in lambda it is slightly flattened, with gradual transition to the upper part of the occipital bone. No temporal lines are represented. The occiput is smooth and vaulted. The scale of the temporal bone is high and well vaulted, with a supramastoid crest. The mastoids are small.

In vertical view the braincase is of long ovoid shape, with parietal bosses. There are small and simple parietal foramina on both sides of the sagittal suture. All sutures of the braincase are well serrated and open. Only the obelion shows the first signs of obliteration. At this place we can see on both parietal bones, parallel with the sagittal suture a slightly porous bone with numerous small openings. This is probably the consequence of an anae-. mic illness. In occipital view the parietal bones are roof-shaped and the maximum cranial height is situated high at the level of the parietal bosses. The lateral walls of the skull are converging towards the cranial base. The lambdoid suture is well serrated, but without wormian bones. There is no relief on the smooth and vaulted occipital scale.



FIGURE 2. Middle Neolithic skull Cicarovce No. 2 Norma facialis, Norma lateralis, Norma occipitalis



FIGURE 1. Middle Neolithic skull Cicarovce No. 1 Norma facialis, Norma lateralis, Norma verticalis, Norma occipitalis

In frontal view the facial skeleton appears to have a well-vaulted medium-high front with flat glabella, weak supraorbital arcs (1) and with medium-large frontal bosses. The postorbital constriction is weak. The nasal root is broad, roof-like and the nasion depression is not represented. The skeletal remains of the pear-shaped opening demonstrate that the nose was broad. The orbits are slightly rectangular. On the upper jaw there is a well-formed canine fossa and a slight submaxillar incisure. The malar bone is gracile, without marginal process and is obliquely situated.

The upper palate is deep with a slight maxillar torus. The dental arc is small. In its conserved part there are remains of the second premolar and the first and the second molar. In the alveol of the first premolar is a buccally situated fistula. In the alveol of the second premolar there is a part of its root. The whole crown was evidently destroyed by caries. Medium-size caries is visible also on the next mesial face of the first molar crown. The occlusal face of this tooth is heavily worn. The second molar is smaller in size and the third molar was not formed.

 $M_2 M_1 P_2 - - -$ 

## ČIČAROVCE No. 2a

Among the skeletal remains of the second individual there was a large piece of another frontal bone with damaged margins. The bone is thin, indicating with the simple and open coronal suture that it belonged to an adolescent.

From the postcranial skeleton we have parts of the left ulna and radius, the distal part of a humerus with the epiphysis still not grown together. The epiphysis of the above-mentioned radius and ulna have been lost. They were not fused with the bone. The size of the radius and of other post-cranial bones points also to an adolescent. The length of the radius without the epiphysis is 21.6 cm.

#### ČIČAROVCE No. 3

The skull is well conserved, with complete facial skeleton. Only the lower part of the occipital bone scale, with part of the great round occipital opening, is missing. In the upper jaw both incisors and the canine tooth are missing on the right side (lost post mortem). In the lower jaw there are miss-



FIGURE 3. Middle Neolithic skull Čičarovce No. 3. Norma facialis, Norma lateralis, Norma verticalis, Norma occipitalis

ing both first incisors and the second right incisor with the right canine tooth together with a part of the alveolar process. These teeth were lost also post mortem. The dimensions of the skull are small, but its bones are thick. The supraorbital relief is not very strong, but in these Neolithic finds, where female skulls are often very gracile, it signals a male. Also the size of the teeth, especially the strong muscle relief in the lower jaw, the large mastoids in the temporal bone and other morphological characters are typical of a male skull.

The brain case sutures are open and the third molars are in occlusion with a slight wear only. The general degree of tooth wear corresponds to 20-30

years of age.

In the lateral view we can see a slight supraorbital relief with a shallow supraorbital transversal sulcus. The frontal bone is medium-high, finely vaulted. The cranial vertex is situated horizontally, formed by both the frontal and parietal bones. The parietal bones appear in this view well curved, with slight flattening in the lambda region and with smooth transition to the vaulted upper part of the occipital bone. The middle and lower parts are missing, thus we cannot find out what was their relief like. The temporal bones are small, mediumhigh and well vaulted, with a medium-strong root of the zygomatic arc, medium-large supramastoideal ridge and with large and thick mastoids. The external auditory meatus is oval in shape. The temporal lines on the parietal bones are weak.

In vertical view the skull is long ovoid in shape. The parietal bosses are medium-large and the front is narrow and well vaulted. The cranial sutures are medium-serrated, open. Parietal foramen is only on the right parietal bone. It is simple and of medium-

size.

On the cranial base we can see large and strong mastoids and a deep articular fossa for the mandibular heads. On the occipital bone there is a small

tuberculum pharyngicum.

The facial skeleton shows a narrow and well vaulted front with slight supraorbital arcs. The post-orbital constriction is weak. The nasion depression is mean, and the nasal bones are narrow, medium-high and roof-shaped. The nasal opening is broad. Its lower edge is sharp and simple with strong nasal spine. The canine fossa, especially on the right side, is large and deep. The maxillar incisure is well developed. A small malar bone is laterally oriented. It has a weak marginal process. On the lower edge of the malar bone there are strong tuberosities for muscular attachments. The orbits are rectangular and asymetrical. The right orbit is wider than the left one.

The upper palate is medium-deep, with parabolic dental arc. On the second right upper molar there is a medium-large caries occlusally. The roots of this tooth can be seen and the alveolar process forms a pocket on the lingual side. On the buccal side we can see the distal root of this tooth. On the opposite (left) side of the jaw we can see the roots of the first and second molars both on the buccal and lingual side. The teeth are strong, without

crowding. Their relative size is M<sub>1</sub>>M<sub>2</sub>>M<sub>3</sub>. The first incisor is characteristically worn on the lingual side due to scissor-type occlusion. There is a slight layer of tartar on the tooth necks, both lingually and buccaly. The lower jaw is well conserved, only a small part of the alveolar process is missing in the front. The right canine, second right incisor and both first incisors are lost. As to its size the jaw is not large, but its morphology indicates that it belonged to a male. In lateral view we can see a steep ascending branch. The semilunar incisure is medium-deep. The gonion is straight with strong muscular relief on its external and internal side. The lower jaw body is not high. The medium-sized mental foramen is situated in the middle of the body height under the second premolar. On the internal side of the jaw body there is a strong mylohyoid line. The chin is well developed, narrow and of slightly triangular shape. On the inner side of the symphysis there is an average-sized mental spine. The digastric fossa faces down. The teeth are halfworn. Both third molars are in their alveols and their position and slight wear show that their opponents in the upper jaw were slightly deeply set. The relative molar size is M<sub>1</sub>>M<sub>2</sub>>M<sub>3</sub>. There is a small caries in M2 occlusally.

#### ČIČAROVCE No. 4

The skull is not complete. The supraorbital part of the frontal bone is missing. It was cut off with a sharp tool. In the basal part of the skull the body of the occipital bone and parts of its scale are missing. In the facial skeleton the alveolar part of the upper jaw, the lower rim of the nasal aperture and the upper palate have been conserved. The left side of the maxilla has also been well conserved.

Both first upper incisors, the left upper canine and the first left lower incisor are lost. All the danmage and losses occured evidently during the exca-

vations.

In lateral view both parietal bones are well curved and through a slight flattening they are linked with the occiput which is well vaulted, with a mean-size muscular relief in the nuchal plane. The scale of the temporal bone is medium-high and well vaulted. The mastoids are strong and thick, with a slight supramastoidal crest above them. The root of the zygomatic arc is gracile.

In vertical view the braincase has a long ovoid shape, with mean parietal bosses. The cranial sutures are simple and open. The foramina parietalia are not represented. In occipital view the skull has round shape. Its maximum breadth is situated high in the parietal region. The lateral cranial walls are converging towards the cranial base. The lambdoid suture is simple, without any wormian bone. On the scale of the occipital bone there is no torus or external protuberance. In this view the large mastoids look prominent.

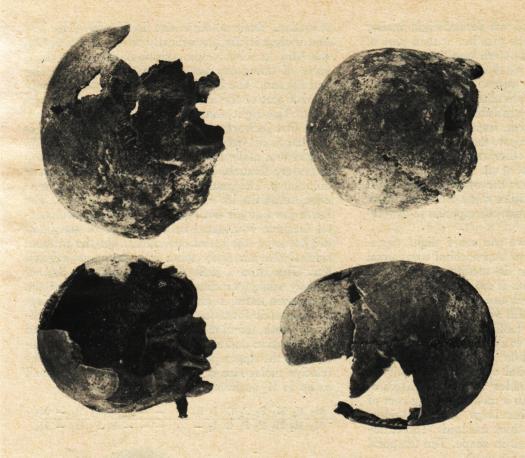


FIGURE 5. Middle Neolithic skull Cičarovce No. 5 Norma facialis, Norma lateralis, Norma occipitalis, norma occipitalis



FIGURE 4. Middle Neolithic skull Cicarovce No. 4 Norma facialis, Norma lateralis, Norma verticalis, Norma occipitalis

In the conserved part of the facial skeleton we can see a medium-high upper jaw. The lower edge of the piriform aperture is sharp, with an outstanding nasal spine. On the left side of the maxilla there is a large and deep canine fossa. The upper palate is medium-deep. No torus palatinus or maxillaris have developed. The large teeth are in a parabolic arc. The third molars are small in size and are slightly worn. Many of the teeth have free toothneck and a slight layer of tartar. The teeth wear corresponds to the age of about 30 years. There is no dental caries. The lower jaw is robust, with a strong chin. On the external and internal side of the mandible there is a strong muscular relief. The mental spine is medium-large. The mylohyoid crest and the relief for the m. pterygoideus lat. and for the m. massetter are well pronounced. On the mandibular base there is a digastric fossa facing down. In the left ascending branch the capitulum is broken off, but the muscular process is conserved. According to the remaining parts of the bone the gonion seems to be straight. The mental foramen is simple, medium-sized and situated between the second premolar and first molar in the middle of the mandibular body height.

M<sub>3</sub> M<sub>2</sub> M<sub>1</sub> P<sub>2</sub> P<sub>1</sub> C I<sub>2</sub> — I<sub>1</sub> I<sub>2</sub> C P<sub>1</sub> P<sub>2</sub> M<sub>1</sub> M<sub>2</sub> M<sub>3</sub>

ČIČAROVCE No. 5

Important parts of the broken skull are missing, namely a part of the left parietal bone and a large part of the frontal bone. Since the facial skeleton is not complete, it cannot be linked with the braincase. The facial skeleton has no left zygomatic bone and the adjoining part of the maxilla is missing. The lower jaw is complete. The skull has characteristic thick bones, strong muscular relief, well-developed supraorbital arches, robust lower jaw and big teeth. All these features indicate that the remains belonged to an adult male. The average degree of the wear of teeth, the worn third molars and the open cranial sutures correspond to the age of 30 years.

In lateral view the skull is regularly vaulted. The remaining parts of the frontal bone show that the supraorbital relief was well developed. This is proved also by the transversal supraorbital relief. The parietal bones look well and regularly curved from lateral view, with a slight lambda flattening. The occipital scale in the upper part is well-curved without occipital torus or external occipital tuberosity. The muscle relief on the nuchal plane is strongly developed.

The right temporal scale is medium-high and vaulted, with a mean supramastoid ridge. The root of the zygomatic arc is strong. The mastoid process is also strongly developed. The external auditory meatus is almost round in shape. In vertical view the skull is long with fine frontal bosses. Its shape is ellipsoid. The parietal foramina are not developed. In occipital view the braincase is round

and vaulted, with its maximum breadth situated high on the parietal bones. The lambdoid suture is simple, without wormian bones. The facial skeleton is very robust. The nasal skeletal remains show a broad nose. The malar bone is situated obliquely-

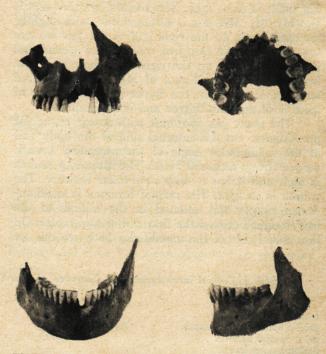


FIGURE 4a. Middle Neolithic skull Cicarovce No. 4 Upper jaw in facial view, Upper jaw in palatal view, Lower jaw in facial view, Lower jaw in lateral view

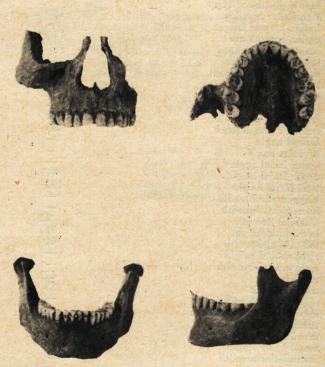


FIGURE 5a. Middle Neolithic skull Čičarovce No. 5 Upper jaw in facial view, Upper jaw in palatal view, Lower jaw in facial view, Lower jaw in lateral view

laterally. It is small and it has no marginal process. The canine fossa is large and deep. The lower outline of the nasal aperture is simple, with a very slight sulcus and anterior nasal spine. The upper jaw is high, with a medium-deep palate of large size. The dental arc consisting of strong and big teeth is also large. The molars' relative size is  $M_1 > M_2 > M_3$ . The jaw is orthognathic, with slightly crowded teeth. In the right-half of the jaw we can see on the buccal side free roots of the second and third molars and on the right side there is a cyst bucally on the distal root of  $M_2$ . We do not find any dental caries in the upper jaw. The wear of teeth is of medium degree and is horizontal.

The lower jaw is robust with strong triangular prominence. On the external side of the body and of the mandibular angle of the ascending branch we see strong muscular relief. The ascending branch is high and it has a deep semi-lunar incisure. The gonion is straight. The mental foramen is medium-large, simple and situated in the middle of the body-height between the first and second molar. On the medial side of the mandibular body we can see

a strong mylohyoid ridge and bone relief for the lateral pterygoid muscle. On the ascending branch there is a large mandibular foramen. On the dorsal side of the high mandibular symphysis there is a mental spine of medium size. The medium-sized fossa digastrica is situated on the mandibular base and faces down. In the lower jaw, similarly as in the upper one, the third molars are the smallest. On the right side we can see a large crown caries on the buccal surface of M<sub>3</sub> and on its distal root there is a granulom. On the opposite (left) side M<sub>4</sub> and the third molar have a small occlusal caries. The other teeth have weak tartar, but no caries.

In spite of the robusticity of the cranial remains the smooth shape of the braincase is interesting. It is especially striking in the occipital bone without any occipital torus or occipital protuberance. Characteristic is also the height of the braincase and the orthognathic jaws of the skull.

TABLE 1. Cranial measurements of Cicarovce Middle Neolithic Skulls

	No. 1	No. 2	No. 3	No. 4	No. 5
max. cranial length	181	173	183		
nasion-opistocranion length	179	172	180		
max. cranial breadth	130	128	136	142	137
nasion-basion length	_		102		-
auricular height	115?	111?	103?	103?	
minimal frontal breadth	91	92	92		
maximum frontal breadth	113	111	113	<b>等</b> 联。第二十四	
bimastoid breadth	96	89	99	92	
occipital breadth (biasterion)	98	97	105	100	105
basion-prosthion length		-	102	alor di <del>al</del> odori sa	AND THE
biauricular breadth	107	101	115	113	
basion-bregma height			132		140
nasion-bregma arc	13.2		119	THE RESIDENCE	
nasion-bregma chord	11.2	106	105	inerio e vei	BING ST
bregma-lambda arc	12.0	_	126	115	150
bregma-lambda chord	10.9	105	116	106	114
lambda-opisthion arc	109		-	SECTION AND ADDRESS.	-
lambda-opisthion chord	9.9	70000000000000000000000000000000000000		2000年	-
total sagittal arc	_	_	The state of		Castal -all
transversal cranial arc	304	289	289	310	
cranial circumference	496	485	510		The same of the same of
frontal angle	_	-	85°		
alveolar angle	_	_	80°		
upper facial angle	_	-	81°	THE SECTION SELECTION	teres and
upper facial height	64?	64?	61	THE TATE OF THE PARTY	
total facial height	103		106		
bizygomatic breadth	-	- / - / ·	124	7	
interorbital breadth	-	-0.18	/ 19		SECTION SECTION
biorbital breadth	9.9	- 10 × 10 × 10	- 94	he has the	F Walter
left orbital height	31	31	30	to a state and	The same
left orbital breadth	41	39	43		
right orbital height	<del>-</del>		28		41
right orbital breadth			43		41
nasal height	44?	- ·	44	adi an Ping s	24
nasal breadth	28		23		24
upper breadth of nasalia	-	11	11		100
minim. breadth of nasalia			- 70	48	59
maxilloalveolar length	53		58 64	60	65
maxilloalveolar breadth	58		94	00	96
mandibular length	101		112	ali remi ne i	119
mandibular breadth	109		89		98
bigonial breadth	8.9		69		58
ascending branch height	53		32		33
minimum breadth of the ascending branch	30		32	34	35
symphyseal height	30		16	14	16
mandibular body thickness	12		10		

A CONTRACTOR OF THE STATE OF TH	No. 1	No. 2	No. 3	No. 4	No. 5
mandibular body height	23		24	29	25
gonion angle	120°		110°		20
reconstructed body height				162	
cranial index	71.82	73.98	74.31	102	
frontoparietal index	70.00	71.87	67.64		
frontal index	80.53	82.88	81.41		
cranial height-length index		_			
cranial height-breadth index			_		102.18
total facial index		12	85.48		102.10
upper facial index			49.79		
nasal index	63.63		52.27		
right orbital index			65.11		
left orbital index	75.60	79.48	69.76		
maxilloalveolar index	109.43	_	110.34	125.00	110.16
auricular height-length index	63.53	64.16	56.28	8000	110.10
auricular height-breadth index	88.46	86.71	75.73	72.53	
length-breadth mandibular index	92.66	_	83.92		80.76
ascending branch index	56.60		50.00		64.00
mandibular body index	52.17	-14 -16-60	66.66	4827	7400
					- 200

### CONCLUSIONS

The cranial height-breadth index shows that skull No. 5 is acrocranic, with its index above 100. The total facial index and upper facial index could be calculated for skull No. 3 only; it is mesoprosop and euryene. As to its facial skeleton the nasal index puts skull No. 1 to the hyperchamaerrhine and skull No. 3 into the chamaerrhine group. The orbits in Nos. 1 and 3 are chamaeconch and in No. 2 mesoconch. The upper palate shows great variety: in skull No. 1 it is dolichouranic, in Nos. 3 and 5 mesouranic and in skull No. 4 it is brachyuranic.

The above facts mean that the Čičarovce skulls have some important characters common with other Central European Early Neolithic and Middle Neolithic populations. These common features are especially dolichomorphic and high braincases, broad nose and low orbits. These features appear also in other East Slovakian finds, e.g. in finds from Oborín (Jelinek 1975), in the South Slovakian finds from

Nitra (Jelínek 1973) and Štúrovo (1975), and in the Vedrovice finds in Moravia. Robusticity comparisons and a broader comparative study dealing with the Central and East European area will be presented later.

#### REFERENCES

JELINEK J., 1973: Die Neolithische und Bronzezeitliche Besiedlung der heutigen Tschechoslowakei. Fundamenta,

Reihe B, Band 3, pp. 168—199.

JELINEK J., 1975: Middleneolithic Anthropological Finds from Sturovo, South Slovakia. Anthropologie, XIII/3,

pp. 183-192. JELINEK J., 1975: The Find of a Late Neolithic Skeleton

JELINER J., 1970: The Find of a Late Neolithic Skeleton in Oborín, Michalovce District, East Slovakia. Anthropologie, XHI/3, pp. 251—252.
VIZDAL J., 1978: Kultový objekt potiskej kultúry na východnom Slovensku (Kultobjekt der Theisskultur in der Ostslowakei). Archeologické rozhledy, Vol. XXX, No. 4, pp. 361—371.

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