

**WOOLLY RHINOCEROS *COELODONTA ANTIQUITATIS*
(BLUMENBACH, 1803) FROM PLEISTOCENE OF SERBIA**

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Two entire skulls, the nape section of another skull, three mandible branches with preserved teeth, two mandible fractions and one isolated molar make the collection of fossil remnants of woolly rhinoceros - *Coelodonta antiquitatis* in the Natural History Museum in Belgrade. This paper gives all of the results after morphometrical analyses. Comparison of the examined dates with the other author's dates of this species collected on Eurasia, showing that there is no any major difference between their remnants.

INTRODUCTION

Although the fossil remnants of the woolly rhinoceros are a frequent occurrence in the Quaternary deposits through Europe and Asia, the collection of Pleistocene mammals in the Natural History Museum in Belgrade contains very few specimens of this species. However, their attractiveness and the fact that they are very well preserved make them stand out among the other, much more abundant Pleistocene mammal items.

MATERIAL AND METHODS

Two entire skulls, the nape section of another skull, three mandible branches with preserved teeth, two mandible fractions and one isolated molar make an interesting material for the morphometric analyses of several indivi-

duals to which they belonged. All these remnants originate from river silt (the rivers of Sava, Drava, Kolubara, Velika Morava), and they usually reached the Museum along with the other mammal material collected at these localities.

The reliability of determining and identifying the rhinoceros species by means of its teeth is comparatively high. However, in cases when whole skulls with preserved sets of teeth are available, there is a possibility of obtaining more complete data giving a more precise idea of not only the appearance but also of the way of life and the individual's age of the animal. The application of the methods and parameters of the authors who had studied the woolly rhinoceros (Adam 1961, Badoux 1966, Apostol 1970, Guerin 1970, 1973, 1980, 1983, Borsuk-Bialyicka 1973, Loose 1975) has made it possible for us to compare the specimens of the Natural History Museum in Belgrade with the specimens they worked on.

During the work on the metrical analysis, the tripod, similar to the one used by Loose (1975), but somewhat modified for this occasion, was very helpful (Fig. 1). Using the tripod makes it easier to measure the angles, which is otherwise difficult due to the bulkiness of the specimens. The skull was set onto the construction in such a way that the palate lay parallel to the surface of the longer bar of the cross, and the median-sagittal plane (MSP) formed a right angle with it (Fig. 2).

All the parts of the tripod are movable, which simplifies the measuring process. When the specimen is prepared for the measuring, the position needed is obtained by screwing or unscrewing the lever supporting the skull under the mandibular joint cavity.

For the work on the other remnants the standard methods were used.

RESULTS AND DISCUSSION

PALEONTOLOGY

Fam. *Rhinocerotidae* Gray, 1821

Subfam. *Dicerorhinae* Simpson, 1945

Genus *Coelodonta* Bronn, 1831

Coelodonta antiquitatis (Blumenbach, 1803)

The detailed descriptions of three skulls, three mandible branches, two mandible fractions, as well as one isolated molar are given. The description includes a sketch representative a skull and a molar of rhinoceros (Fig. 3.), their main parts stated. All measurements are presented in the tables.

SPECIMEN I: No 1284. An exceptionally well preserved specimen of the woolly rhinoceros skull (Pl. I, Figs. 1-6).

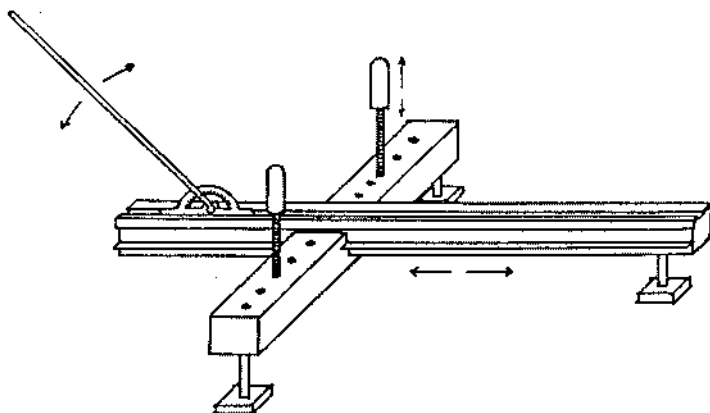


Fig. 1.- Tripod
 Tripod

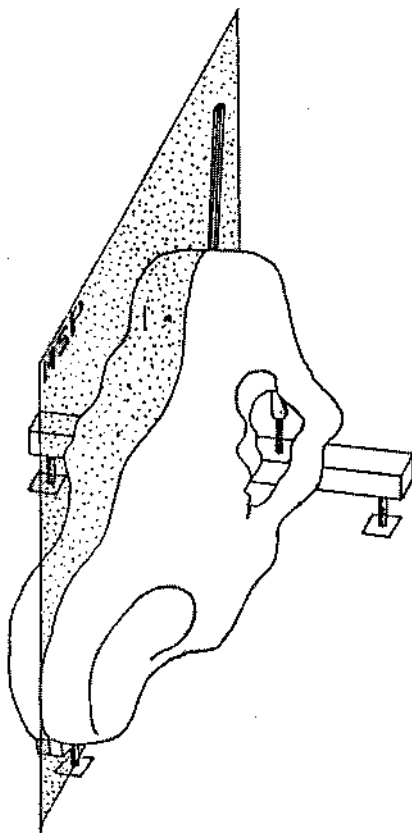


Fig. 2.- Position of skull on the tripod
 Položaj lobanje na tripodu

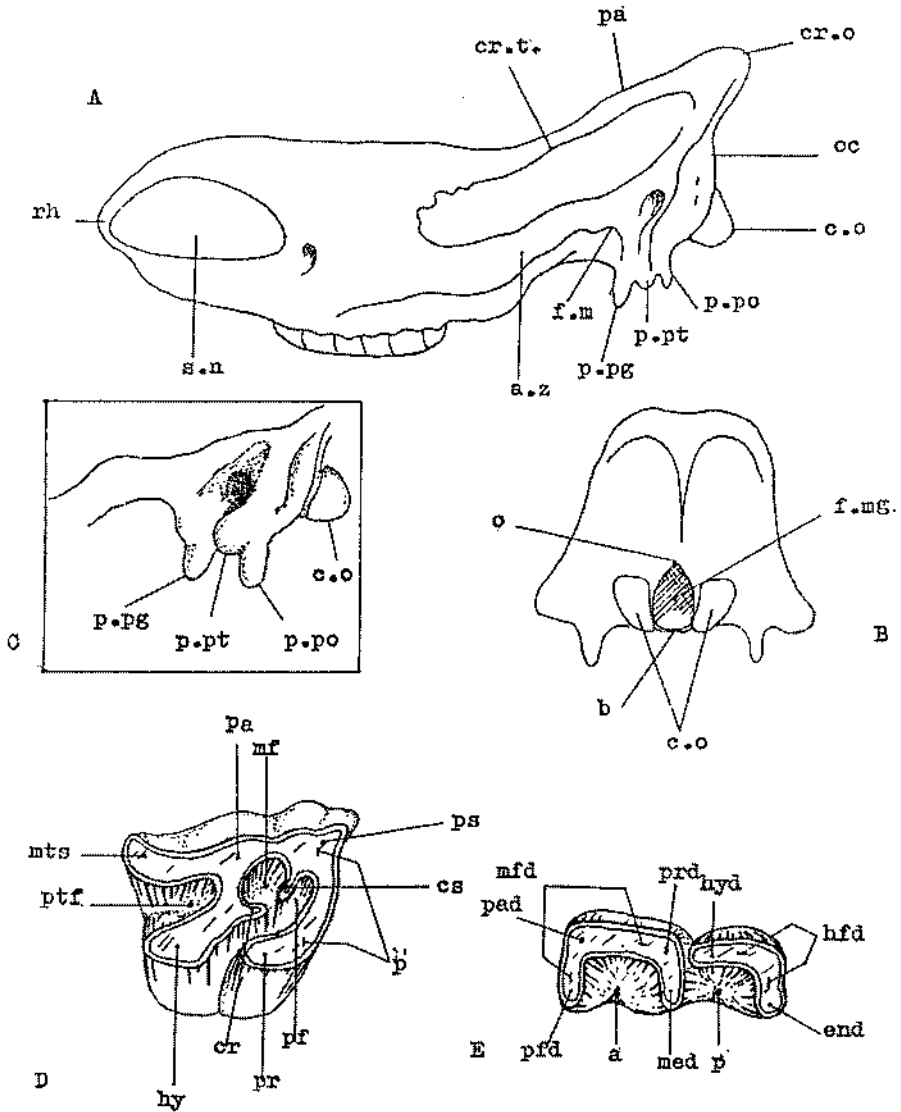


Fig. 3.- Main parts of rhinoceros skull and teeth: A) lateral view: *oc* - occipitale, *cr.o* - crista occipitale, *pa* - parietale, *cr.t* - crista temporalis, *rh* - rhinion, *s.n* - septum nasale, *a.z* - arcus zygomaticus, *f.m* - fossa mandibularis; B) occipital region: *c.o* - condyles occipitales, *o* - opisthion, *b* - basion, *f.m.g.* - foramen magnum; C) otic region: *p.pg* - processus postglenoideus, *p.pt* - processus posttympanicus, *p.po* - processus paraoccipitalis; D) upper molar: *mts* - metastylid, *pa* - paracon, *ps* - parastyl, *p* - protocon, *cs* - crista, *pr* - protocon, *cr* - croshe, *hy* - hypocon, *pf* - pefossette, *mf* - medilofsette, *ptf* - postfossette; E) lower molar: *mfd* - me-talophid, *pfd* - paralophid, *pad* - paraconid, *prd* - protoconid, *med* - metaconid, *a* - anterofossette, *hfd* - hypolophid, *end* - entoconid, *p* - postfossette.

Osnovni delovi lobanje i zuba nosoroga: A) izgled sa strane, B) potiljačni region, C) otički region, D) gornji molar, E) donji molar.

Skull is marked with the characteristic square nape with an exceptionally large ridge. The furrow on top of it is replaced by a mild hump, as is often the case with this species (Loose 1975). This brought about a reduction in the breadth of the ridge itself in the region of the median-sagittal cross section. The paraoccipital and posttympanic processes coalesced, forming a hump, to which the postglenoid process is firmly connected by its wide root, in a similar way as with the species of *Dicerorhinus etruscus* (Guerin 1980). The condyle split abruptly and move away from each other towards the top of the nape, making the foramen, surrounded by their edges, decline to a certain extent from the position characteristic of *C. antiquitatis*. The opisthion placed high lends the foramen a markedly triangular shape, consequently enlarging the m angle, the direct indicator of the position of the head in relation to the body; the larger m angle - the head is lowered, adapted to the pasture diet, showing simultaneously that it was a younger individual: the sharper m angle - foramen is positioned lower in the skull - the head is raised so that the animal could reach the lower tree branches.

It can also be observed that vertex bone is protruding, which optically diminishes the y angle, but if we approach the skull as a whole, this occurrence is incidental and individual as compared to the general features of a typical representative of the species.

The zygomatic arch gradually bends downwards, towards the front thick end. This and MSP stand at an angle of 18° .

The front edge of the mandibular joint cavity assumed a finery appearance and stand with MSP at an angle of 75° , this indicating the position of mandible with this individual.

Lacrimal duct and orbital arch are represented by a sequence of small humps, the last of which being the postorbital process. The orbit is, as is typical for the *Coelodonta* to be found above M^3 .

The nasal septum is entirely ossified, which is the main feature which singles out this genus from all the other rhinocerotides.

The warty protuberances on the base of what used to be the rhinal horn are somewhat less marked. According to certain authors (Loose 1975, Gorjanović-Kramberger 1913) this occurrence is a direct reflection of the individual age of the animal. Similarly, in view of the incomplete coalescence of suture on the skull of this specimen, it is obvious that we are facing a young individual. However, apart from all this, one should bear in mind both the impact of long transport and the long time this fossil remnant had spent in water surroundings.

Both of teeth of maxilla have been preserved completely. The high-crown teeth are in the similar state of wear.

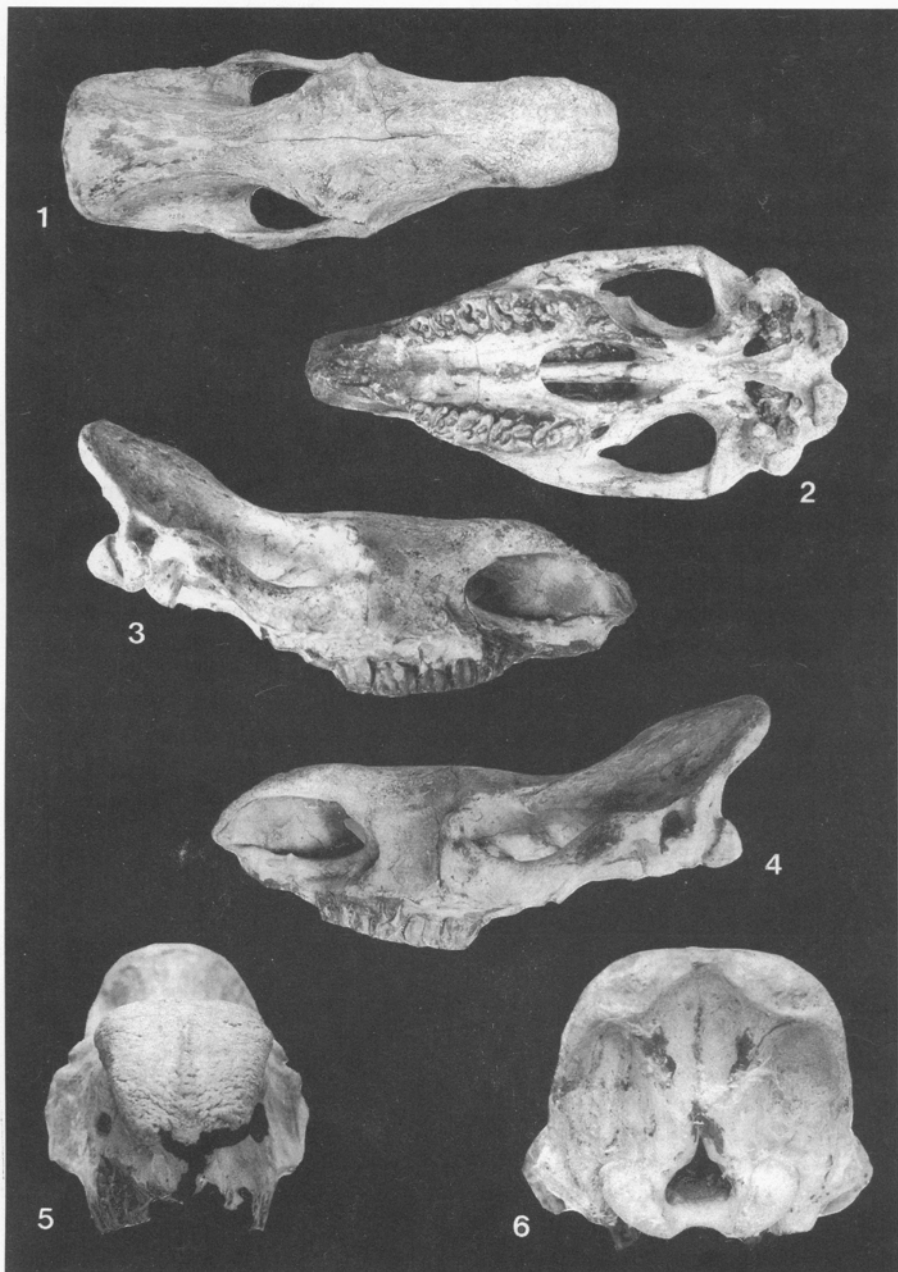


PLATE I

Coelodonta antiqunitatis (Blum.), skull N°1284

Fig. 1. Upper view x 1/8; Fig. 2. Lower view x 1/8; Fig. 3. Lateral view (right) x 1/8;
Fig. 4. Lateral view (left) x 1/8; Fig. 5. Front view x 1/7; Fig. 6. Occipital view x 1/5

Coelodonta antiqunitatis (Blum.), lobanja N°1284

Sl. 1. Izgled odozgo x 1/8, Sl. 2. Izgled odozdo x 1/8, Sl. 3. Izgled sa strane (desni) x 1/8, Sl. 4.
Izgled sa strane (levi) x 1/8, Sl. 5. Izgled sprede x 1/7, Sl. 6. Potiljačni izgled x 1/5

Right teeth set length: crown basis: crown basis - 202 mm
crown top - 194 mm

P^2 dext - missing, except for the fraction of hypocone on the labial side.
 P^3 dext - damaged. Paracone missing. P^4 dext - a worn-out tooth, but not to the level of junction of crista and croshe, but only to the point where they meet. The parastyle hardly marked. Metastylid and the hypocone not joint. M^1 dext - worn-out to the level of junction of hypocone and metastylid and the formation of postfossette. Croshe and crista are not joint. The protocone touches the hypocone. M^2 dext - a negligibly worn-out tooth with joint crista and croche, but hypocone and metastylid completely apart, arched tenderly towards the labial side. M^3 dext - process of tooth-wearing only just begun. Damaged in the protocone area.

Left teeth set length: crown basis: crown basis - 212 mm
crown top - 224 mm

P^2 sin - a very worn-out tooth. Formed pre-, medi- and postfossette. Labial side missing. P^3 sin - also a very worn-out premolar damaged in the area of parastyle and metastylid. Crista and croshe not joint. P^4 sin - damaged along the whole of the labial side: enamel missing. Hypocone and metastylid meet forming the postfossette. Crista and croche are joint. M^1 sin - a comparatively worn-out tooth, particularly in the area of parastyle. Croshe and crista are not joint, whereas metastylid and hypocone join and form the postfossette. Protocone touches hypocone and closes the medifossette. M^2 sin - damaged along the whole of the labial side. Of similar characteristics as M^2 dext. M^3 sin - the tooth wearing only just begun in the protolophe. Crown damaged on hypocone.

Tab. 1.- Measurements of teeth (in mm)
Mere zuba (u mm)

	length on crown basis	width on crown basis	length on crown top	width on crown top
P^2 dext	-	-	-	-
P^3 dext	34	-	-	-
P^4 dext	33	44	37	38
P^2 sin	24	34	25	-
P^3 sin	29	40	31	36
P^4 sin	42	43	37	-
M^1 dext	41	55	40	44
M^2 dext	50	58	58	39
M^3 dext	48	53	49	38
M^1 sin	42	57	40	48
M^2 sin	51	53	56	-
M^3 sin	50	44	33	29

L o c a l i t y: the confluence of the rivers of Danube and Velika Morava near Dubravica (Braničevo).

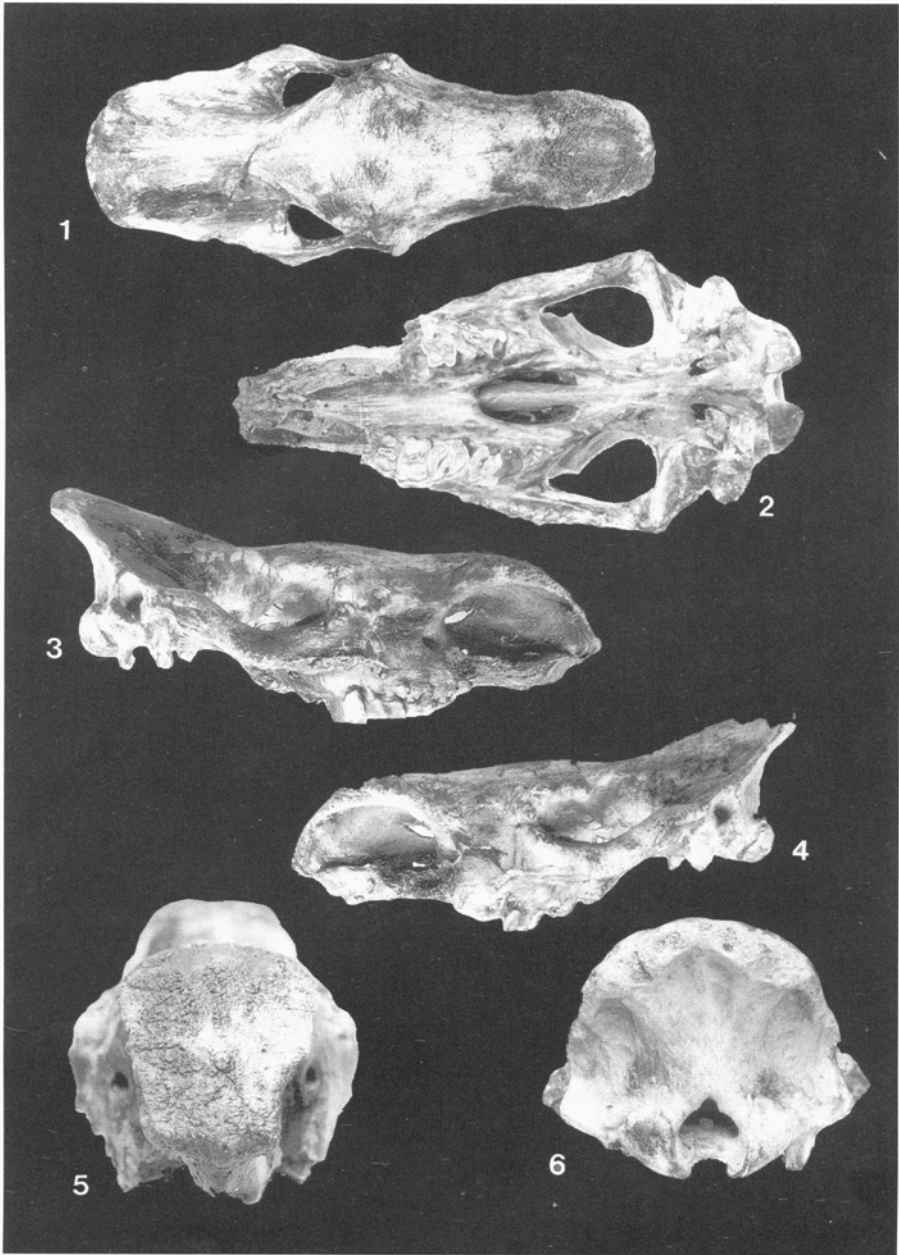


PLATE II

Coelodonta antiquitatis (Blum.), skull N°874

Fig. 1. Upper view x 1/8; Fig. 2. Lower view x 1/8; Fig. 3. Lateral view (right) x 1/8;
Fig. 4. Lateral view (left) x 1/8; Fig. 5. Front view x 1/7; Fig. 6. Occipital view x 1/6,5

Coelodonta antiquitatis (Blum.), lobanja N°874

Sl. 1. Izgled odozgo x 1/8, Sl. 2. Izgled odozdo x 1/8, Sl. 3. Izgled sa strane (desni) x 1/8, Sl. 4.
Izgled sa strane (levi) x 1/8, Sl. 5. Izgled спреда x 1/7, Sl. 6. Potiljačni izgled x 1/6,5

the area of parastyle. M^3 *sin* - molar similar to M^3 *dext*. Damaged in the area of metastylid. On the labial side of crista enamel is pretty plicated.

Locality: the confluence of Velika Morava river and the Danube near Dubravica (Braničevo)

SPECIMEN III: N°32. Back part of the skull of woolly rhinoceros (Pl. III, Figs. 1-5). A part of the occipital bone and nape with basal part and otic region.

Tab. 3.- *Measurements of skulls (in mm)*
Mere lobanja (u mm)

PARAMETERS		N°1284	N°874	N°32
1	skull length from top of occipital bone to rhinion	731	778	-
2	skull length from basion to rhinion	693	708	-
3	skull length in the frontal part of orbits	229	305	-
4	greatest span between zygomatic arches	323	361	-
5	width of nape on top	190	192	194
6	width of nape in central part	227	255	233
7	width of nape at the bottom	256	290	274
8	greatest span of nose	157	165	-
9	smallest span of forehead bone	108	110	115
10	smallest span of orbital ridges	75	72	80
11	distance between outer condyle edges	153	167	143
12	height of nape	214	227	225
13	greatest height of nasal aperture	90	90	-
14	greatest length of nasal aperture	225	200	-
15	greatest foramen height	60	62	57
16	greatest foramen width	55	56	50
17	width of palate in the P^2 level	89	60	-
18	width of palate in the M^3 level	90	62	-

Tab. 4.- *Angles on skulls*
Uglovi na lobanjama

	N°1284	N°874	N°32
<i>o</i> - angle between opisthion + nape ridge and the occipital bone .	52°	54°	-
<i>i</i> - angle between the farthest spot of nape + nape ridge and the occipital bone	52°	55°	-
<i>n</i> - angle between the occipital bone and the tangent on the horn basis	165°	165°	-
<i>p</i> - angle determined by means of (a) the vertical of the opisthion and (b) aboral palate extension	27°	26°	-
<i>y</i> - angle between opisthocranion + opisthion and aboral palate extension	92°	111°	-
<i>po</i> - angle between opisthion + basion and aboral palate extension .	94°	106°	-
<i>m</i> - angle between opisthion + basion and the occipital bone .	53°	50°	48°
<i>x</i> - $x=m-o$	+1°	-4°	-5°

The nape is square, similar to that of the first specimen, with the strong ridge and massive condyle. In all of its traits it corresponds to the pre-

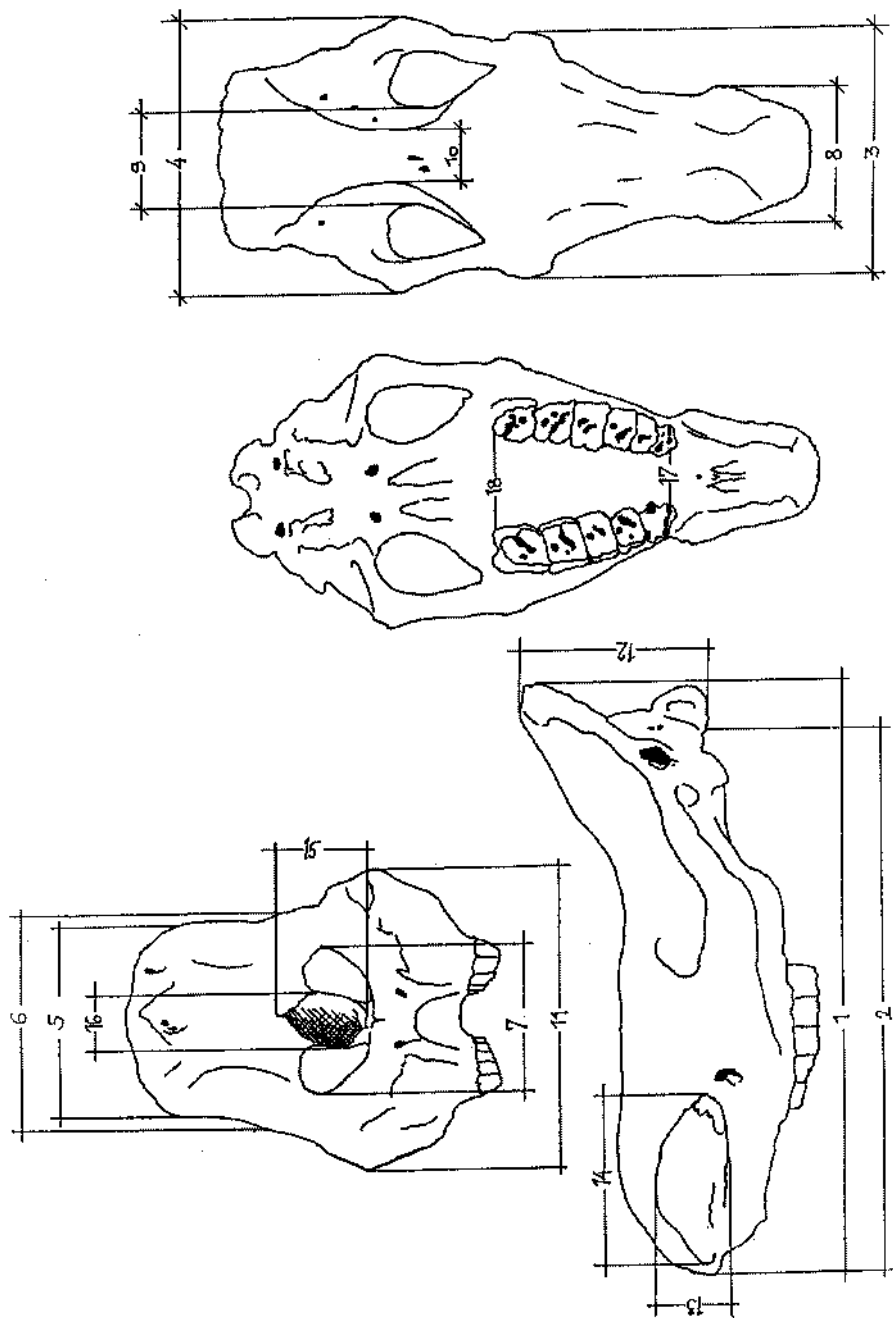


Fig. 4.- Basic parameters (in mm) (explanation on Tab. 3)

Osnovni parametri (u mm) (objašnjenje na Tab. 3)

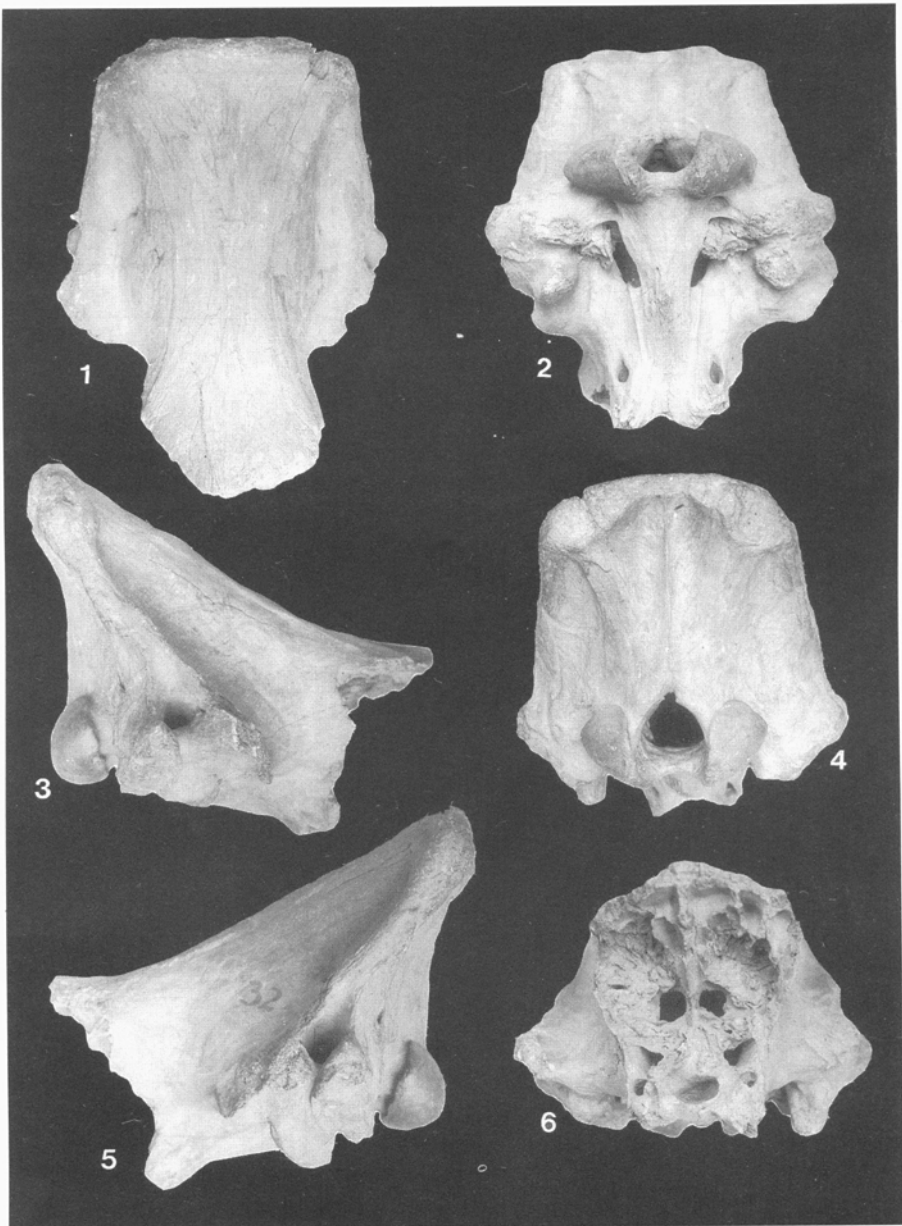


PLATE III

Coelodonta antiquitatis (Blum.), skull N°32

Fig. 1. Upper view x 1/4,5; Fig. 2. Lower view x 1/4,5; Fig. 3. Lateral view (right) x 1/4,5; Fig4. Lateral view (left) x 1/4,5; Fig. 5. Front view x 1/4,5; Fig. 6. Occipital view x 1/4,5

Coelodonta antiquitatis (Blum.), lobanja N°4,574

Sl. 1. Izgled odozgo x 1/4,5, Sl. 2. Izgled odozdo x 1/4,5, Sl. 3. Izgled sa strane (desni) x 1/4,5, Sl. 4. Izgled sa strane (levi) x 1/4,5, Sl. 5. Izgled spređa x 1/4,5, Sl. 6. Potiljačni izgled x 1/4,5

viously described skulls so that it can be regarded with certainty as belonging to a specimen of the same specimens.

L o c a l i t y: bad of river Jablanica in Počuta near Valjevo

SPECIMEN IV: N°46. The right branch of the woolly rhinoceros mandible (Pl. IV, Figs. 1-3) has been damaged so that articular and coronoid extensions are missing, but the incisure is still visible. The symphyse part is partially preserved. In the teeth set P_2 is missing, whereas M_3 is present only as a stub. Two mental pits are very deep, their radius being *cca* 10 mm. The surface of the maseteric pit is rough. On the medial side there is a deep fossa of the pterogoid muscle with marked mandibular foramen.

The anterior height of ramus (near P_2) is 63 mm, and the posterior (near M_3) is 102 mm.

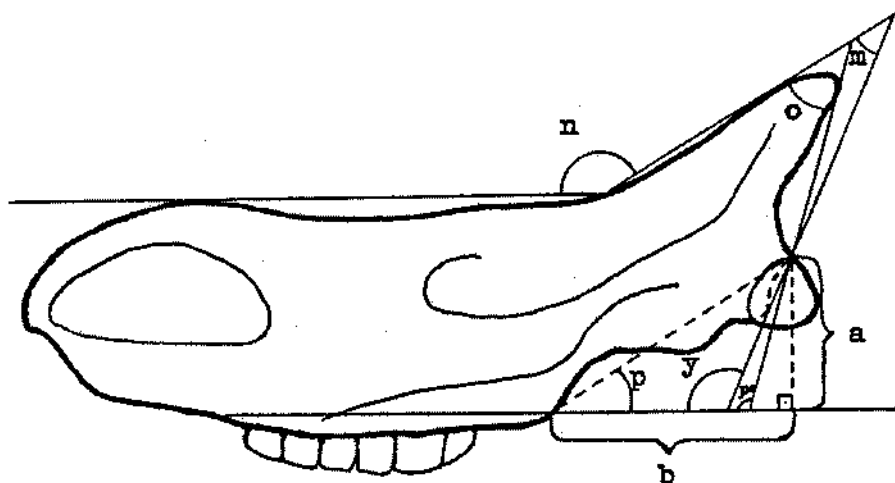


Fig. 5.- Angles (after L o o s e 1975)

Uglovi (po L u z u 1975)

Length of remnants:	510 mm
Height of remnants:	290 mm
Largest radius of ramus (below P_4):	83 mm
Length of teeth set ($P_3 - M_3$):	200 mm

P_2 - missing. Only the root remnants detectable in the alveoles. P_3 - a pretty worn-out tooth in which the frontal part of metalophid is missing. Hypoconid is joint with protoconid. Metaconid width up to 10 mm. Anterior pit very small. Posterior pit wide but very shallow. P_4 - worn only in the area of protoconid and metaconid because that is the only region where it reaches the level of the mastication surface of the rest of the teeth. The process of wearing of hypolophid had not begun. Pits are deep reaching to the root itself.

M₁ - a pretty worn-out molar so that the anterior pit has almost disappeared. Metaconid is wide about 12 mm. Hypoconid is joint with protoconid. Posterior pit is 10 mm deep. M₂ - this partially worn-out molar s paralophid had begun its wearing process. Paraconid and protoconid are angular. Metalophid and hypolophid do not join on the mastication surface. The pits are deep. M₃ - molar in form of a stub rising from the alveoles in the protoconid part, reaching 12 mm.

Tab. 5.- Measurements of teeth (in mm)
Mere zuba (u mm)

	length on crown basis	width on crown basis	length on half height	width on half height	length on crown top	width on crown top	mean height
P ₃	25	24	36	36	22	19	31
P ₄	39	27	38	38	24	17	47
M ₁	33	31	39	39	27	26	43
M ₂	41	35	51	51	28	24	42
M ₃	-	-	-	-	-	-	12

Locality: the bed of the river Sava above the island of Ada Ciganlija in Belgrade.

SPECIMEN V: N°1570. The right half of the woolly rhinoceros mandible (Pl. IV, Figs. 4-6).

The frontal part of the horizontal branch is missing, all the way to P₂. In the back part, all three processes are missing. The remnant is 407 mm long and 250 mm high. There are no mental pits below P₂. Pterogoid pit is extremely deep and 60 mm long. The length of the (P₃ - M₃) teeth set is 210 mm. Of the second premolar there is nothing left but the roots in the alveoles.

The anterior height of ramus (near P₂) is 60 mm and the posterior (near M) is 92 mm. The largest radius of ramus is 56 mm, between P₄ and M₁. P₂ - only the root in alveoles. P₃ worn to the jointure of protoconid and hypoconid. The pits are shallow. The metaconid is up to 12 mm wide. At the back side of hypolophid enamel is missing due to the pressure on P₄. P₄ - enamel missing on the frontal side of the metalophid. The pits are deep - the anterior is 10 mm, and the posterior is 15 mm deep. Paraconid and protoconid are angular. Hypoconid is barely touching the protoconid. Also, due to the pressure on M on the back side of hypolophid enamel is missing.

M₁ - the same reason have caused to the lack of enamel on this tooth, i. e. its paralophid. Paraconid and protoconid are angular. Anterior pit is shallow - 5 mm. The posterior pit is 10 mm deep. Metaconid is 13 mm wide. Hypoconid and protoconid are joint. Entoconid is widening up to 12,5 mm. M₂ - due to the pressure on M₁, the enamel of this molar has also been damaged near the paralophid. Protoconid and paraconid are sharply angular. Metalophid and hypo-

lophid are not joint on the mastication surface. The frontal part of entoconid is elevated. The pits are up to 25 mm deep. M_3 - the wearing process of this tooth had not begun, although both meta- and hypolophid have left the alveoles completely. The pits spread from roots.

Tab. 6.- *Measurements of teeth (in mm)*
Mere zuba (u mm)

	length on crown basis	width on crown basis	length on half high	width on half high	length on crown top	width on crown top	mean high
P_3	20	20	22	19	28	17	22
P_4	32	25	35	21	33	20	39
M_1	37	28	40	23	45	21	32
M_2	43	29	53	24	53	23	40
M_3	55	25	-	-	-	-	33

Locality: confluence of Velika Morava river and the Danube, near Dubravica (Braničevo).

SPECIMEN VI: №33. The right branch of the lower jaw belonging to woolly rhinoceros (Pl. IV, Figs. 7-9).

Length of remnant:	412 mm
Height of remnant:	160 mm
Length of preserved set of teeth ($P_2 - M_2$):	200 mm

M_3 is nothing but a stub rising from the alveole only by the back part of its metalophid. The specimen lacks the entire vertical part with all of the processes up to the deep fossa of the pterogoid muscle. The frontal part has been preserved almost up to the symphyse part. Mental pits to be found under the front parts of P_2 and P_3 . Underneath P the edges of the alveole are elevated together with the tooth root.

The anterior height of ramus (near P_2):	79 mm
The posterior height of ramus (near M_3):	109 mm
The largest ramus radius (below M_1):	61 mm

P_2 - damaged in the area of metalophid. The enamel of protoconid and hypoconid are in contact. P_3 - metalophid not worn-out in the paralophid area. The tooth is comparatively preserved in all its length. The pits are very deep. Protoconid and hypoconid are scarcely in contact. P_4 - every worn-out tooth. It is elevated, so that its rot reaches half the height of the crown of adjacent teeth. Hypolophid somewhat less worn-out on the labial side. Pits missing entirely. Damaged in the area of paralophid.

M_1 - enamel of the tooth and almost the entire surface of metalophid are destroyed due to the pressure from P_4 . Metaconid is markedly wide. Meta-

lophid and hypolophid separated and almost equally worn-out up to the pit depth of 15 mm. M₂ - entire metaconid missing. The process of wearing of the tooth had just begun. Metalophid and hypolophid are completely separated until midway up to the crown. Pits are very deep. M₃ - only the back side of metalophid rises from the alveole.

Tab. 7.- *Measurements of teeth (in mm)*
Mere zuba (u mm)

	length on crown basis	width on crown basis	length on half high	width on half high	length on crown top	width on crown top	mean high
P ₂	22	18	27	15	29	12	23
P ₃	28	23	35	20	34	16	33
P ₄	32	22	-	-	32	22	-
M ₁	40	27	50	25	51	23	42
M ₂	52	29	55	22	-	-	47

L o c a l i t y: silt of Zapadna Morava river in the village of Velika Dre-nova near Trstenik.

SPECIMEN VII: N°1790. Part of the left mandible branch in woolly rhino-ceros.

Only the ramus area with the hindmost molar and the fossa of the pterog-oid muscle has been preserved. Its metalophid had outgrown the height of the alveoles. Height of remnant near M₃: 119 mm.

L o c a l i t y: bed of the Danube near Kostolac.

SPECIMEN VIII: N°CR0001. Part of the left mandible branch in woolly rhinoceros.

Only a part of ramus in the area of the alveoles from P₄ to M₃ with rem-nants of roots of these teeth has been preserved. Measurements impossible due to the extremely high level of damage of the remnant.

L o c a l i t y: the settlement of Martonoš between Horgoš and Kanjiža. The silt of Tisa river.

SPECIMEN IX: N°30. Well preserved isolated M₂ *dext* with slightly dama-ged enamel in the area of protocon and hypocon (Figs. 1, 2, 3, 4).

Crista and croshe are joint and together with paracon they form a deep medifossette. On its enamel, on the side facing paracon, a warty excrescenc can be observed. A similar occurrence is to be found on the front side of crista as well. Hypocon is less worn-out in its posterior part. Between the hypocon and metastylid there is a hump of a 2 mm size.

On the labial side, the crown is 39 mm high, and it is 22 mm on the la-bial side. Length of teeth at the crown basis is 67 mm, and at the crown top it is 61 mm. Width is 57 at the basis and 42 mm at the top of the tooth.

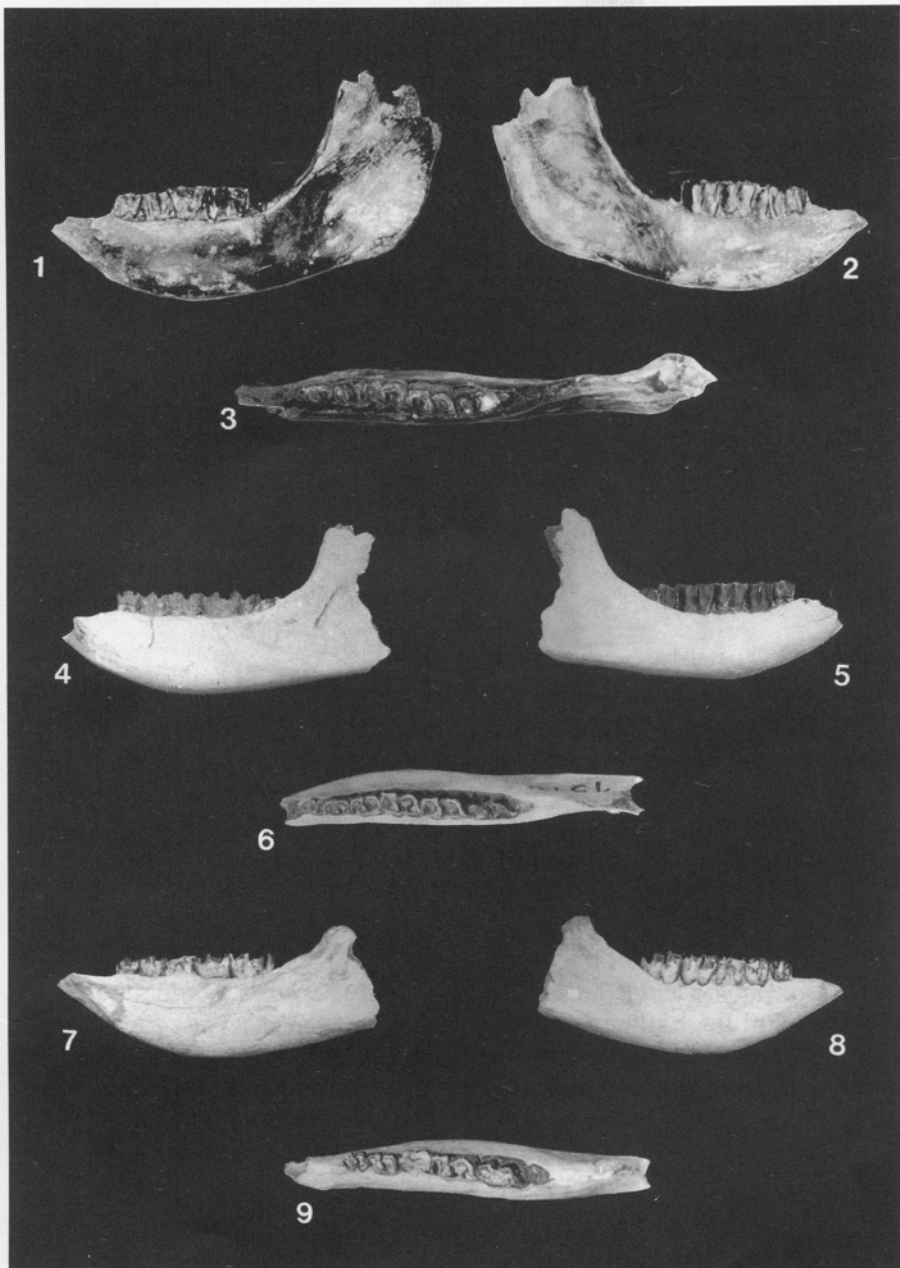


PLATE IV

Coelodonta antiquitatis (Blum.), right ramus mandibularis N°32

Fig. 1. Median view x 1/6; Fig. 2. Lateral view x 1/6; Fig. 3. Occlusion view x 1/6

Coelodonta antiquitatis (Blum.), right ramus mandibularis N°1570

Fig. 1. Median view x 1/6; Fig. 2. Lateral view x 1/6; Fig. 3. Occlusion view x 1/6

Coelodonta antiquitatis (Blum.), right ramus mandibularis N°33

Fig. 1. Median view x 1/6; Fig. 2. Lateral view x 1/6; Fig. 3. Occlusion view x 1/6

The root has been preserved almost entirely. At the lingual side it is joint and forms an entity, whereas it is divided at the labial side into the part below the paracon and that below metastylid (which is almost entirely missing). It can be observed that all the little roots bend inwardly.

L o c a l i t y: bed of Drava river near Ferdinandovac.

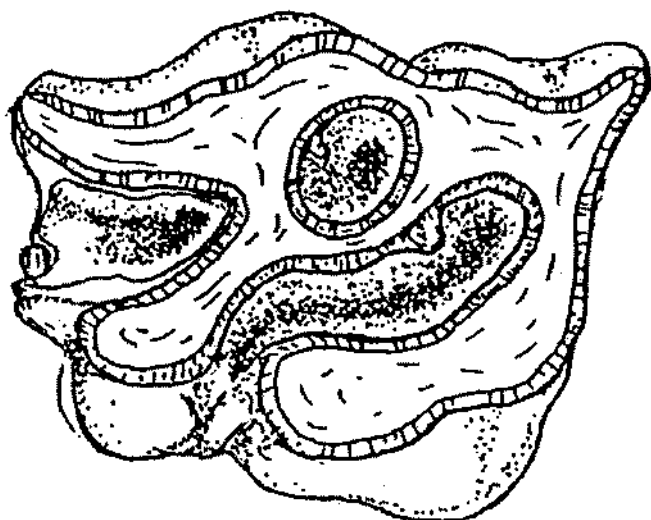


Fig. 6.- *M² dext* N°30

PALEOECOLOGY

Coelodonta antiquitatis is a typical Ice Age species. During the second interstadial of the last interglaciation, it retired from the West Europe, even reaching Kamchatka all the way through the entire Euro-Asian continent, but never crossing the then Bering crossing (T h e n i u s 1962). It disappeared from the territory of Yugoslavia during the last glaciation (M a l e z 1972). Even the southernmost locality with the remnants of this species is to be found on the Balkans - in Megalopolis on the Peloponnese (M e l e n t h i s 1966).

Coelodonta antiquitatis was an animal adapted to the living conditions of the cold, arid steppes reaching the maximum of its population in the Trans-Baikal region.

After the general appearance of this animal, whose head and neck were drooping, it can be concluded that it catered mainly on pastures. However, the proofs like the stomach contents in the specimens found in Siberia which were entirely preserved, or the evergreen needles found between their teeth indicate a twofold diet. The animals fed on pastures in summer, and retreated to the

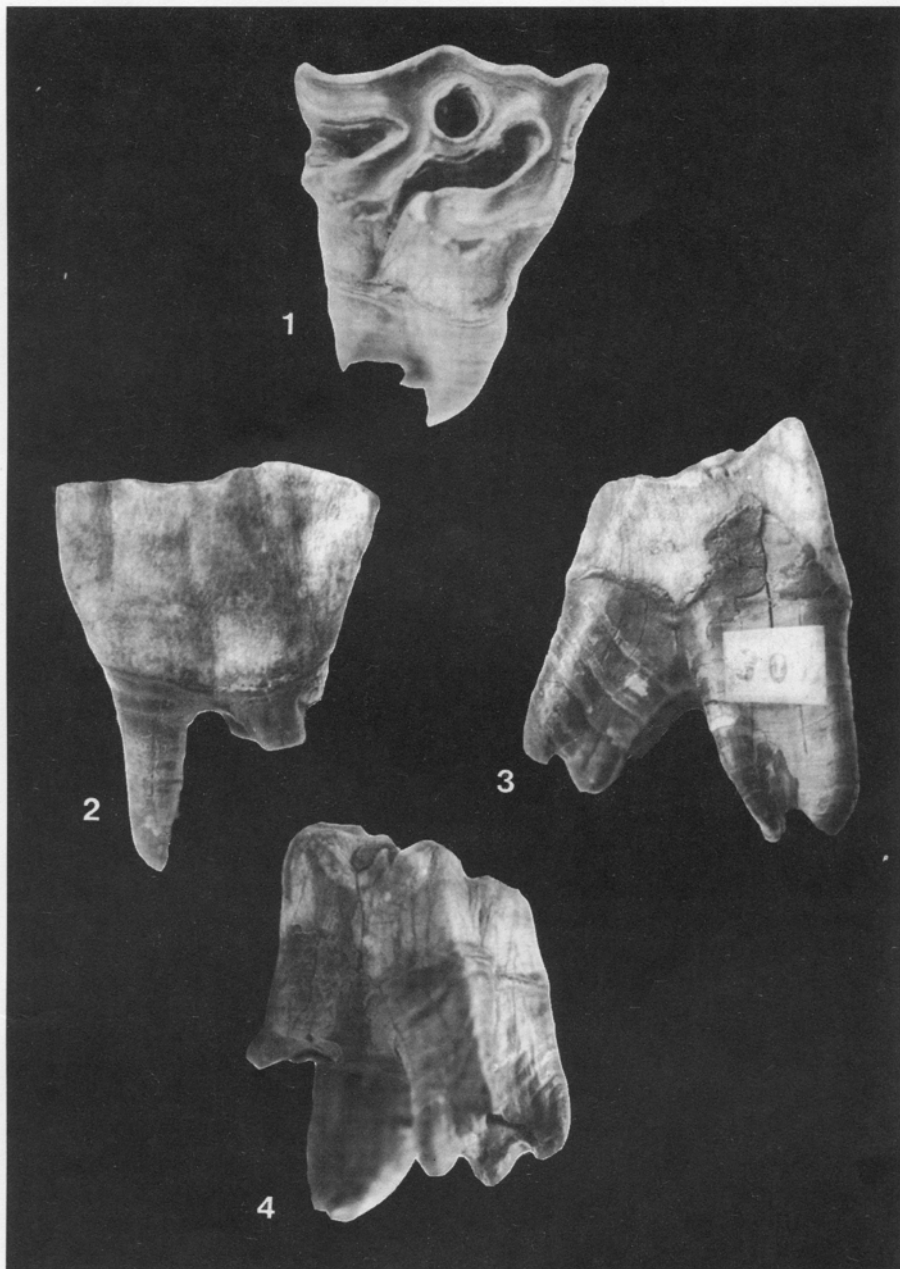


PLATE V

Coelodonta antiquitatis (Blum.), M² dext N°30

Fig. 1. Occlusion surface x 1/1,3; Fig. 2. Buccal side x 1/1,3; Fig. 3. Mesial side x 1/1,3;
Fig. 4. Distal side x 1/1,3

Coelodonta antiquitatis (Blum.), M² dext N°30

Sl. 1. Okluziona površina x 1/1,3, Sl. 2. Bukalna površina x 1/1,3, Sl. 3. Mezijalna strana x 1/1,3,
Sl. 4. Distalna strana x 1/1,3

woods in winter. This view is also supported by some of the drawings found on cave walls. A diet like that enabled the woolly rhinoceros to pass the natural obstacles such as the Alps, the Pyrin and the Ural, more easily than the animals adapted to pasture diet only.

Just as the rest of the Ice Age species did not manage to survive in the new conditions of the end of Pleistocene, the woolly rhinoceros disappeared slowly but irrevocably without leaving any offspring behind. This imposing animal met the fate similar to that of the mammoths. A man, the superior being, in his constant struggle for food and material for weapons, tools or artistic objects, hunted the rhinoceros for its meat and bones often and gladly, and thus accelerated the process of its natural extinction.

CONCLUSION

The few fossil remnants of the species of *Coelodonta antiquitatis* which have been presented here, confirm the existence of the species in Yugoslavia, showing that the living conditions in these parts during upper Pleistocene were quite suitable for the species, which did not differ much from the whole of the Eurasian population. However, the fact that the certain specimens were found deep into the interior of Serbia bears a greater significance, since it shows that they did not reach that area from the North by means of the water courses.

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**RUNASTI NOSOROG COELODONTA ANTIQUITATIS
(BLUMENBACH, 1803) IZ PLEISTOCENA SRBIJE**

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I z v o d

U radu su dati opisi i morfometrijske analize fosilnih ostataka runastog nosoroga iz zbirke Prirodnjačkog muzeja u Beogradu. Obradjeni ostaci su: dve veoma dobro očuvane lobanje, potiljačni deo jedne, tri grane donje vilice sa očuvanim zubnim nizovima, dva fragmenta mandibule i jedan izolovani molar.

Merenja lobanja su izvršena pomoću tripoda. Dobijeni rezultati upoređeni sa podacima o ostacima ove vrste širom evroazijskog kontinenta koje daju drugi autori, pokazuju da se ovih nekoliko životinja sa naših terena ničim ne izdvaja od ostalih populacija. Mali broj primeraka u zbirci ne daje mogućnost za detaljniju statističku analzu o odnosu pojedinih uglova na lobanji koji bi ukazivali na specifične uslove života. Građa svih očuvanih zuba ne ukazuje na sub-specifične osobine ovog gornjopleistocenskog stanovnika terena današnje Srbije.

Iako mala, zbirka ima svoju izuzetno veliku vrednost i to pre svega zbog veoma dobre očuvanosti primeraka, a zatim i zbog činjenice da ostaci runastog nosoroga nisu tako česti kao ostaci drugih krupnih pleistocenskih sisara kao što su mamut, bizon ili pećinski medved.