

Photo 10: M² dex. D. cf. hemitoechus, T.A. 68, 219 (41)

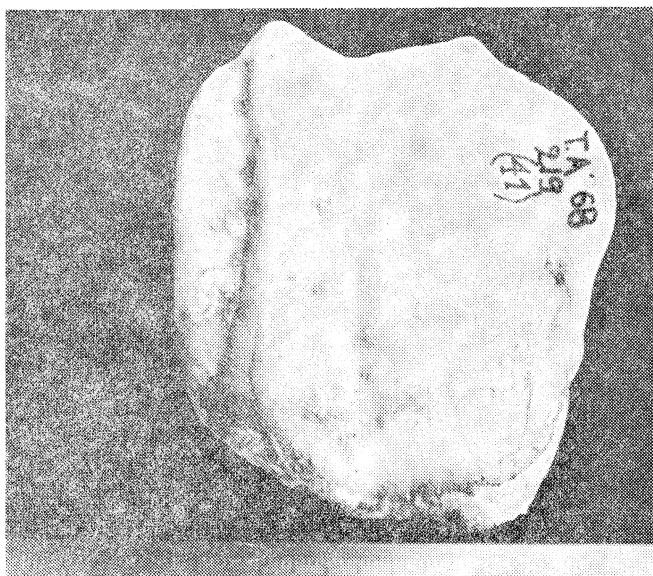


Photo 11: Side view of photo 10.

M²:

A crown of a right M² comes from the Petralonian of trench A. It is very well preserved and almost unworn. The measurements are given in table 5. As can be seen, the crown is high, although not extremely so. The double logarithmic plot (fig. 3) shows the tooth to group well with the D. hemitoechus-sample. As it is too hypsodont to be referred to D. etruscus, which would be alternative, there can hardly be any doubt that it is best referred to D. cf. hemitoechus.

A fragment very similar to the tooth just discussed comes from the same level of trench A, and is referred to the same species.

Mandible:

A right mandible comes from the Petralonian of trench A. The teeth are all present, but so badly damaged that no measurements can be given. The toothrow is the permanent one, and the teeth are rather worn. The outer walls of the anterior crescents of the two posterior premolars show the flat shape characteristic of D. hemitoechus. (Staesche 1941 : 131). In the other teeth this diagnostic part is unfortunately lost.

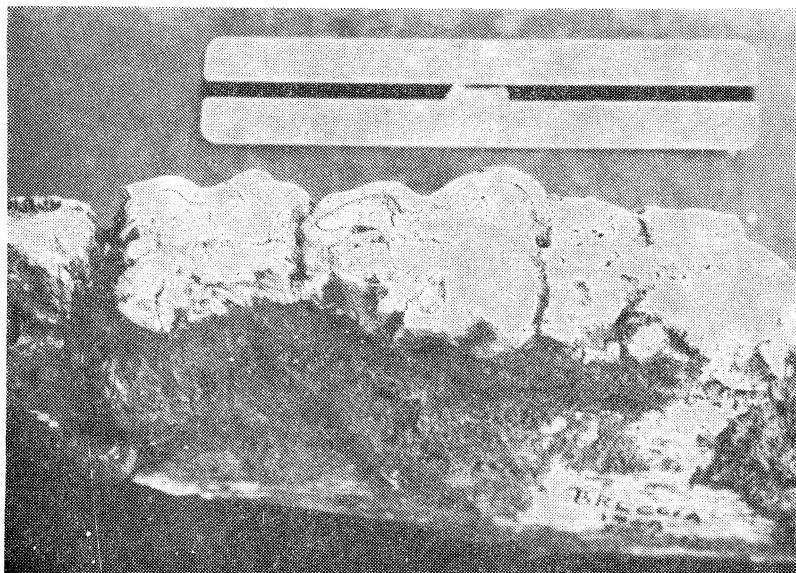


Photo 12. Right lower dentition (P³-P⁴-M¹) of D. cf. hemitoechus, 68, 200 (43).

Post-cranial remains

There is a series of rather small bones and bone fragments present. Unfortunately we have not been able to find any comparative material of Middle Pleistocene representatives of D. hemitoechus, and so we do not know whether we have been justified in assigning these remains to that species. However, there are a few facts to support this action. Primarily certain morphological features, discussed below seem to indicate that the remains can not be referred to D. etruscus, which would be the alternative. And for the one bone that we actually did find a Middle Pleistocene sample for comparison, the measurements fit very well indeed (the calcaneum, see below).

A few of the bones, particularly femur and tibia, show certain «etruscus-like» features. Whether this should be taken as an indication of the presence of D. etruscus, or simply as a local trend within the population we do not know. Possibly such features are characteristic of the early D. hemitoechus. Further excavations may throw more light on this problem.



Photo 13: Left Radius D. cf. hemitoechus, Σ.φ. 29-7-77, prox-part.

Radius:

The proximal part of a left radius comes from the «butchery», which equals the Petralonian of trench A (A.N. Poulianou, personal communication). The bone is preserved in stalagmite, which has been partly broken away, damaging it at the postero-external surface.

The bone is fairly small (table 6), and shows some features of interest. The articulation against the ulna is situated near the centre of the posterior border of the proximal epiphysis, a character typical of *D. kirchbergensis* but not of *D. etruscus*, which has the articulation at the internal half of the posterior border (Vialli 1956:42). One may perhaps presume, that *D. hemitoechus* and *D. kirchbergensis* resemble each other in this feature as in so many others, and differ from *D. etruscus*. The articulation, more over, has the characteristic «shallow» shape of that of *D. hemitoechus* from Weimar-Ehringsdorf as pictured in Kahlke (1975:379). (In that bone, incidentally, the above mentioned articulation has the central position of the Petralona bone). The proportion between the internal and external parts of the articulation against the humerus is approximately 0.80, and differs from the lower value of the more «assymmetrical» *D. etruscus*, given as 0.65 by Vialli (1956:42).

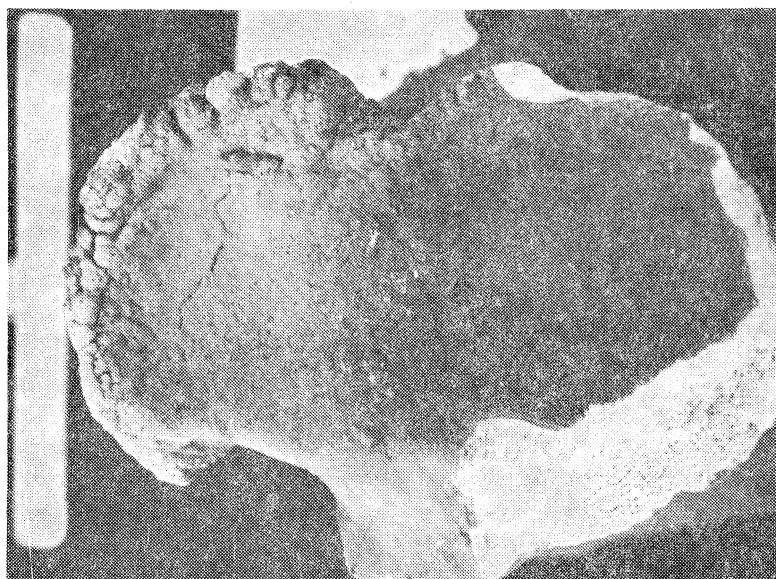


Photo 14: View from top of photo 13.

Ulna:

The sigmoid cavity of a right ulna comes from the Petralonian of trench A. Measurements are given in table 7. The ratio between height and width of the joint - surface is high, showing the bone to be akin to those of D. hemitoechus and D. kirchbergensis in this respect, at least according to our data. We do not know whether this ratio is constant or not, but presuming that it is, the fragment in question can be referred to D. cf. hemitoechus with some caution.

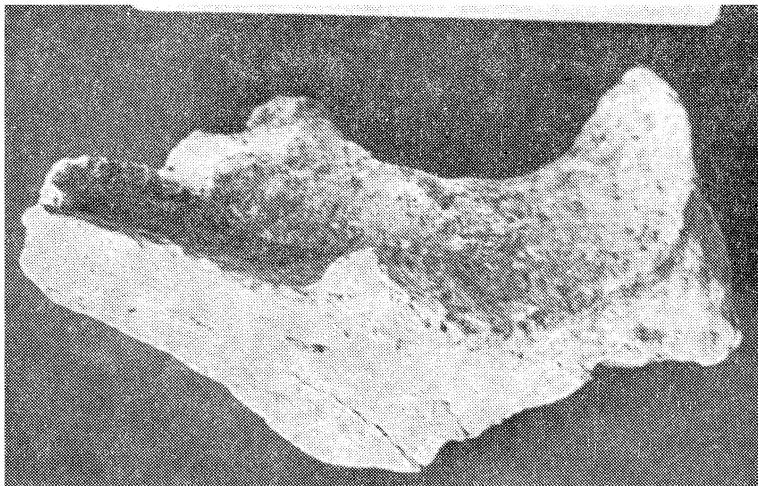


Photo 15: Sigmoid cavity of right Ulna of D. cf. hemitoechus. T.A. 68, 220.

Femur:

The distal part of a right femur comes from the Petralonian of trench A. The bone is preserved distally of the third trochanter, with the exception of the outer condyle, which has been broken. On the whole the bone seems rather grecile, and is perhaps suggestive of the D. etruscus-type of femur. Still, it is bigger than the femora of the big D. etruscus of Voigtstedt (see table 9), and even slightly bigger than the extremely big form from Hundsheim (Toula 1902:58),



Photo 16: Fragment of a dext. Femur of D.cf. hemitoechus T.A. 0,69 - 20-9-75

which it does resemble in the anteroposteriorly elongated form of the distal epiphysis (Toula 1902: Taf. X). In all likelihood this bone is best grouped with the other relatively small bones under the heading D. cf. hemitoechus.

T i b i a :

There are three finds of rhinoceros tibia present. One, from the Crenian of trench A, is a fairly complete bone, the other two, one of which comes from the Petralonian of the same trench and the other from a problematical position (see below), are fragments, a proximal and a distal one.

The complete bone is moderately well preserved. The anterior tuberosity has been broken as well as the lateral condyle, and the bone is slightly damaged distally where the fibula has been broken away. Otherwise it is in good condition.

This bone is very short and stocky, in fact rather suggestive of the «garviportal» type of tibia of *D. kirchbergensis* and *D. hemitoechus*. Although it is smaller than the tibias of the Late Pleistocene representatives of these species. In fact the measurements agree re-

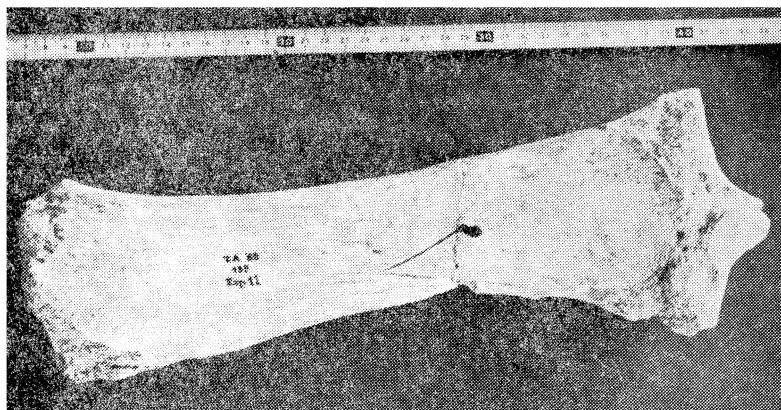


Photo 17: Tibia dext. of *D. cf. hemitoechus*, T.A. 68 (137)

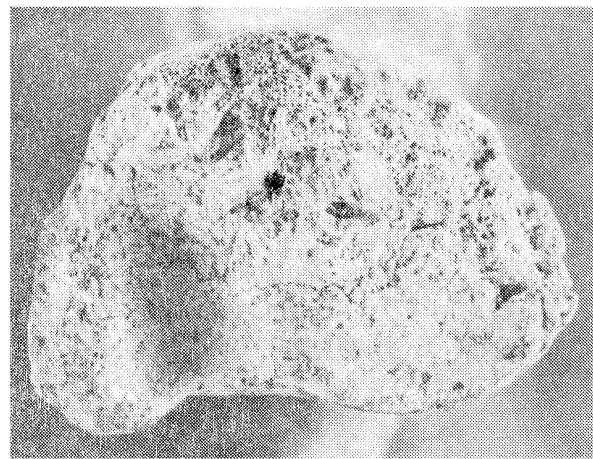


Photo 18: View from the distal part of photo 17.

markably well with those given for D. etruscus by Guerin (1972: 105). (see table 9). Also the distal joint-surface is apparently «etrusscoid» in the presence of an inner, deep part and a broader, flatter outer one, corresponding to the «asymmetrical» astragalus of D. etruscus. Whether this feature is conclusive or not we do nor know, but as it is repeated in the distal fragment from the Petralonian layers we have preferred not to put too much store by it.

The distal fragment comes, as mentioned, from the Petralonian of trench A. It is well preserved, with the distal end of the fibula still in situ. In shape as well as size it is very similar to the distal end of the bone just discussed.

The proximal fragment comes from a part of the cave where the layers have been disturbed during previous excavations, and its stratigraphical position is not known exactly. It is, however, covered with stalagmite that has obviously been part of the cave floor. This stalagmite is rather thick, and makes it impossible to measure the bone or discuss its morphology in any detail. Under the stalagmite covering the bone appears to be well preserved.

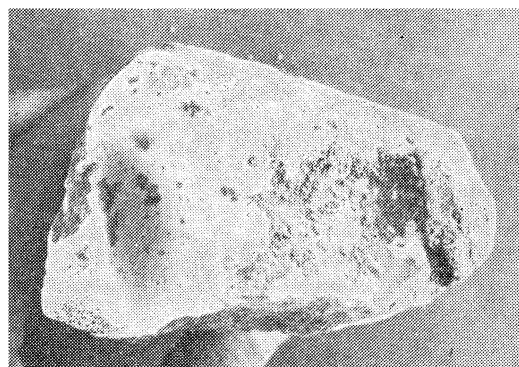


Photo 19: Tibia dext. of D. cf. hemitoechus, distal view, T.A. 68, 223.

Calcaneum:

A small and stocky calcaneum, perfectly preserved, comes from the Petralonian of trench A. It is remarkably similar to the one described and pictured in Guerin (1973:66 and pl. 10), and by him assigned to *D. hemitoechus*. The sustentaculum tali is rather short and sturdy (although less so than in *D. kirchbergensis*), and runs almost (but not quite) perpendicular to the axis of the corpus. Seen from the side the distance between the anteriorly projecting «lip» or «bill» of the tuber and the posterior part of the facies articularis posterior is very short. The facies articularis cuboidea is strongly concave, and runs backwards along the internal side of the bone. The facies articularis media is concave, and separated by a gap from the narrow facies articularis anterior.

This bone does also, as a matter of fact, strongly resemble the calcaneum of *D. etruscus* from Hundsheim as pictured in Toula (1902: Taf. XI).

However, the measurements fit very well with Guerin's (table 10), and the morphology is identical. Therefore we have referred this bone to *D. cf. hemitoechus*. (The fact that it resembles the bone from Hundsheim does, perhaps, indicate that the resemblance between the femora from Hundsheim and Pertalona is of the same nature).

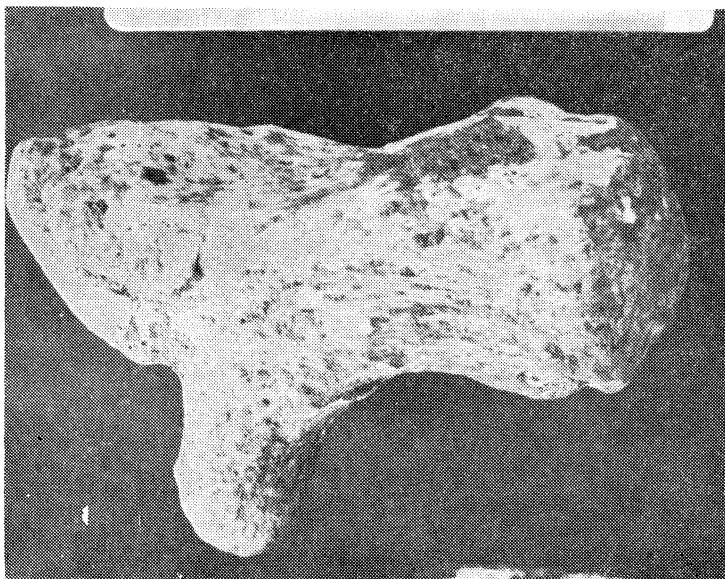


Photo 20: Calcaneum of *D. cf. hemitoechus*, T.A. 68, 120.



Photo 21: Calcaneum, D. cf. hemitoechus, T.A. 68, 120.

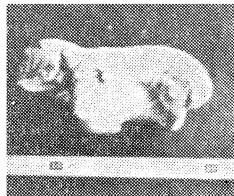


Photo 22: Calcaneum sin. D. cf. hemitoechus, T.A. 68, 120.

Specifically undetermined rhinoceros material:

- D² dex (?) T.A. 68,200 (74), Petralonian of trench A, very worn and somewhat damaged.
- diaphyse of left humerus of juvenile, O²⁹ T.A. 18.9.75, very small, with marked costal and lateral curvatures, Crenian of trench A.
- distal fragment of metapodial, probably mt II dex, T.A. 10. 7.76 very small, Petralonian of trench A.

TABLES

1. D³, comparative measurements in mm¹.

D. cf. hemitoechus Petalona M 77 542	1. length 2. breadth 3. height	38.7 49.5 44.2
D. etruscus Süssborn Kahlke 1969: 669 ff.	1. — 2. 46.1	38.4 41.7
D. etruscus Voigtstedt, Mauer Mosbach. Kahlke 1965:498ff, Wurm 1912:19.	MEAN 1. 38.9 2. 44.5	N 5 5
D. kirchbergensis Taubach Kahlke 1977 : 307	1. 41.5 2. 47.8	43.2 —
D. kirchbergensis Weimar- Ehringsdorf. Kahlke 1975:340	1. 43.6 2. 47.8	39.8 37.4

2. p³, comparative measurements in mm.

D. cf. hemitoechus Petalona T.A. 68 200 (76)	1. 40.0 2. 50.8
D. hemitoechus Kahlke 1975:372, Staesche 1941	MEAN N MIN MAX 1. 36.95 11 34 39.9 2. 49.78 10 45 55.2
D. etruscus Süssborn Kahlke 1969:675	MEAN N MIN MAX 1. 39.86 14 36.8 49.6 2. 50.15 13 47.9 53.8
D. kirchbergensis Weimar- Ehringsdorf. Kahlke 1975 : 343	MEAN N MIN MAX 1. 44.26 22 40.0 50.1 2. 56.95 10 53.4 59.8

¹⁾ length = length of ectoloph at base of crown (in Kahlke max. length at base of crown)

breadth = maximum breadth at base of crown

height = maximum height of ectoloph

3. p⁴, comparative measurements in mm.

D. cf. hemitoechus Petralona	TB	1714	TA	68	88	(69)
	1.	44.3	c.	40		
	2.	63.4		57.4		
D. hemitoechus Kahlke 1975: 372, Staesche 1941	MEAN	N	MIN	MAX		
	1.	40.40	10	c.34	44.4	
	2.	56.05	10	53	60.09	
D. etruscus Süssenborn Kahlke 1969 : 675	MEAN	N	MIN	MAX		
	1.	42.30	11	40.2	45.1	
	2.	56.17	10	53.2	60.0	
D. kirchbergensis Weimar Ehringsdorf. Kahlke 1975:343.	MEAN	N	MIN	MAX		
	1.	43.84	21	42.4	52.2	
	2.	65.71	11	62.2	70.2	

4. M³, comparative measurements in mm

D. cf. hemitoechus Petralona	TA	68	219	(41)	TA	68	88	69
	1.	51.2			(c. 48)	(c. 49)		
	2.	60.9			67.2	66.1		
	3.	62.7			dex.	sin.		
D. hemitoechus Heppenloch, Cannstatt, Staesche 1941	MEAN	N	MIN	MAX				
	1.	51.1	8	44				
	2.	62.1	8	60				
D. etruscus Süssenborn Kahlke 1969:676	MEAN	N	MIN	MAX				
	1.	49.67	21	43.3				
	2.	58.47	17	58.1				
D. kirchbergensis Weimar- Ehringsdorf. Kahlke 1975:346	MEAN	N	MIN	MAX				
	1.	64.41	23	60.5				
	2.	68.24	15	62.5				

5. M³, comparative measurements in mm

D. cf. hemitoechus		dex.	sin.		
Petalona T.A. 68 88 (69)	1.	61.1	59.4		
	2.	62.2	c. 60		
D. hemitoechus Heppenloch, Cannstatt. Staesche 1941.		MEAN	N	MIN	MAX
	1.	59.7	9	54	64.5
	2.	56.0	10	51	61
D. etruscus Süssenborn Kahlke 1969:676		MEAN	N	MIN	MAX
	1.	53.54	10	50.8	56.7
	2.	50.51	7	47.6	53.2
D. Kirchbergensis Weimar- Ehringsdorf. Kahlke 1975 : 346.		MEAN	N	MIN	MAX
	1.	66.82	20	61.9	75.4
	2.	58.05	18	52.1	65.0

6. Radius, comparative measurements in mm.

D. cf. hemitoechus Petralona Sph.	27.7.77				
1. max. breadth of proximal epiphysis	c. 98				
2. breadth of prox. joint-surface	c. 95				
3. longitudinal diam. of prox. epiph.	c. 70				
D. hemitoechus Weimar-Ehringsdorf		MEAN	N	MIN	MAX
Kahlke 1975:378	1.	108.7	3	104.3	114.1
	2.	101.8	3	100.6	103.0
	3.	77.1	4	71.8	83.8
D. etruscus Voigtstedt		MEAN	N	MIN	MAX
Kahlke 1965 : 459, 471, 505	1.	104.4	6	98.2	110.8
	2.	99.5	6	94.4	104.5
	3.	71.1	5	68.0	81.3
D. kirchbergensis Taubach		MEAN	N	MIN	MAX
Kahlke 1997 : 330	1.	114.7	6	109.8	118.6
	2.	108.5	6	104.1	114.0
	3.	76.9	6	71.8	83.8

7. Ulna, comparative measurements in mm.

D. cf. hemitoechus Petralona T.A.	68	(220)			
1. height of sigmoid cavity	c. 71				
2. breadth of sigmoid cavity	c. 81				
3. 1:2	c. 0.88				
D. hemitoechus Weimar-Ehringsdorf.	1.	72.7			
Kahlke 1975 : 378	2.	80.3			
	3.	0.905			
D. etruscus Voigtsteadt		MEAN	N	MIN	MAX
Kahlke 1965: 459, 475, 505, 506	1.	66.8	4	65.0	68.0
	2.	84.9	4	83.5	87.2
	3.	0.787	4	0.769	0.805
D. kirchbergensis Taubach		MEAN	N	MIN	MAX
Kahlke 1977: 330 ff.	1.	82.2	5	72.3	101.8
	2.	95.8	5	84.5	106.5
	3.	0.858	5	0.750	0.964

8. Femur, comparative measurements in mm.

D. cf. hemitoechus Petralona O ₆₉	TA	20.9.75			
1. max. longitudinal diam. of dist. epiph.	c. 150				
2. min. breadth of diaphyse	71.6				
3. min. long. diam. of diaphyse	(c. 46)				
4. breadth of trochlea patellaris	c. 75				
D. hemitoechus Botro Maspino, Ilford. Azzaroli 1961:31	2.	73	70		
D. etruscus Voigtstedt		MEAN	N	MIN	MAX
Kahlke 1965 : 464, 482	1.	138.4	4	135.4	141.5
	2.	66.9	2	66.7	67.0
	3.	48.4	2	48.3	48.5
	4.	81.8	2	81.5	82.0
D. etruscus Hundsheim	1.	142			
Toula 1902 : 58	1.	74			
D. etruscus Val d'Arno	2.	54.1			
VA 612 Basel, Nat. Hist. Mus.	3.	35.7			
D. kirchbergensis Taubach	2.	78.3			
Kahlke 1977:341	3.	49.3			

9. Tibia, comparative measurements in mm

D. cf. hemitoechus Petralona TA 68 (137)	Petr. TA 68 (223)
1. maximum length	350
2. lateral length	310
3. proximal breadth	c. 110
4. breadth of prox. joint-surface	c. 105
5. minimum breadth of diaphyse	c. 58
6. distal breadth	97.0
7. breadth of distal joint-surface	75.0
8. min. long. diam. of diaphyse	48.1
9. long. diam. of epiph.	69.4
10. long. diam. of dist. joint-surface	c. 51
	52.1

D. hemitoechus Weimar-Ehringsdorf	6. 111.3
Kahlke 1975 : 380	7. 90.4
	8. —
	9. 80.4
	10. 64.8

D. etruscus Voigtstedt	MEAN	N	MIN	MAX
Kahlke 1965:465, 482, 509				
1. 401.2	5	390.5	428.0	
2. 333.2	5	326.0	352.5	
3. 127.7	5	121.0	136.5	
4. 124.3	5	120.5	134.0	
5. 59.3	5	56.0	63.9	
6. 103.3	5	101.5	105.5	
7. 82.1	5	77.2	86.3	
8. 51.6	5	50.6	54.5	
9. 75.4	5	72.8	78.8	
10. 58.0	5	55.8	61.4	

D. etruscus	MEAN	N	MIN	MAX
Guerin 1972 : 105				
1. 362.67	12	348	389	
2. —				
3. 111.10	10	102	115	
4. —				
5. 53.95	15	43.5	61.5	
6. 96.75	16	81	105	
7. —				
8. 52.27	15	43	63	
9. 66.26	16	58	72	
10. —				

Cont.

D. kirchbergensis Taubach Kahlke 1977 : 344.	MEAN	N	MIN	MAX
1. 369.9	2	355.0	384.4	
2. 327.4	2	320.4	334.4	
3. 122.5	1			
4. 116.3	1			
5. 60.3	2	57.8	62.8	
6. 106.4	6	98.2	116.2	
7. 87.4	6	81.2	97.3	
8. 55.3	3	53.3	57.5	
9. 79.0	6	74.5	86.1	
10. 63.0	6	59.8	67.2	

10. Calcaneum, comparative measurements in mm.

D. cf. hemitoechus Petralona TA 68 (120)	MEAN	N	MIN	MAX
1. max. length.	123.6			
2. breadth at tuber calcis	52.3			
3. max breadth.	82.9			
4. long diam. at tuber calcis	61.4			
D. hemitoechus Guerin 1973 : 67	MEAN	N	MIN	MAX
1. 125.50	12	113.5	143	
2. 52.82	11	46	60	
3. 76.46	13	68.5	85	
4. 66	10	54	82	
D. hemitoechus Weimar-Ehringsdorf Kahlke 1975:381	MEAN	N	MIN	MAX
1. 131.8			135.5	
2. 48.9			56.3	
3. 68.6			70.8	
4. 62.3			73.8	
D. etruscus Voigtstedt Kahlke 1965: 490, 510	MEAN	N	MIN	MAX
1. 130.5	4	123.6	137.2	
2. 53.3	5	51.2	55.8	
3. 84.5	4	78.3	87.8	
4. 74.1	5	72.2	76.8	
D. etruscus Val d'Arno Basel Nat. Hist. Mus.	VA	612	VA	2300 VA 215
1. 117.0			118.4	123.5
2. 41.3			43.4	45.9
3. 71.8		c .71	c.64	
4. 61.3		64.6	c.61	
D. kirchbergensis Taubach Kahlke 1977 : 346	MEAN	N	MIN	MAX
1. 141.6	5	130.8	146.7	
2. 58.1	5	54.0	61.2	
3. 91.6	5	83.1	97.0	
4. 73.0	5	68.3	78.8	

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Π Ε Ρ Ι Λ Η Ψ Η

ΟΙ ΡΙΝΟΚΕΡΟΙ ΤΗΣ ΣΠΗΛΙΑΣ ΤΩΝ ΠΕΤΡΑΛΩΝΩΝ

Τῶν MICHAEL FORTELIUS καὶ NIKΟΥ Α. ΠΟΥΛΙΑΝΟΥ

Ἡ πανίδα, ὅπως εἴδαμε καὶ σ' ἄλλα ἄρθρα, βοηθάει στὴν χρονολόγηση τῶν στρωμάτων.

Τὸ κύριο εἶδος τῶν ρινοκέρων ποὺς ζοῦσαν στὴν περιοχὴ γύρω ἀπὸ τὴν οπηλιά, καὶ ποὺς ἀποτελοῦσαν ἀντικείμενο κυνηγιοῦ γιὰ τοὺς ἀρχανθρώπους, εἶναι ὁ *Dicerorhinus hemitoechus falconeri*. Τὸ εἶδος αὐτὸς ζοῦσε κατὰ τὸ Κατώτερο Μέσο Πλειστόκαινο, καὶ στὶς στὶς δύο κύριες περιόδους — τὴν Κρήνεια καὶ Πετραλώνεια — ποὺ διακρίνουμε στὴν οπηλιά. Εἶναι οαφᾶς διαφορετικὸ ἀπὸ τὸ εἶδος *D. hemitoechus aretinus*, ποὺ ζοῦσε κατὰ τὸ Ἀνώτερο Πλειστόκαινο, καὶ πλησιάζει πολὺ τὸ *D. etruscus*, ποὺ ζοῦσε στὸ Κατώτερο Πλειστόκαινο.