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## ŠALA II: DOCUMENTATION AND DESCRIPTION OF A *HOMO SAPIENS NEANDERTHALENSIS* FIND FROM SLOVAKIA

**ABSTRACT:** In 1993 and 1995, two isolated parts of the cranium of one and the same individual were found on the Váh River left bank (Slovak Republic). The reconstruction of cranial bones in the place of sutura coronalis led to the restoration of the left half of a cranium, described by the present author (Jakab 1996) as an adult male cranium Šala II (*Homo sapiens neanderthalensis*). The object of the present paper is to present photographic documentation of the Šala II cranium, and results of anthropometric research.

**KEY WORDS:** Left half of the Šala II cranium – Slovak Republic – *Homo sapiens neanderthalensis* – Photographic documentation of the find – Anthropometric data

### INTRODUCTION

The first find of Neanderthal man in Slovakia has been known since 1926, when Petrbok discovered a travertine brain casting in Gánovce, Poprad District (Figure 1). According to expert analysis made by Vlček (1969), the brain cast belonged to a woman with a low forehead, although her total brain capacity was large (1320 cm<sup>3</sup>). Despite the fact that the find's geological position had not been preserved any more at the time when Vlček carried out his observations, it is still probable that the find falls in the R-W period, as Vlček himself stated. It is therefore identical in time with the other finds of European so-called progressive Neanderthals (Jelínek 1969).

The second find of Neanderthal man – Šala I – was made in 1961 (Figures 2, 3), when a human frontal bone was discovered by amateur archaeologists in secondary deposits on a bank of a small island in the Váh River near the town of Šala (Figure 1), Slovak Republic (Vlček 1969). The morphological and morphometric reconsideration of Šala I frontal

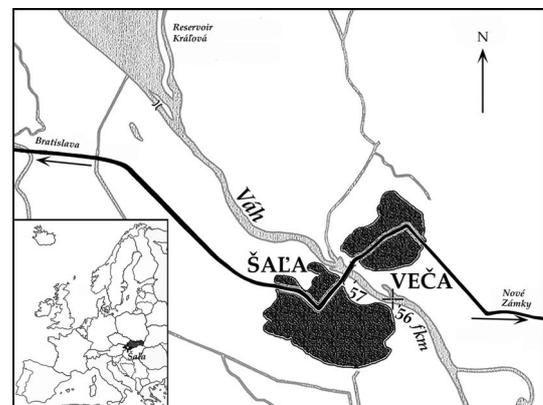


FIGURE 2. Map of the Šala region and the site Šala II.

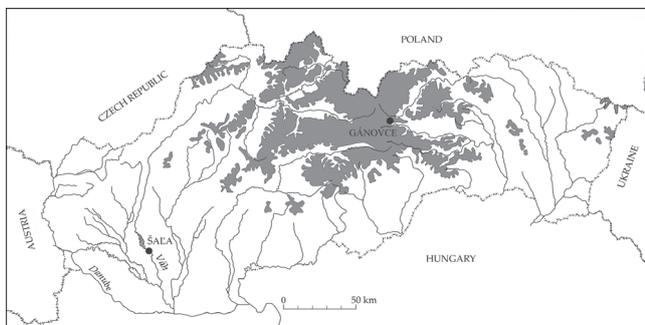


FIGURE 1. Map of the Slovak Republic. GÁNOVCE (Hrádok). Travertine quarry, 3 km SE of Poprad village, below the High Tatra mountains, Northern Slovakia. ŠALA. Sandbank in the Váh River, downstream from the Šala I, Šala II sites, near Šala nad Váhom, 60 km NE of Bratislava, Western Slovakia.

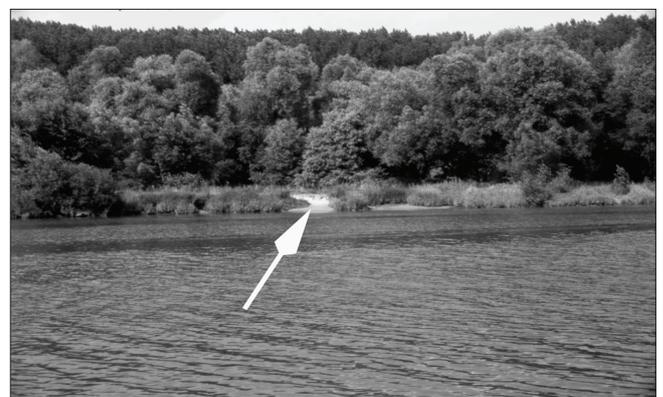


FIGURE 3. The Váh River. The arrow indicates the exact finding place of the Šala II find in 1993 and 1995. View from the opposite river bank.

bone, in its stratigraphic context, indicates that this bone most likely represents a Late Pleistocene representative of the Central-European Neanderthal sample (Sládek *et al.* 2002).

The third find of Neanderthal man – Šaľa II – was made by the town of Šaľa, in the area named Šaľa-Veča, between the 56th and 57th fluvial kilometre, approximately 800 meters downstream from the road bridge (Figures 2, 3). Šaľa II preserves the left frontal and parietal bones separated by a fracture near the coronal suture. The parietal fragment was found on 7 July 1993 by Igor Mihálik, and the frontal one on 3 December 1995 by Zoltán Vozák. An incomplete find situation and designation was published (Sládek *et al.* 2002) in contradiction with the interpretation and documentation by the author (Jakab 1998).

### ŠAĽA II CRANIUM

The left half of the skull (*Homo sapiens neanderthalensis*) has been reconstructed from two isolated specimens in the place of *sutura coronalis*, where recent fractures have been discovered (Jakab 1996). Both parts of the neurocranium bones make together an organic whole (Figures 4, 5); the metopic suture (*sutura metopica*) has been preserved over the whole length of the frontal bone. The bone surface is of dark colour due to long-term deposition in wet and mineral conditions, which have perfectly fossilised the bone.

Surface erosion is obvious on the *tuber frontale* (Figure 7) and around the bregma point in the central plane. Two levels are preserved at the

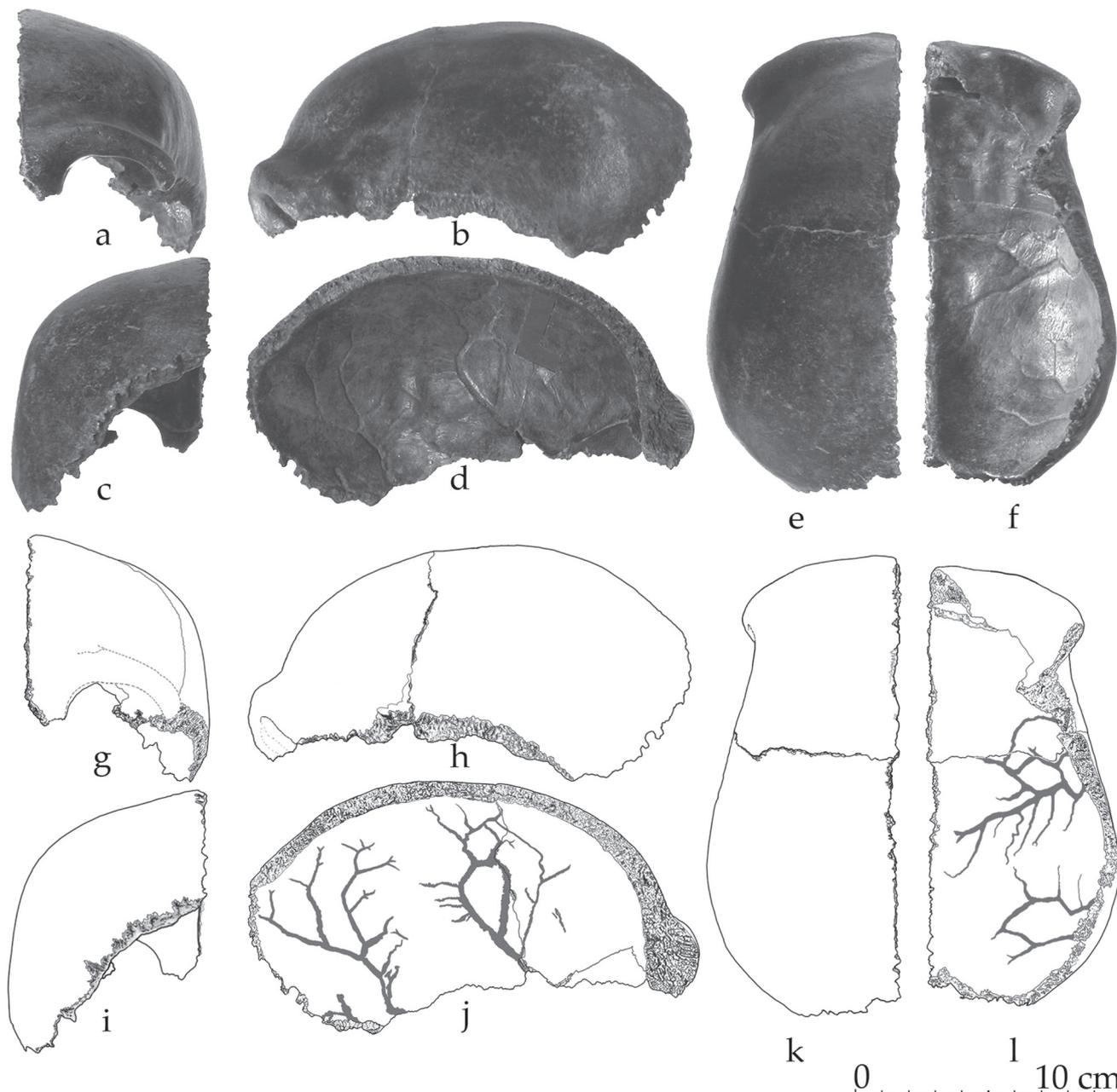


FIGURE 4. Photographic and drawing documentation of Šaľa II (*Homo sapiens neanderthalensis*): a, g – *norma frontalis*, b, h – *norma lateralis sinistra*, c, i – *norma occipitalis*, d, j – *norma lateralis dextra*, e, k – *norma verticalis*, f, l – *norma basilaris*.

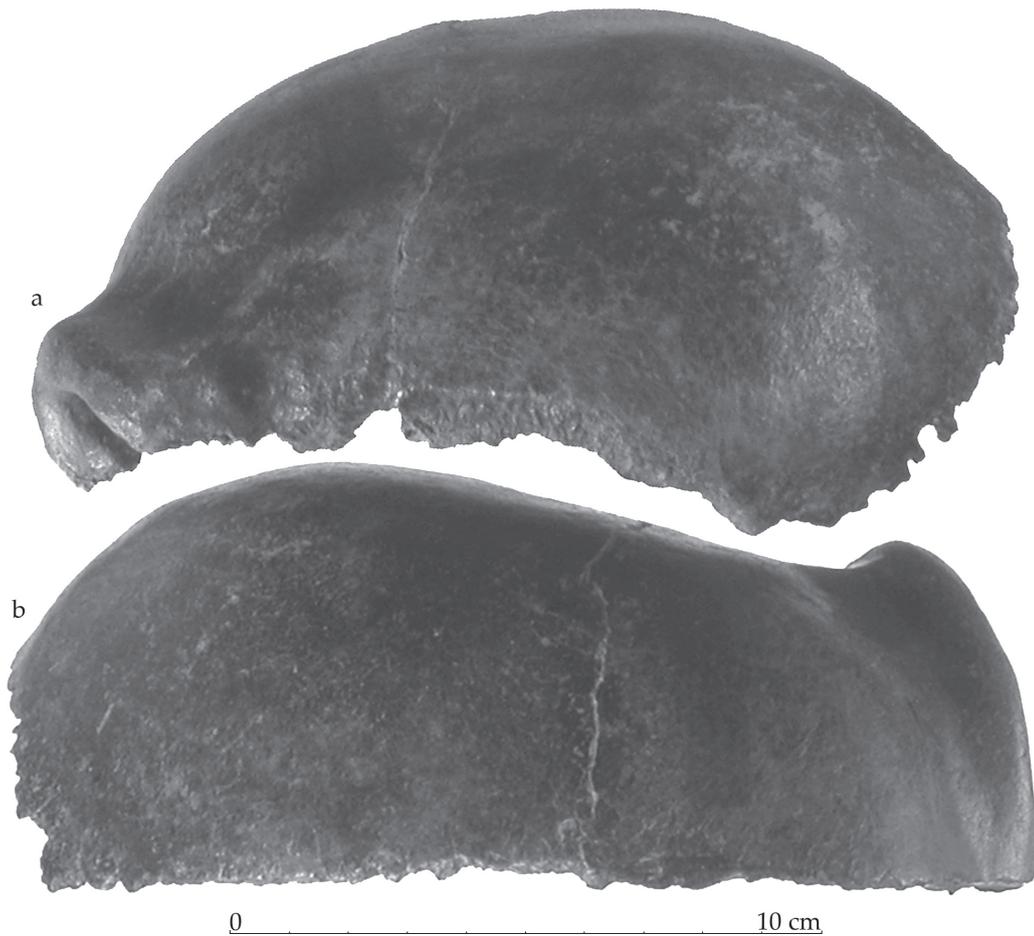


FIGURE 5. Lateral (a) and vertical (b) view of the adult male cranium Šaľa II, *Homo sapiens neanderthalensis*.

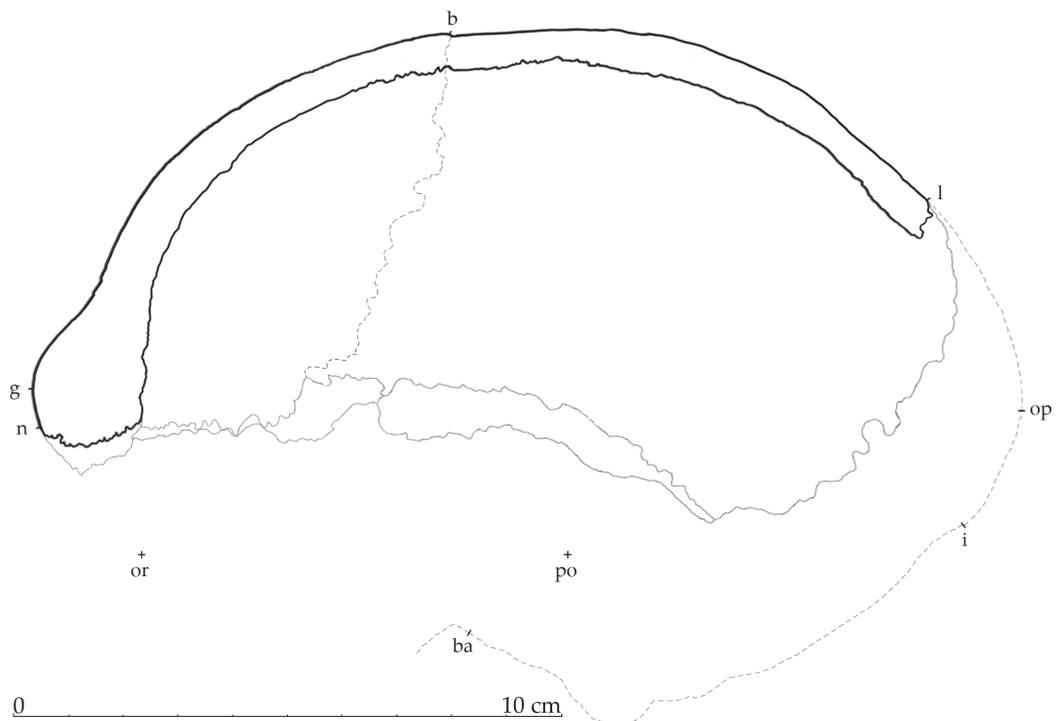


FIGURE 6. Šaľa II. *Homo sapiens neanderthalensis*. View of the sagittal diptrographic drawing with marked anthropometric points and the possible reconstruction of the cranium appearance.

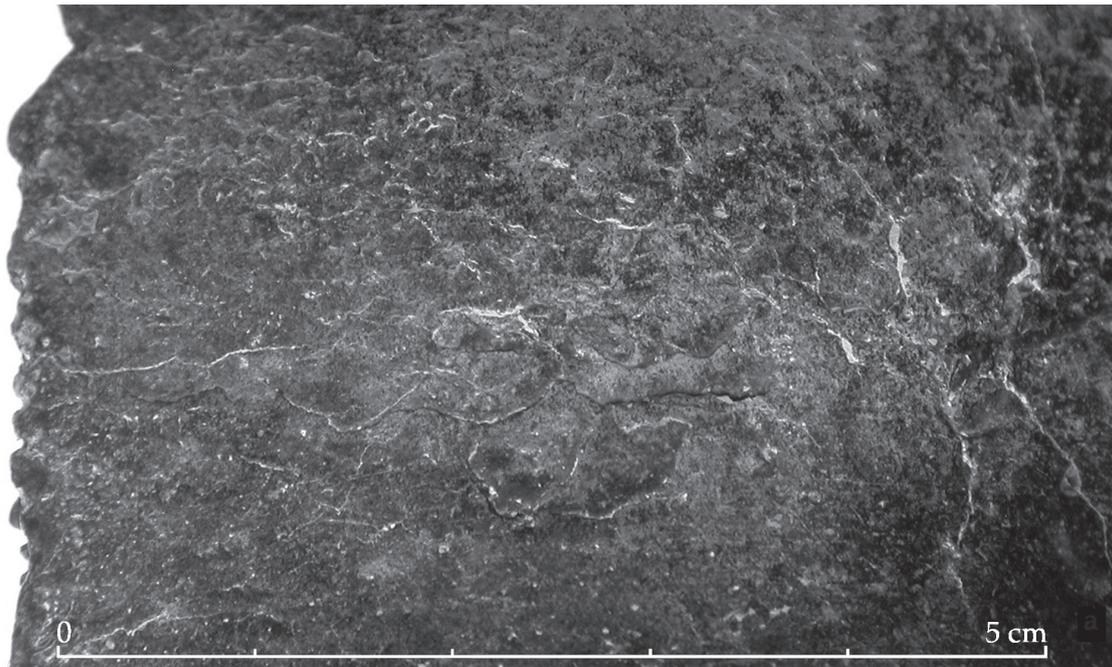


FIGURE 7. Šafa II. *Homo sapiens neanderthalensis*. Detailed view of the outside part of the cranium *lamina externa*; the cranium is damaged by erosion around the *tuber frontale*.

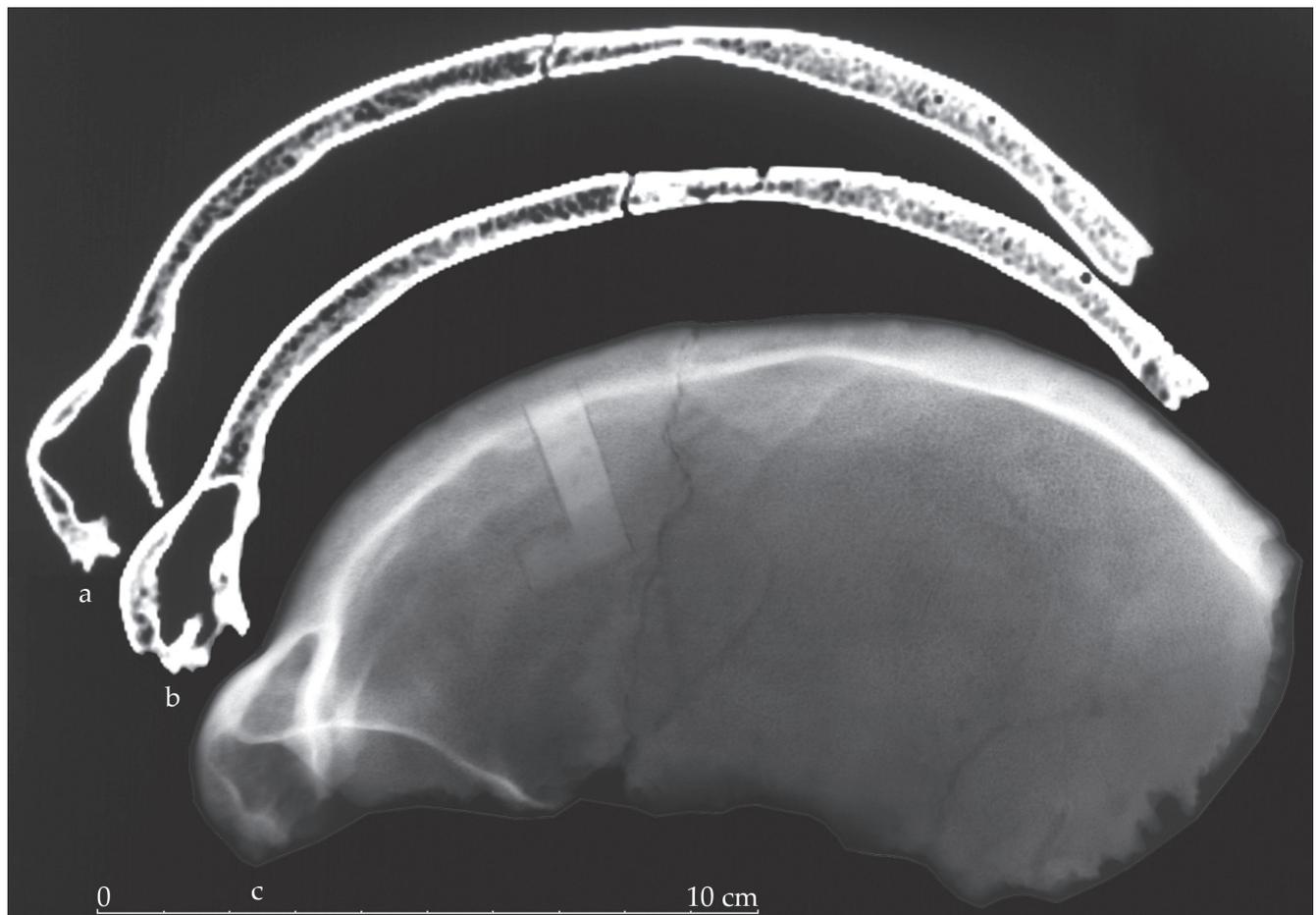


FIGURE 8. Lateral view of Šafa II. a – CT picture of a lateral projection at the distance of 10 mm from the *sutura sagittalis*; b – CT picture of a lateral projection at the distance of 7 mm from the *sutura sagittalis* (photo by Radiological Clinic III, Göttingen University); c – X-Ray picture of the lateral view of Šafa II cranium (photo by Hospital and polyclinic in Galanta, Slovakia).

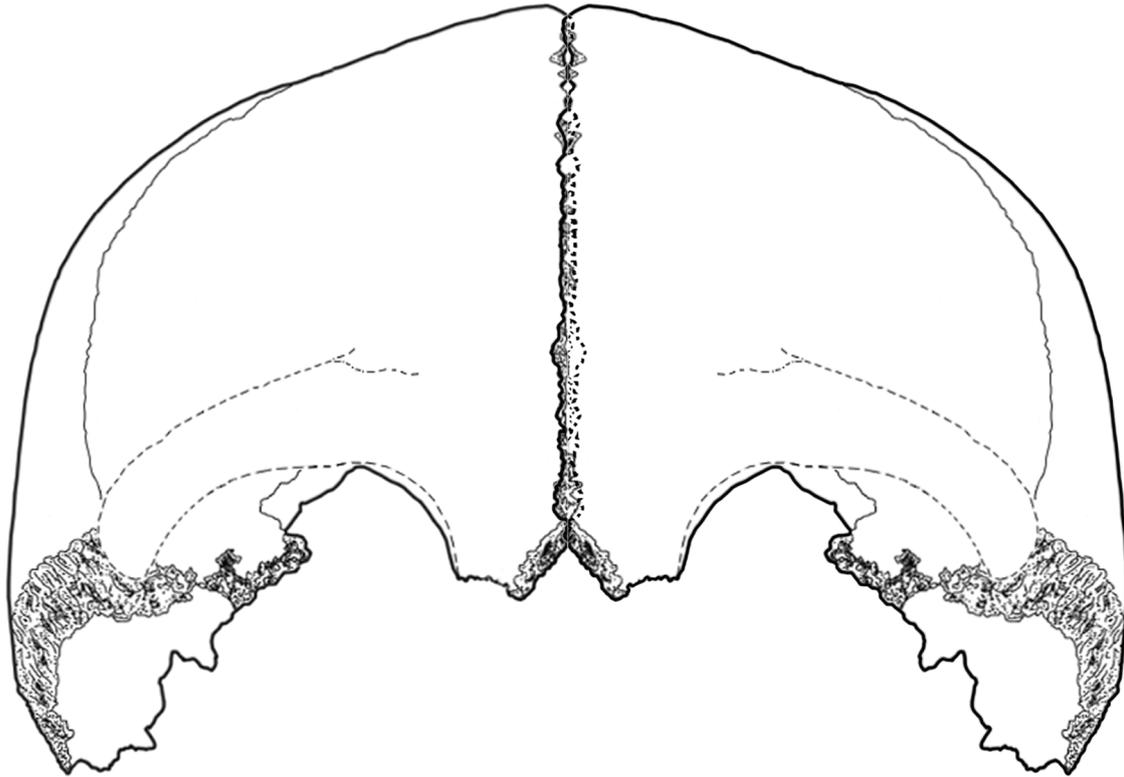


FIGURE 9. Reconstruction of the possible appearance of the Šafa II male cranium, *Homo sapiens neanderthalensis* (reconstruction and drawing by Július Jakab).

TABLE 1. Šafa II neurocranium (length measurements and angles) (according to Knussmann 1988).

Martin	Cranial measurements and landmarks	
M3.	Glabella – Lambda length (g-l)	167.0
M3a.	Nasion – Lambda length (n-l)	168.0
M8.*	Maximum Cranial breadth (eu-eu)	142.0
M8/1.*	Parietal diameter	140.0
M8/2.*	Inner Parietal diameter	120.0
M9.*	Minimum Frontal breadth (ft-ft)	106.0
M9/1.*	Postorbital diameter	110.0
M10.*	Maximum Frontal breath (co-co)	124.0
M10a.*	Maximum Frontal bone breath	130.0
M12.*	Maximum Occipital breath (ast-ast)	124.0
M19	Opisthion height	30.0
M22b	Calota height in Glabella – Lambda line	47.5
M26	Midsagittal frontal arch (n∩b)	114.0
M26a.	Midsagittal arch (g∩b)	108.0
M26/2.	Cerebral arch (sg∩b) taken in the midsagittal plane	88.0
M27.	Parietal arch (b∩l) taken in the midsagittal plane	100.0
M27/2.	Fronto-parietal arch	107.0
M27/3.	Occipito-parietal arch	103.0
M29.	Frontal chord (n-b) taken in the midsagittal plane	103.0
M29a.	Nasion – Bregma projective length (n-b)	102.0
M29/1.	Glabellar chord (n-sg) taken in the midsagittal plane	23.5
M29/2.	Cerebral chord (sg-b) taken in the midsagittal plane	84.0
M30.	Parietal chord (b-l) taken in the midsagittal plane	94.0
M30/1.	Temporo-parietal chord (sphn-ast)	86.0
M30/2.	Fronto-parietal chord (b-sphn)	90.0
M30/3.	Parieto-occipital chord (l-ast)	90.5
M32/5.	Angle of Frontal curvature	141.0°
M32/6.	Angle of Cerebral curvature of the frontal bone	143.5°

\* – estimate (value measured on left side only)

parietal protuberance *tuber parietale*: the first (ca 27×35 mm) between *tuber parietale* and *sutura sagittalis*, and the second between *tuber parietale* and *sutura lambdaidea* (ca 24×38 mm). Changes of the bone surface may be of traumatic origin, but they may also be a consequence of taphonomic influences from the find deposition place, caused by fluvial gravel, water stream, etc. A depression with surface grooves (length ca 14 mm, width ca 2 mm, depth ca 0.5 mm) appears on a part of the parietal bone near the *sutura lambdaidea*; the grooves are of the same shape and colour, and it is most probably a healed lesion. The cranium inside part is not damaged; there are well-preserved imprints of deep venous canals, and also flat imprints of probably epidural haematoma origin.

The cranial bones are very thick, and the muscle insertion relief is not pronounced. The frontal bone has a marked *arcus superciliaris*, constituting a robust *torus supraorbitalis*; the *squama frontale* is rather flat (regressing shape). The parietal bone is short and low, and it may be presumed that the braincase was low as well. On the inside part of the skull, the sagittal suture is obliterated almost over the whole of its length, while on the outside part it is only partly obliterated.

Anthropometric data were obtained by standard measurements and complemented with data from graphic reconstruction from a diopetrographic record (Figure 6, Table 1).

### COMPARISON OF THE FINDS ŠAĽA I AND ŠAĽA II

All detailed structures of the bones are well preserved in ŠaĽa II, and the colour and degree of fossilisation are similar to those of ŠaĽa I. In addition, an extensive geological and vertebrate paleontological survey has been carried out in the region (Figure 2). It has shown that both banks of the Váh River (Figure 3) in the ŠaĽa I and ŠaĽa II locations have been raised by ca 2 metres by dredging and that both the finds were probably enabled by surface erosion of the relocated dredging deposit.

It is evident from the comparison of ŠaĽa I and ŠaĽa II finds that both of them represent the same degree of evolution. The ŠaĽa II cranium belonged to an individual with a robust skull, it displays a shorter frontal bone, regressing frontal area and a less prominent *tuber parietale*. The ŠaĽa II frontal bone shows a marked *torus supraorbitalis* in the anterior part (height ca 13 mm), in the height of ca 9 mm in the central part, and in the height of ca 10 mm in the rear part. The ŠaĽa II frontal bone is more gracile when compared to the ŠaĽa I frontal bone, taking into account the data obtained by the present author and those published by Vlček (1969). This is obvious also on the CT and X-ray pictures (Figure 8), which show a markedly different range of the *sinus frontalis* as compared to the ŠaĽa I frontal bone (Vlček 1969).

The ŠaĽa II find (part of the left half of a calva) represents an older and more robust individual than that of ŠaĽa I (frontal bone), and it is highly probable that it belonged to a male who died in adult age – *maturus*. Taking into account that their almost identical look ranks both finds to the same degree of evolution, then the apparent differences may be interpreted as a consequence of a possible sexual dimorphism.

Morphological and morphometric reconsideration of the ŠaĽa I frontal bone was made by a group of researchers (Sládek *et al.* 2002), and it indicated that the find most likely represents a Late Pleistocene representative of the Central European population.

The question of interpretation of the ŠaĽa II cranium and its evolutionary classification among Central-European Neanderthals remains open. These issues may be answered with the use of the latest dating methods, evaluation of evolutionary succession in the context of European and Non-European Neanderthals, which will be the object of further studies.

### Note

In 1997 Prof. Dr. Michael Schultz has taken from the frontal bone a sample of 1.5 grams for histological and DNA analyses. The analyses are to be carried out at the Zentrum Anatomie der Georg-August-Universität Göttingen in Göttingen, Germany.

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