

J. JELÍNEK

## MIDDLENEOLITHIC ANTHROPOLOGICAL FINDS FROM ŠTÚROVO, SOUTH SLOVAKIA

It is a pleasant duty to thank the Director of the Archeological Institute of the Slovak Academy of Sciences in Nitra and archeologists J. Pavúk and V. Nemejcová-Pavúková for inviting me to co-operate with them, enabling me to study their finds and for the abundant information they gave me about the site and about the circumstances of the discovery. Consequently, all the archeological facts quoted in this study are based on the work of these two archeologists.

J. Pavúk and V. Nemejcová-Pavúková realized the archeological research of a Neolithic settlement in Štúrovo on the left bank of the Danube in 1965–1966 (V. Nemejcová-Pavúková 1966, J. Pavúk 1967). In a Neolithic layer of the Želiezovce Culture they found several cultural pits five of them with burials. One of the graves belonged to a child lying on its left side in squatting position. Two adults were also in squatting position, but lying on their right sides. One of the graves was incomplete and a number of scattered, often broken and split bones of further individuals have been found — they are eloquent proofs of anthropophagy.

The skeleton of the child, in contrast to other skeletons, was not in a cultural pit but in a special, shallow, oval grave hollow. The bones of the other did not lie on the bottom of the cultural pits (V. Nemejcová-Pavúková 1966, J. Pavúk 1967). Beneath and above the bones there were Želiezovce-type pottery fragments, enabling us to date the finds to the Middle Neolithic Period. The stratigraphic situation of the site has shown that the Želiezovce-type layer follows immediately after a layer containing late Spiral-Band ceramics.

The state of the dentition of these finds is also very interesting. Caries are frequent. Out of eight finds four had caries, and complete dentition appeared only exceptionally; mostly only the upper or the lower jaw was found, and it was also incom-

plete. In find No. 2/65 there were three teeth with caries and with two cysts, in find 1/65 there were four teeth with caries and one cyst. On realizing that only a part of the jaws and teeth have been discovered we should admit that these people had their dentition in a very bad shape, compared with other Neolithic finds.

Worth mentioning are also the orthodontical defects of the incisors in find No. 92/65 — the upper right incisor has an inward deviation from the dental arc. In find 2/65 the upper left incisor had not cut through and is situated in the upper palate in an atypical, transverse way. In one of the numerous fragments of lower jaws the right incisor is rotated out of the line of teeth. These relatively frequent defects are probably results of inbreeding in a small population.

No. 1/65 has been preserved in good condition, with the exception of the skull. Only the occipital part of the skull and the adjacent parts of the two parietal bones with two temporal bones have been preserved. Besides this, large fragments of the frontal bone, and a part of the facial skeleton, i.e. part of the maxilla, the right cheekbone and the lower jaw have been preserved. During the excavation the front part of the alveolar process was cut-off by accident, with a spade, and it has been lost. From the postcranial skeleton two shoulder-blades, collar bones, humeri, radii and ulnae, the pelvis, the sacrum, two thigh bones, tibiae and fibulae have been preserved. In good shape are also the vertebrae, sternum and ribs, as well as the ossified thyroid cartilage, carpal, metacarpal, tarsal and metatarsal bones, and the bones of the fingers and toes. It was possible to reconstruct the original height of the body according to the long bones of the limbs.

The morphology of the supraorbital region, the mastoids, the supramastoid ridge, the shape of the lower jaw, and the general robustness of the post-

cranial skeleton show that it was male's skeleton. The advanced obliteration of the cranial sutures and the wear of the teeth indicate that the man was 40–50 years old. It is interesting that the cranial sutures have almost completely disappeared and are very difficult to follow, while the teeth are in a comparatively good condition.

On the medium-wide forehead we can see, in the lateral view, only slight supraorbital relief. The frontal squama is medium-high and well arched. The occipital squama's upper part is slightly protruding and in theinion it is slightly bent. The protuberantia occipitalis externa is very small. The mastoids are of medium-size, as well as the supra-mastoid ridge above them. The temporal squama is medium-high and has an average arching.

In vertical view we can see medium-size parietal bosses. In the parietal bones there are well seen the two foramina parietalia — both are simple and comparatively small.

In the occipital view the skull is wide, medium-high, with a rounded arch of the cranial vault. Remnants of the obliterated lambdoid suture are very difficult to follow — it is difficult to judge the original character of this suture. The protuberantia occipitalis externa is very small, the lineae nuchales running from here laterally to both sides are well visible — they separate the nuchal plane with its well developed rough lines giving attachment to neck muscles.

In the facial skeleton there is an interesting feature — the nasal root is relatively broad, and above it there is a round-vaulted glabella (Broca V), connecting the two supraorbital arches, situated medially. Almost the entire lateral half of the supraorbital region is occupied by the trigonum supraorbitale. The zygomatic bone is a robust one, with a medium-size processus marginalis. It had evidently an oblique lateral position, increasing the width of the face considerably. The incisura submaxillaris is well shaped. The anterior nasal spine is strong. The lower edge of the nasal orifice is simple. The upper jaw is not prognathic. The teeth are arranged into a wide arch. On the right side only the first incisor is missing — it was lost post-mortem. On the second molar there is a distal, medium-size caries on the neck of the tooth. The third molar is already in occlusion. On the right side there are medium-size caries of the crown, on the first premolar distally, and on the second premolar proximally and distally. Behind the second premolar the bone is broken-away, and thus the other teeth are missing. The third molar has been found isolated and it has a large caries on its crown. In the lower jaw on the left side all the three molars and the second premolar have been preserved without caries. The third molar is bigger than the other teeth. On the opposite side only the second and third molar have been preserved — the latter is small in size. The dental socket of the first molar shows the traces of a cyst.

For the dentition formula following symbols are used: 0 — missing tooth, x — broken off post mortem. — lost intravitaly, [ ] caries.

The lower jaw is robust, with a prominent triangular chin. The basis of the jaw is not rocking. The foramina mentalia are simple, of medium-size, and are almost at medium-height of the jaw body, beneath the roots of the second premolars. On the internal side of the symphysis there is a small spina mentalis. The fossae digastricae face obliquely rearward, and at the centre they are divided by a well-developed thorn. The mylohyoid ridge is strong. On the slightly everted angles of the gonion there are rough lines for the attachment of the lateral pterygoid muscles. On the upper arm bones there are big heads and there is also a well-developed relief for muscle attachment. The fossa olecrani is not perforated. The bones of the forearm are strong. On the radii there are medium-size tubera radii, situated laterally from the extended crista interossea, which is also of medium-size. On the two ulnae there is a well-developed muscle relief, especially at the distal end of the diaphyses. The crista interossea is of medium-size also here. The diaphyses are slightly S-shaped, and are quite robust.

The thigh bones have big strong heads. The pilaster and the tuberositas glutea are of medium-size. There was no trochanter tertius. The whole bone is big and robust. According to the subtrochanteric index the two thigh bones are platy — and eurymeric. Both tibiae have a sharp anterior margin and well formed tibial tuberosities. Linea obliqua is weak. Cnemic index shows both bones as eurycnemic. The fibulae are sabre-shaped, and their cross-cut through the centre of the diaphysis is triangular. According to the length of the long bones the probable height of the skeleton, by the use of Breiting's method, is 169 cm. The first sacral vertebra has a tendency to lumbarisation. The sacral canal is wide-open, only in the third sacral vertebra it is closed by the vertebral arc.

No. 2/65

The skull and the lower jaw have been comparatively well preserved. There is a considerable defect on the base of the skull — the basion is missing, so that neither the basion-bregma height, nor the nasion-basion length can be measured. The two zygomatic arches are broken-off, so that the bizygomatic width can be estimated only approximately. In the facial skeleton there is a defect in the region of the left fossa canina. Also the left squama of the temporal bone and the right parietal bone are damaged. The right ascending branch of the lower jaw is missing.

The strong superciliary arches, medium-size mastoids, the strong supramastoid ridge, and the shape of the lower jaw show that the skeleton belonged to a comparatively gracile male. According to the beginning obliteration of the sagittal suture in the obelion region, obliteration of the lambdoid suture, heavy abrasion of the teeth, and according

[M<sub>3</sub>] [P<sub>2</sub>] [P<sub>1</sub>] C I<sub>2</sub> I<sub>1</sub> / 0 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>  
M<sub>3</sub> M<sub>2</sub> 0 / 0 P<sub>2</sub> M<sub>1</sub> M<sub>2</sub> M<sub>3</sub>

to their general condition we can say that the age of this individual was between 40–50 years.

In the lateral view we can see a medium-high, well-domed forehead with strong supraorbital arches. The arch of the forehead passes gradually to the parietal part of the skull. The parietal bones in the sagittal plane are well vaulted. The upper part of the occipital squama is a bit protruding, but at the inion it is slightly broken. On the whole, the occipital squama is well arched. The margin of the squama temporalis is medium-high and is well arched. Above the medium-size mastoids there is a very strong supramastoid ridge. The external auditory meatus is oval in shape.

In the vertical view the skull has an oblong, ellipsoid shape. The forehead has a rounded vault, and is comparatively narrow. The parietal bosses are not formed. The cranial sutures are simple, they are open, their obliteration had begun only in the region of the obelion. The foramina parietalia are not developed.

In the occipital view the skull is high, narrow, with an arched vertex. The lateral walls of the skull converge slightly towards the basis. We can see also from this view that there are no parietal bosses on the parietal bones, and the occipital squama is slightly protruding. The lambdoid suture is simple. Across the occipital bone there is a ridge resembling the torus occipitalis.

In the facial view we can see a medium-high rounded forehead with a prominent supraorbital region, visibly separated from the frontal squama. The supraorbital arches pass continuously to the trigonum supraorbitale, and are mutually connected through a strong protuberance of the glabella. This is separated from the facial skeleton by a medium deep nasion. The two nasalia are medium-wide and medium arched. The nose is narrow and high. The orbits are asymmetrical — the left orbit is rectangular, medium-high, the right one is a bit lower and inclined obliquely. The cheek bones are situated laterally. There is a weak processus marginalis on them. The face is narrow. On the upper jaw there is a deep fossa canina and a well visible incisura submaxillaris. The lower edge of the nasal aperture is protruding into a medium-size anterior nasal spine.

The upper palate is small, with a medium-size alveolar process. It is medium-deep. The alveolar process, especially on the left side of the upper jaw, is destroyed to a certain degree. Nevertheless, in the lateral view we can see a medium-size prognathism. There is an interesting anomaly in the teeth of the upper jaw, a phenomenon quite rare for the Neolithic Age. The left canine had not cut through, it lies obliquely, fully grown, in the alveolar process of the jaw. The existence of this tooth caused probably that both incisors on this side have not been preserved. Unfortunately, their sockets are not preserved as well. On the crown of the second premolar there is distally a shallow neck caries of medium-size. Beneath the first premolar on the palate there is an osseous formation, looking like a medium-size protuberance. The alveolar process

distally from the second premolar is quite destroyed through alveolar abscess. All the teeth are strongly worn, on the front teeth practically the whole crowns are worn-off. In the lower jaw the abrasion of the teeth corresponds to the abrasion of the upper teeth. Almost the entire crown of the first molar and of the incisors are worn on the right side, indicating that the upper jaw's incisors were slightly protruding forward. On the second premolar on the left side there is distally a large caries on the neck. From the adjacent first molar only a root is remaining, the rest had been destroyed by the caries. Below the two teeth there is a large cyst in the alveolar process, it is open buccally, and reaches deep in the jaw body. On both sides of the lower jaw the third molars are in occlusion and the abrasion of their biting surface shows that they were in use for quite a long time. An isolated tooth was also found. It is strongly worn, obliquely, and it has two roots. It is probably the rest of the first molar from the left side of the lower jaw.

$$\frac{-M_2 \quad M_1 \quad [P_2]/C/}{M_3 \quad M_2 \quad [M_1] \quad [P_2] \quad C \quad I_2 \quad I_1} \quad \frac{I_1 \quad I_2 \quad C \quad P_1 \quad P_2}{I_1 \quad I_2 \quad C \quad P_1 \quad P_2 \quad M_1 \quad M_2 \quad M_3}$$

Only in this place of the lower jaw could have occurred such an typical abrasion, because the abrasion of the molars of the opposite upper jaw is similar.

The lower jaw is smaller in dimension and it has a well shaped mental protuberance and a rocking base. The foramina mentalia are simple, medium-size, and are located near the base of the mandible. They are beneath the roots of the premolars. On the internal side of the symphysis there is a medium-size spina mentalis. The fossa digastrica is well formed and faces obliquely rearward. The mylohyoid ridge is strong. On the internal side of the attachment of the lateral pterygoid muscle. The right branch of the lower jaw is missing. The fresh fracture shows that it has been broken-off and lost post-mortem. The dental arch is parabolic. The third molars, compared with the other molars, are a bit small, though on the left side, which has been preserved, we can clearly see that this tooth had enough space, therefore the small size was not due to lack of space.

From the postcranial skeleton the long bones of the limbs, fragments of collar bones, of the two shoulder-blades, fragments of vertebrae and ribs, the two patellae, carpal, metacarpal, tarsal and metatarsal bones and the bones of the fingers and toes have been preserved. The sternum and the sacrum are missing. Eight of the long bones of the limbs have been preserved, and thus we were able to measure their total length — it is the left humerus, the left radius, left ulna, right ulna, the two tibiae and the two fibulae. The heads of the two thigh bones are missing and on the left femur the distal end of the bone is also very defective. The point of the right elbow was sintered and destroyed to such a degree, that we were able to save only the ulna. The head of the radius and the adjacent part of the distal joint of the humerus and the capitulum humeri are missing. The missing parts, especial-



ly the heads of the long bones, were lost post-mortem, as their fresh fractures prove.

The humeri are medium-strong and there is well-developed muscle relief on them. The fossa olecrani is not perforated. The head of the left humerus is of medium size and has an oval outline. On the left radius there is a strong tuber radii, situated laterally from the prolonged crista interossea. The diaphysis of the ulna is S-shaped, and it has a very strong crista interossea. Also at the distal end, where the bone-shaft is the narrowest, the breadth of the shaft is increased by a strong osseous crest. What we have said about the left ulna, it applies also to the right one. There is a strong pilaster on the two thigh bones and the tuberositas glutea looks like a rough osseous crest. There was no trochanter tertius. The bones are robust (the index of the centre of the diaphysis is 129,16 and 125,0, and their subtrochanteric diameters are given by the platymetric indexes 77,41 and 75,75). The two tibiae are robust, their anterior margin is slightly S-shaped, with weak tuberositas tibiae, and with a strong linea obliqua. The cnemic index shows the platycnemy and the mesocnemy (61,11 and 66,66). The two fibulae are strongly crested. Through Breitinger's method we received from the length of the long bones the height of the individual 162 cm. On the body of the preserved thoracic vertebra we can see around the circumference of the upper and lower edge typical arthritic lipping. On the preserved calcaneum and on the two patellae there are prominent exostoses.

No. 3/65

Incomplete skull of a subadult individual. From the brain-case only the two parietal bones, part of the squama occipitalis, and fragments of the temporal bones have been preserved. The frontal bone and the cranial base are completely missing. From the facial skeleton the two cheek bones and a large deal of the maxilla has been preserved. The lower jaw is partially damaged in the region of the symphysis. The fact that the third molars had not cut through, and that they are visible in the upper jaw comparatively deep in the alveolar process, indicate that the individual was 15–20 years old. This age-estimate is supported also by the comparatively thin bones of the skull. The shape of the lower jaw and of the facial skeleton indicate that the bones belonged to a girl.

In the lateral view the parietal bones are medium-long and well curved. There is no lambdoid flattening. The upper part of the occipital squama is protruding (bathrocephaly), but it forms a rounded vault.

The squama of the temporal bone is medium-high and well arched. The supramastoid ridge is slightly indicated. The mastoids are small.

In the occipital view the skull is flat, the vertex is slightly vaulted. The lateral walls of the brain-case converge towards the base of the skull. The parietal bosses are well visible in this view. The skull is wide and comparatively low. The lambdoid

suture is medium complicated without wormian bones in it. The upper part of the squama occipitalis is protruding also in this view.

In the vertical view we can see medium-complicated skull sutures and prominent parietal bosses, yielding the skull a bit pentagonoid outline. Only one foramen parietale was formed, on the right side. In the facial skeleton there are medium-size cheek bones with a well developed processus marginalis. They are situated obliquely laterally. The face is not wide. The lower edges of the orbits show that the outline was rectangular. The nasal aperture is wide and its lower edge is simple. Unfortunately in the region of the prosthion there is a defect, and thus the anterior nasal spine has not been preserved. The defect continues also on the upper jaw, where the first permanent incisor on the left side is missing. Its alveolus is broken-out labially. The fossa canina and the incisura submaxillaris are of medium-size. The upper palate is medium deep. The above-mentioned first incisor on the right side deviates from the dental arch lingually, and thus it is not in occlusion. The two second molars are strongly worn, but the third molars are still situated inside the mandibular body. There is no caries either in the upper or in the lower jaw. The mandible is comparatively small, and it has a medium-size triangular mental protuberance. The spina mentalis is weak and the fossa digastrica faces obliquely rearwards. The body of the mandible is robust. On its external side beneath the second premolars at medium-height of the body is the simple, medium-size mental foramen. The mylohyoid ridge on the internal side of the body of the lower jaw had not been formed. The gonion is slightly inverted. On its internal side there are slight lines for the attachment of the lateral pterygoid muscle. The teeth are in good shape, without caries. On the left side the crown of the first premolar is broken-off, evidently post-mortem. On the same side we can see in the socket, distally from the second molar, the crown of the third molar, still not cutting through.

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>	/	X	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>
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>1</sub>	I <sub>2</sub>	C	P <sub>1</sub>	P <sub>2</sub>	M <sub>1</sub>	M <sub>2</sub>	

On the bones of the postcranial skeleton, which are mostly very gracile, many of the epiphyses are still separated from the diaphyses by a well perceptible line, indicating that they had grown together a short time before the death occurred. It applies especially for the heads of the thigh bones, for the proximal epiphyses of the tibiae, and for the heads of the humeri. In the distal epiphyses of both bones of the forearm the epiphyses and the diaphyses had still not grown together. The distal epiphyses of the thigh bones, distal epiphyses of the humeri and the proximal epiphyses of the two bones of the forearm are better grown together. The iliac crest had not grown together with the pelvis. This situation indicates that the individual was 15–20 years old.

The upper arm bones are small and very thin, but they have well formed muscle relief. The distal epiphyses had already grown together with the dia-



physis. The fossa olecrani is not perforated. At the minimal breadth of the diaphysis of the right ulna, near the distal end of the bone, there are visible traces of a well healed fracture (Fig. 3.). The corresponding radius is normal. All bones of the forearm are gracile, with a very thin crista interossea. The tuber radii is outside the prolonged axis of the crista interossea. The femoral heads are very small. The pilaster is low. The tuberositas glutea has the shape of a shallow depression. There is no trochanter tertius. The subtrochanteric diameter shows that the two bones are platymetric. The distal end of the left thigh bone is missing — it has been lost apparently post-mortem. The tibiae have a sharp, slightly curved anterior margin, passing proximally to the strong tuberositas tibiae. The head of the bone is clearly retroverted. The linea obliqua looks like a deep depression. The bone is thin, and the enemic index shows mesocnemy.

The fibulae are very gracile, with not very well formed crests. According to the length of the long bones of the limbs the height of the stature is approximately 154 cm by Bach's method.

No. 61/65

We have also some other fragmentary finds from the Stúrovo site, marked as '61/65' — namely the two bones of a forearm (ulna and radius), a right fibula, whose proximal end is missing. We were able to measure only the length of the radius, the distal end of the ulna is also missing. The fractures are of post-mortem origin. The two forearm bones are robust, and there is a strong crista interossea on the ulna. On the radius there is a big tuber radii, situated laterally from the extension of the crista interossea. The fibula is strong and is well crested.

Besides these three long bones we have found also: a large part of the epistropheus, the two calcanei and two tali bones, and five other tarsal bones and some finger and toe bones (15 pieces altogether). On one of the metatarsal bones there are visible arthritic changes (exostosis at the proximal end). The approximate height of the stature according to Breiting's method is 169 cm. The dimensions and the robustness of the bones leave no doubt that it was the skeleton of an adult male.

No. 92/65

From the skull remained the whole brain-case, and the incomplete facial skeleton with heavily damaged right cheek bone and maxilla. The skull sutures are mostly open, their obliteration had started only on the endocranial side. Together with the condition of the teeth — the third molars of both the upper and lower jaw had been cut through, but they are still little worn — the age of the individual can be estimated between 30–40 years.

In the lateral view the brain-case has a medium-high and medium arched forehead, with weak superciliary arches. The nasion depression is slight. The parietal bones are of medium-length and are evenly curved. The cranial vault has an ob-

long horizontal course. The occipital squama is slightly protruding, and has a small protuberantia occipitalis externa (Broca 2.) The temporal squama is medium-high and is slightly arched. Above the medium-size mastoids there is a well-shaped supra-mastoid ridge. The external auditory meatus is slightly oval in shape.

In the vertical view the skull is almost ellipsoid. The skull sutures are open and medium-complicated. The parietal bosses are not formed. In the obelion region on the right side there is a simple medium-size foramen parietale. The skull (index of length-breadth 76,66) is mesocrane. In the occipital view the skull is low and comparatively broad, slightly vaulted, and with rounded, arched lateral walls. In the region of the parietal bosses the parietal bones are evenly curved. The lambdoid suture is medium articulated, without wormian bones. The upper part of the occipital squama is protruding, also in this view. From the protuberantia occipitalis externa there are running laterally to both sides approximately equally high lineae nuchales sup., forming slightly arched ridges. On the whole it looks like a transitional formation between the protuberantia occipitalis ext. and between the torus occipitalis. The rough lines on the planum nuchale are of medium-size. From the basal view we can see a wide, almost circular foramen occipitale. On the basal part of the occipital bone there is a well formed fossa pharyngica, with a small tuberculum pharyngicum. The fossae for the mandibular heads are medium deep.

In the facial view there is a flat glabella, from which the superciliary arches run laterally to both sides. There are well formed frontal bosses. The nasion depression is very shallow, the nasal bones are medium high and medium-wide. The nasal aperture is medium-wide and its lower edge is simple. The anterior nasal spine is slight. The cheek bones are flat, they are comparatively laterally situated, they are gracile and have no marginal process. The orbits are quadrangular, medium-high, the face is medium-wide. The upper palate is small and medium deep, there is neither torus maxillaris, nor torus palatinus. The dental arc is of parabolic shape, both third molars have been cut through; their occlusal surface is very little worn. On the right side the second incisor is missing — it was probably pushed out by the permanent canine tooth, whose crown has a mesio-lingual direction, and is situated outside the tooth arch, towards the upper palate. The heavily worn milk canine tooth, therefore remained in its place — it has a small mesial caries on the crown. In its socket we can see traces of a cystic process, and a small fistula is leading from it (buccally). The other teeth are normal on both sides of the jaw. The two third molars in the upper and lower jaw are a bit small. The mandible is of small dimensions. Its right head is damaged, and thus we are not able to realize the respective measurements. The chin is wide, rounded and quite big. On both sides of the mandible there are simple, large mental foramina, situated beneath the second premolars. On the right side it is, however, tripled. On both

	1/ 65 40—50 ♂	2/ 65 40—50 ♂	92/ 65 30—40 ♀	92/ 65 B 20—30 ♀	3/ 65 juv.
max. cranial length	—	186	180	—	—
max. length of the cranial base	—	184	178	—	—
max. cranial breadth	149	127,5	138	136	144
nasion-basion length	—	—	98	—	—
min. frontal diameter	—	90	97	—	—
max. frontal diameter	—	111	119	86	90
bimastoideal breadth	119	97	101	115	114
biauricular breadth	—	113	115	—	108
occipital breadth	132	105?	103	—	—
basion-bregma height	—	—	128	—	—
auricular height	—	117	108	—	—
nasion-bregma arc	—	131	123	—	—
nasion-bregma chord	—	114	107	—	—
bregma-lambda arc	—	136	140	128?	—
bregma-lambda chord	—	118	119	114?	—
lambda-opisthion arc	—	—	110	—	—
lambda-opisthion chord	—	—	92	—	—
cranial horizontal circumference	—	527	511	—	—
transversal cranial arc	—	317	306	300?	—
frontal angle	—	65	63	—	—
facial angle	—	70	66	—	—
alveolar angle	—	—	65	—	—
total facial height	—	118	112	—	—
upper facial height	—	72	62	—	—
nasal breadth	—	23	25	26	28
nasal height	—	52	44	—	—
right orbital height	—	31	29	—	—
left orbital height	—	32	30	—	—
right orbital width	—	39	40	—	—
left orbital width	—	38	39	—	—
upper breadth of nasalia	—	15	12,5	—	—
maxiloalveolar breadth	—	62?	60	59	61
maxiloalveolar length	—	—	52	—	—
biorbital breadth	—	97	100	—	—
interorbital breadth	—	23	25	—	—
condylar breadth of the mandible	124	—	109?	109	113
bigonial breadth	107	—	96	92	86
mandibular length	109	—	106	—	92
gonion angle	113	—	119	119	119
mandibular ascending branch height	70	64	57	57	50
min. breadth of the mandibular ascending branch	36	28	32	29	31
mandibular body thickness in the place of M <sub>2</sub>	15	15	13	11	13,5
mandibular body height in the place of M <sub>2</sub>	30	28	28	27	25
symphyseal height of the mandible	—	35?	—	30	31

INDEXES

cranial index	—	68.54	76.66	—	—
length-height cranial index	—	—	71.11	—	—
breadth-height cranial index	—	—	92.75	—	—
transversal frontal index	—	81.08	81.51	—	—
transversal frontoparietal index	—	70.58	70.28	—	—
length-height auricular index	—	62.90	60.0	—	—
breadth-height auricular index	—	91.76	78.26	—	—
right orbital index	—	79.48	72.50	—	—
left orbital index	—	84.21	76.92	—	—
nasal index	—	44.23	56.81	—	—
maxiloalveolar index	—	—	115.38	—	—
mandibular length-breadth index	87.90	—	97.24	93.57	81.41
mandibular branch index	51.42	43.75	56.14	50.87	62.0
mandibular body index	50.0	53.57	46.42	40.74	54.0
cranial capacity	—	—	1313	—	—





TAB. I. STUROVO 1/65  
SKULL

1. norma lateralis
2. norma verticalis
3. norma occipitalis
4. mandible lateral view
5. mandible frontal view
6. upper jaw, frontal view
7. upper jaw, occlusal view



1



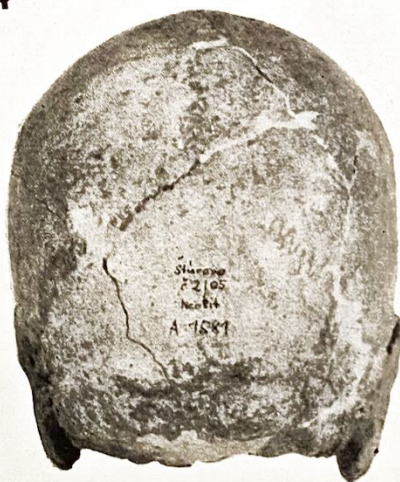
2



3



4



5



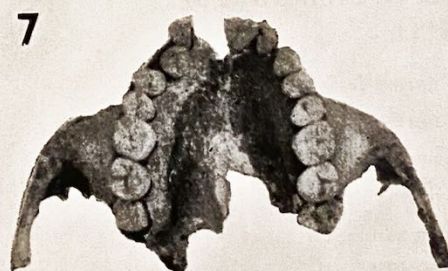
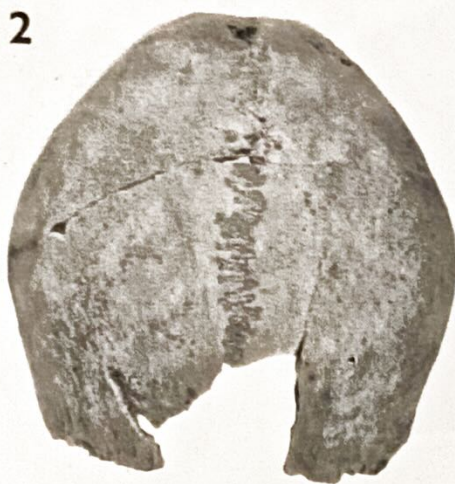
6



TAB. II. STÚROVO 2/65  
SKULL

1. norma facialis
2. norma lateralis
3. norma verticalis
4. norma occipitalis
5. mandible, lateral view
6. mandible, frontal view





TAB. III. STUROVO 3/65  
SKULL

1. norma lateralis
2. norma verticalis
3. norma occipitalis
4. mandible, frontal view
5. mandible, lateral view
6. upper jaw, frontal view
7. upper jaw, occlusal view



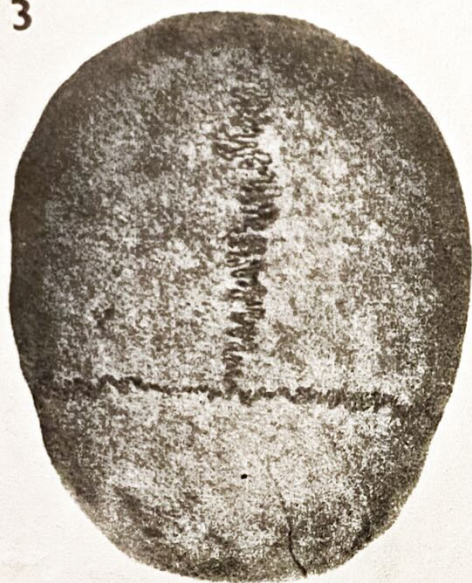
1



2



3



4



5



7



TAB. IV. STUROVO 92/65  
SKULL

1. norma facialis

2. norma lateralis

3. norma verticalis

4. norma occipitalis

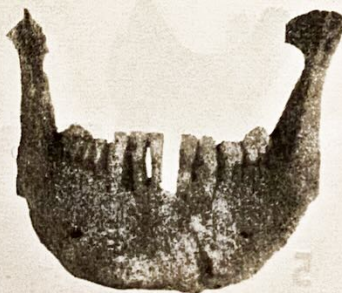
5. mandible, lateral view

6. mandible, frontal view

7. upper jaw, frontal view

8. upper jaw, occlusal view

6



8

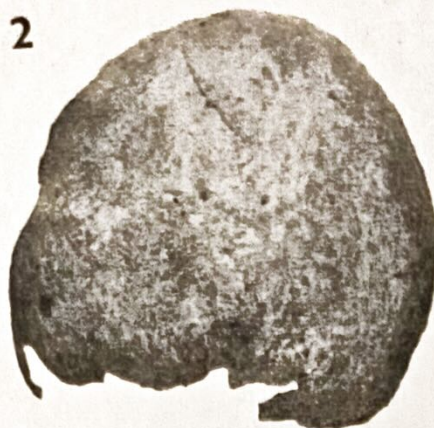




1



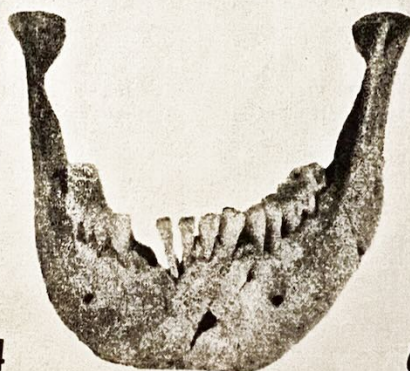
2



3



4



6



TAB. V. STÚROVO 92/65 B  
SKULL

1. norma lateralis

2. norma verticalis

3. norma occipitalis

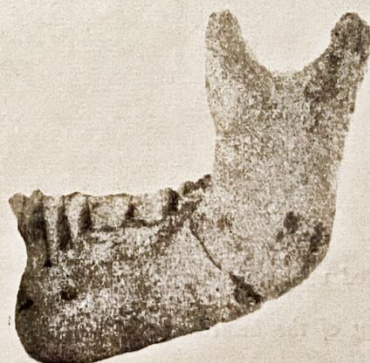
4. mandible, frontal view

5. mandible, lateral view

6. upper jaw, frontal view

7. upper jaw, occlusal view

5



7



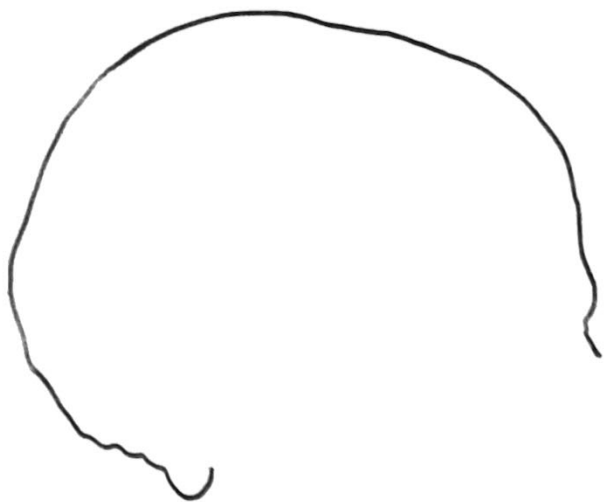


FIG. 1. Štúrovo 2/65. Mid-sagittal cranial section.

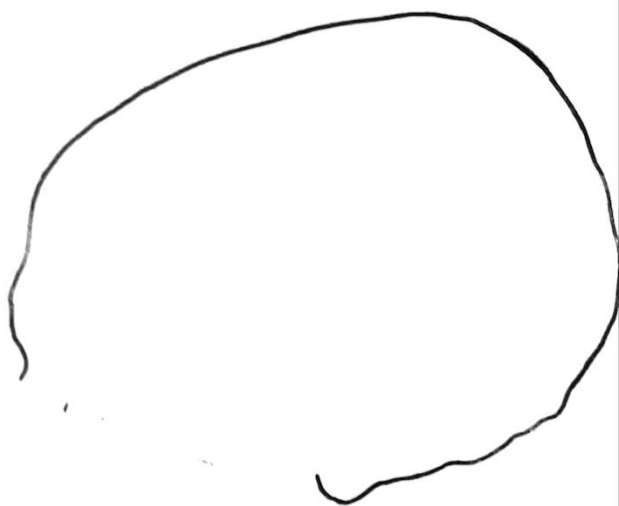


FIG. 2. Štúrovo 92/95. Mid-sagittal cranial section.



TAB. VI.

FIG. 3. 1. Healed ulna fracture, Štúrovo 3/65  
2. X-ray of the healed ulna fracture



ŠTÚROVO postcranial measurements

FEMUR:	1/ 65		2/ 65		3/ 65	
	P	L	P	L	P	L
max. length	451	454	406?	—	373	—
fyziol. length	447	450	—	—	—	—
transvers. subtroch. diameter	33	32	31	33	27	26
ant.-post. subtroch. diameter	27	28	24	25	21	21
ant.-post. diameter of the middle of the shaft	30	30	31	30	22	23
transvers. diamet. of the middle of the shaft	29	29	24	24	20	22
circumference of the middle of the shaft	93	92	88	86	67	69
index subtroch.	81.81	87.60	77.41	75.75	77.77	80.76
index of the middle of the shaft	103.44	103.44	129.16	125.0	110.0	104.54

TIBIA:

max. length	376	368	328	330	—	296
whole length	370	365	323	322	—	291
ant.-post. diameter in nutritive foramen	33	34	36	33	26	26
transversal diameter in nutritive foramen	27	28	22	22	18	18
circumference of the middle of the shaft	84	84	88	86	64	66
index enemicus	81.81	82.35	61.11	66.66	69.23	69.23

HUMERUS:

max. length	323	322	—	295	—	260
max. diameter	24	22	22	21	18	18
min. diameter	21	20	18	18	13	14
circumference of the middle of the shaft	74	69	—	66	52	52
epicondylar diameter	—	59	—	63	51	52
index of the middle of the shaft	87.50	90.90	81.80	85.71	72.22	77.77

	1/ 65		2/ 65		3/ 65		61/ 65	
	P	L	P	L	P	L	P	L
ULNA:								
max. length	256	259	252	249	—	—	—	—
min. circumference	38	39	40	39	32	30	—	—
transversal diameter of the middle of the shaft	17	17	18	18	11	11	16	—
sagittal diamet. of the midd. of the shaft	14	14	11	11	11	11	15	—
index platylenic	121.42	121.42	120.0	128.57	100.0	100.0	106.66	—

RADIUS:

max. length	241	237	—	229	—	—	—	240
min. circumference	47	47	42	41	31	32	—	41
Transversal diameter	17	17	14	14	11	12	—	16
sagittal diameter	14	13	11	11	09	09	—	12

FIBULA:

max. length	360	364	322	323	—	—	—	—
BODY HEIGHT:	168.6		161.8		154.2		169	



sides they are situated in the lower-half of the jaw, near its base. On the internal side of the symphysis there is a well formed spina mentalis. laterally from which we can see the impressions of the sublingual glands. The fossa digastrica faces almost to the base and its two impressions are separated by a well formed osseous thorn. The mylohyoid ridge is weak. The gonions of the jaw are straight. On their internal sides there are medium-size rough lines for the attachment of the lateral pterygoid muscle. The left incisor was lost post-mortem. On the internal side of the foreteeth, including the first premolars, there is a slight layer of tartar. All the teeth are comparatively small, supporting the view that they belonged to a female. There was no caries in the permanent teeth.

M <sub>3</sub>	M <sub>2</sub>	M <sub>1</sub>	P <sub>2</sub>	P <sub>1</sub>	[c]	O	I <sub>1</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>
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>	O/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>

No. 92'65 B

From the skull a small part of the squama frontalis has been preserved, but unfortunately it can not be measured. The two parietal bones and the occipital squama have been so well preserved that together with the pyramids and mastoids of the temporal bones they enabled the reconstruction of most of the skull cap. From the facial skeleton a large part of the maxilla is missing. The left cheek bone has not been found too.

The skull dimensions, the small mastoids, the shape and dimensions of the mandible and the size of the teeth show that the skull belonged to a female.

Since the third molars had been cut through, and are little worn, and all the skull sutures are open, her age is estimated between 20—30 years.

In the lateral view we can see a horizontal level of the cranial vault. The parietal bones are well curved, with a slight lambdoid flatness, passing to the occipital squama. The occipital bone is well arched, and there is an osseous formation of transitional type on it, between the torus occipitalis and between the external occipital protuberantia. Only small parts of the temporal bones have been preserved, with traces of a medium-size supramastoid ridge. The mastoids are small. In the vertical view the skull has ovoid shape, it is quite obvious, though the frontal squama is very incomplete. The forehead was considerably narrower than the skull between the parietal bosses, which are well formed. The parietal foramen on the right side is simple, and of medium-size. On the left side there is a defect on the parietal bone. In the occipital view both the cranial vault and the lateral walls are rounded, well arched, so that the outline of the medium-size skull is approximately circular. The parietal bosses are rounded. The occipital squama is not protruding, on the contrary, on its upper part there is a small lambdoid flatness. The lambdoid suture is of average shape. Across the squama there is an osseous torus, with a small tuberculum at its centre (Broca 2). The rough lines for muscle at-

tachment on the nuchal plane are of medium-size.

The facial skeleton, whose fragments could not be attached to the brain-case, miss the nasalia and a part of the left frontal process of the upper jaw. The edges of the orbits are not well preserved, we were unable to establish their original shape. The nose aperture, judged from the remnants of the facial skeleton, was wide. Its lower edge is simple, with a weak anterior nasal spine. The fossa canina, as we can see it on the right side of the jaw, was not very deep. The incisura submaxillaris was of medium-size. The left cheek bone is gracile, flat, with slight traces of the processus marginalis. It shows that the cheek bones were oriented laterally, and the face was not wide. The upper palate is medium deep Altogether 8 teeth have been preserved in the alveolar process, all without caries. The empty tooth socket of the first premolar on the left side shows that the tooth had two roots.

M <sub>2</sub>	M <sub>1</sub>	P <sub>2</sub>	O	C	I <sub>2</sub>	O	/	O	O	O	P <sub>2</sub>	O	M <sub>1</sub>	M <sub>2</sub>
----------------	----------------	----------------	---	---	----------------	---	---	---	---	---	----------------	---	----------------	----------------

The skull is small and is dolicho- to mesocran. It is not high.

Besides the above-described bones a large number of small fragments of two skulls and of long bones have been unearthed. Worth mentioning is also a fragment of the supraorbital region of a skull, with medium-size supraorbital arches and glabella (Broca 2). The thickness of the bones and their morphology show that they belonged to a male's skull. Two fragments of the left and right temporal bones with strong mastoids fit this statement.

Other fragments of temporal bones with medium-size mastoids, together with several fragments of a thin frontal bone and with a small left cheek bone belonged to a female's skull. The open sutures show that she was 20—30 years old.

On a fragment of the basal part of an occipital bone, we do not know to which skull it belonged, there is a small tuberculum pharyngicum and a well-developed fossa pharyngica.

Besides the cranial fragments (some 25 pieces altogether) two fragments of postcranial skeleton, with clear traces of hammering and splitting, have also been preserved. There are among them fragments of the right and left humerus, ulna, tibia, femur, collar bone and fibula. Remnants of the pelvis and other bones are also broken and split into small pieces — the clear traces of hammering and splitting are in this case however, hard to see. Several (about 10) fragments of thigh bones, pelvis, 1 toe bone, and several indefinable fragments of long bones are heavily burnt. This find, which proves cannibalism, can be explained more precisely through the archeological circumstances of the find.

From the long bones of the limbs the two upper arm bones have been preserved — they are also damaged. It is possible to measure the maximum length of the left one, indicating the approximate height of the stature. On the right arm bone there is a slightly perforated fossa olecrani. The tuberositas deltoidea and other rough surfaces for muscle attachment are very strong. On both bones of the

forearm there are medium-size cristae interosaeae. Besides these, more or less complete humeri and two forearm bones (radius and ulna) the remains contained also further fragments of broken bones. Among these fragments we were able to identify the proximal part of the left femur, whose head is broken-off, a fragment of the diaphysis of the right femur, a part of diaphysis of a tibia, fragments of both fibulae, hammered distal ends of the two humeri — in the left of them there is a slightly perforated fossa olecrani. There have been preserved also fragments of a radius, the proximal part of an ulna, and fragment of a collar bone. The fragment of the tibia enables us to calculate the index enemicus. 66.6, placing it among mesocnemic tibiae.

On the thigh bones there was a very strong pilaster, and the tuberositas glutaeca forms a deep groove. The subtrochantric index shows the thigh bone as hyperplatymetric.

There are strong traces of burning on one of the fragments. It is evident that the bones were split on purpose, evidently to eat the marrow. Besides the fragments of these long bones, incomplete skulls of three individuals have also been found on the same spot — as show six temporal bones.

#### LIST OF FRAGMENTS:

1. An almost complete lower jaw of a female of 20–30 years. The two third molars are cut through, and are slightly worn. The mandible was broken, left part of the symphysis, and the left ramus had been separated from the mandibular body. On the right side the processus muscularis is missing. The jaw is comparatively small. The mental tubercle is of medium-size and is oval in shape. The two mental foramina are relatively large and simple, and they are situated approximately at the centre of the height of the jaw body, between the roots of the first and second molars. On the internal side of the symphysis there is a medium-size mental spine. The fossa digastrica faces obliquely rearward. The mylohyoid ridge is only slightly marked. The gonion is straight, and on its internal side there are rough lines for the attachment of muscles.

$M_3 \ M_2 \ M_1 \ P_2 \ P_1 \ C \ I_2 \ I_1$        $I_1 \ O \ C \ P_1 \ [P_2] \ M_1 \ M_2 \ M_3$

The teeth form a parabolic arc and are small. The second incisor on the right side has been lost post-mortem.

On the second premolar, on the same side, there is a large caries of the crown — it is situated mesially. From the third molar, on the left side, a piece of enamel had been split-off from the buccal side of the crown. This defect has evidently certain connection with the breaking of the jaw (see the above-mentioned traces of cannibalism).

2. A part of the upper jaw with eight teeth in situ. The nasal apperture is medium-wide, its lower edge tends to form a fossa praenasalis. The fossa canina is shallow, the incisura submaxillaris is of average size, as well as the anterior nasal spine. The preserved teeth are fairly worn and have no caries. It is very probable that this upper jaw and

the above-described lower jaw belonged to the same individual (No. 1).

$M_2 \ M_1 \ P_2 \ O \ C \ I_2 \ O$       /       $O \ O \ O \ P_1 \ O \ M_1 \ M_2$

3. Fragment of the right half of a lower jaw body with eight teeth in situ. It is a fragment of a medium-size jaw with a well shaped triangular chin. The foramen mentale is of medium-size, and is in the lower half of the height of the jaw body, between the roots of the second premolar. On the internal side of the symphysis there is a strong mental spine. The fosa digastrica is situated on the basis of the jaw and faces downwards. The mylohyoid ridge is only slightly marked.

$I_1$       /       $I_1 \ I_2 \ C \ P_1 \ P_2 \ M_1 \ M_2$

The teeth are healthy and without caries. The canine tooth is slightly rotated from the dental arc. Distally from the second molar we can see a part of the wide tooth socket of  $M_3$ , showing that this tooth had not been cut through completely. This circumstance, together with the slight abrasion of the other teeth, shows that the age of this individual was between 15–20 years.

4. Burnt fragments of the left side of the body of a lower jaw, with a well preserved alveol of the first premolar, and with the rests of the  $P_2$ ,  $M_1$  and  $M_2$  teeth that had been, evidently, knocked out. The mental foramen is of medium-size, simple and is situated approximately at the middle of the jaw body height between the roots of the first and second premolars. On the internal side of the jaw body there is a strong mylohyoid ridge.

5. Large cheek bone with a slight marginal process.

6. Fragments of two temporal bones with medium-size mastoids, and with an oval external auditory meatus. There had been no supramastoid ridge.

7. Fragments of two temporal bones with small mastoids. The supramastoid ridge is missing also here.

8. Incomplete frontal bone with a defect in the supraorbital arches were not large. The forehead and in the adjacent part of the frontal bone is missing. Nevertheless, it is evident from the conserved part of the supraorbital region that the supraorbital arches were not large. The forehead is well arched, with prominent frontal bosses. It evidently belonged to a female.

minimal frontal diameter      9,6  
maximal frontal diameter      11,6

In place 104/65 the remnants of a child were found. From the skull only the cap, composed of parts of the frontal bone, two incomplete parietal bones and a small fragment of the adjacent occipital squama have been preserved. All these bones are thin, their surface has fine moulding.

In the lateral view we can see a medium-high, well-arched forehead, without supraorbital arches. The parietal bones are, in this view, evenly arched and are rounded — they are attached to a fragment of the occipital bone.

In the vertical view the skull appears small, ovoid, and has a rounded shape. The forehead is

narrow, the parietal bosses are not very prominent. There are no foramina parietalia. In the prelam-boid region we can see a slightly flat surface. The sutures have an average shape. In the occipital view the vertex cranii appears well arched. On the preserved part of the frontal bone we can see a flat nose root. The nasion is not in a depression, but it is flat. The glabella is also flat.

#### DISCUSSION

When comparing the Štúrovo finds with Roumanian neolithic finds of Kris culture and the Neolithic finds from the Hungarian Körös Culture, with the Slovak finds of Spiral-Band-ceramic in Nitra and with the Moravian finds of Spiral-Band-ceramic unearthed near Moravský Krumlov, we shall see that all these finds belong to a single physical type. The Štúrovo finds, similarly as the other above-mentioned finds, are evidently dolichomorphous. One of the well-preserved skulls is hyperdolichocranial, the other one is mesocranial. Their orbits are low to medium-high, and the nose shows chamaerhinous tendency. Compared with the later Central-European Aeneolithic population of the Cord Ceramic Culture these Neolithic finds are less dolichomorphous, they have lower orbits, wider noses, and the skull vault is also lower, influencing thus the width-height index of the skull, which in the Neolithic skulls is lower than in the later aeneolithic skulls of the Cord Ceramic people (Jelínek 1964b). Since no mesolithic skeletons of adult individuals have been discovered in Slovakia, Moravia or Hungary, we turn our attention to the find of a female's skeleton unearthed in Staré Město in South-Eastern Moravia, which is dated to the very end of the Pleistocene Epoch, to the period of the transition to the Mesolithic Age (J. Jelínek, 1956). This individual shows also a tendency towards mesocrany, having medium-high orbits and not too high cranial arch.

In occipital views all Štúrovo skulls show strong tendency to a round circular form, which is usually considered as typical for west European Neanderthals. Here is this form best represented in the skull 92/65 B. The male skeleton 2/65 from Štúrovo has also very interesting morphology of supraorbital region with strong superciliary arches, separated from the comparatively low forehead by a transversal depression. Prominent supraorbital arches are not rare in the oldest neolithic finds. We can see it in some of the male skulls from Nitra (Jelínek 1973) and the male skull from Moravský Krumlov (Stloukal 1960) could be also compared to our Štúrovo find. It seems, however, that the robustness of all the three named male skulls is related with the Central European Upper Paleolithic finds, where the frequency and the degree of these features is especially well developed (Brno II, Pavlov, Předmostí) (Jelínek 1975).

We can conclude that the Štúrovo Neolithic population of the Želiezovce type is part of the so-called Danubian Neolithic population (Coon 1939)

characteristic with a lower to middle stature, dolichocrany combined with broader (mesoconch) orbits and with broad nose (chamaerhin).

They are not so gracile as usually stated in literature. Perhaps the limited number of finds, often by chance female skeletons influenced such statements. More numerous material proved fairly strong sexual dimorphism represented mainly in the robusticity of bone, in the degree of muscular relief in bones, the size and morphology of the supraorbital region etc. The classical typology will usually classify the men as protomediterranoids and women as gracile mediterraneoids. The comparison of male skulls with the Upper Palaeolithic find Brno II and female with the find Věstonice III (Jelínek 1964a, 1975) shows clearly that the origin of Central European early Neolithic population is in the upper palaeolithic gravettian (pavlovian culture) population of the same region.

#### LITERATURE

- COON C. S.: The Races of Europe. New York, 1939.  
 JELÍNEK J.: Homo sapiens fosilis ze Starého města u Uher-ského Hradiště. *Časopis Moravského muzea* 1956, XLI, P. 139–196.  
 JELÍNEK J.: A Contribution to the origin of the meriteranean type. VII<sup>e</sup> Congrès International Sci. Anthropol. Ethnol. Moscow 1964a.  
 JELÍNEK J.: Anthropologie der jüngeren Steinzeit in Mähren, *Anthropos*, Brno, 16, 1964 b.  
 JELÍNEK J.: Die Neolithische und bronzezeitliche Besiedlung der heutigen Tschechoslowakei. In: *Die Anfänge des Neolithikums vom Orient bis Nordeuropa*, Anthropologie, Böhlau Verlag, Köln, 1973, S. 186–199.  
 JELÍNEK J.: The Homo sapiens neanderthalensis and Homo sapiens sapiens relationship in Central Europe. *Human Evolution*, 1975 in press.  
 NEMEJCOVÁ-PAVŮKOVÁ V.: Neolithische Siedlung von Štúrovo. VII<sup>e</sup> Congrès International des Sciences pré-historiques et protohistoriques, Tchécoslovaquie 1966, Nitra 1966, P. 1–8.  
 PAVŮK J.: Výzkum neolitického sídliska v Štúrovo. (Bericht über die Erforschung der neolithischen Siedlung in Štúrovo). *Archeologické rozhledy* XIX/5, 1967, P. 576–583.  
 STLOUKAL M.: Ein Neolithischer Schädel aus Rybníky bei Mor. Krumlov. *Přehled výzkumů 1959. Archeologický ústav ČSAV*, 1960, S. 36.

Dr. Jan Jelínek  
 Moravian Museum,  
 nám. 25. února 7  
 Brno (CSSR)