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***Miophasianus medius* (MILNE EDWARDS 1869) from Przeworno (SW Poland)
and some general remarks on the genus *Miophasianus***

[with Pl. XVII and 2 text figs.]

***Miophasianus medius* (MILNE EDWARDS 1869) z Przeworna (Pd.-zach. Polska)
i ogólne uwagi o rodzaju *Miophasianus***

Abstract. 5 bird bone fragments were found in Miocene deposits at Przeworno (SW Poland). Three of them (2 right humera and 1 right tibiotarsus) were determined as *Miophasianus medius* (MILNE EDWARDS 1869). The other 2 fragments (1 tibiotarsus and 1 phalanx digiti pedis) might belong also to the same species. General remarks on the distribution of the genus *Miophasianus* and its systematics can be found in the last chapter.

I. INTRODUCTION

The Miocene locality at Przeworno (17°10'40''E and 50°41'21''N) is now well known in paleontological literature because of a large number of different animal remains, mainly land vertebrates. The most numerous are mammals and among them various ungulates (GŁAZEK, OBERC, SULIMSKI, 1971; KUBIAK, 1981a, b). There was also one fragment of an ape there (KOWALSKI, ZAPPE, 1974). Tortoises (MŁYNARSKI, 1978, 1981) and snakes (SZYNDLAR, 1984) represents the herpetofauna. On the contrary to the great numbers of mammal remnants fragments of birds have been very scarce: only 3 fragments of bird bones were found in 1971 and the other two in 1974 and 1975.

The datation of the Przeworno sediments is a little controversial. The locality Przeworno I "lower" containing fauna with predominance of animals typical for subtropical wet forests was previously dated back to lower Miocene, whereas Przeworno II "upper" (upper fissure in the same quarry) containing mainly savanna or steppe animals — to Upper Miocene (GŁAZEK, OBERC, SULIMSKI, 1971). The results of further excavations suggest that the both localities are coming rather from the same period determined as Badenian (KU-

BIAK, 1981a, b, 1981; MŁYNARSKI, 1981). According to SZYNDLAR (1984) the fauna of Przeworno belongs to the 6th or 7th biozone utilized by MEIN (1975). All bird remains were found in sediments of "upper" locality Przeworno II.

II. DESCRIPTION OF MATERIAL

The whole bird material from Przeworno excavated by now consists of 2 proximal fragments of humerus, 2 distal fragments of tibiotarsus and 1 phalanx digiti pedis. The preservation state of the fragments mentioned above is not good although they differ from one another.

Better preserved bones (both humera and larger tibiotarsus) were compared with corresponding bones of 53 species of the recent gallinaceous birds belonging to 48 genera from Eurasia, Africa and America. The greatest similarities were

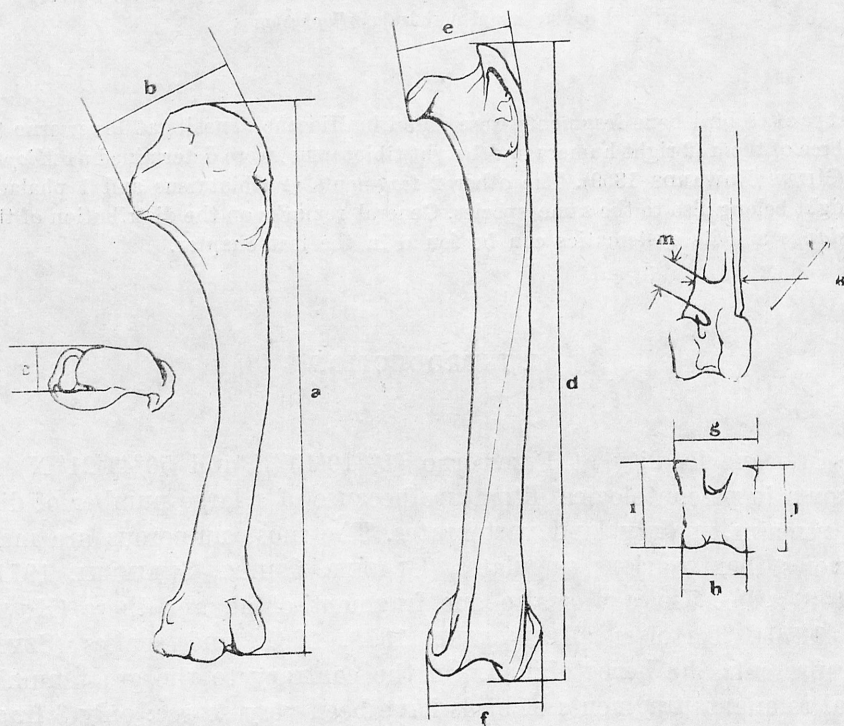


Fig. 1. The manner of measuring of the bones in *Miophasianus* (ref. to Tables I, II and III). Humerus: a — total length, b — width of proximal articular portion, c — thickness of caput humeri; femur: d — total length, e — width of proximal articular portion, f — width of distal articular portion; tibiotarsus: g — largest width of distal articular portion, h — width of distal articular portion from plantar side, i — horizontal diameter of lateral condyle, j — horizontal diameter of medial condyle, k — width of the bone shaft at the level of proximal margin of ligamentum transversum ossificatum, l — thickness of the bone shaft at the same level, m — width of ligamentum transversum ossificatum

found out with *Phasianus colchicus* and representatives of the genus *Lophura*. This pointed to the fact that at Przeworno lived in Miocene a pheasant of small or middle sizes. The comparison with the remnants of *Miophasianus* confirmed this conception.

Humerus (Nos: AF/P-1 and AF/P-2).

The first specimen has well preserved lateral side and especially caput humeri, tuberculum and crista tuberculi dorsalis, facies musculi bicipitalis, sulcus transversus and proximal part of the bone shaft — the medial side of articular portion is damaged. On the contrary in the second specimen are well seen: caput humeri (from medial side), tuberculum dorsale, tuberculum intermedium, incisura collaris and fossa tricipitalis — fossa pneumatica and foramen pneumaticus are partly damaged as well as the total lateral side of epiphysis. The better preserved sides of the both fragments are shown in Pl. XVII (Phot. 1, 2).

The general shape of whole proximal articular portion and especially that of caput humeri, as well as of tricipital fossa, crista tuberculi dorsalis, facies m. bicipitalis and incisura collaris are morphologically nearly identical as in the compared specimen of *Miophasianus medius* from La Grive-Saint-Alban described by GAILLARD (1939). Also very similar but larger are the bones of *Miophasianus altus*. The measurements of the both specimens from Przeworno and those from La Grive are presented in Table I. The bones from Przeworno are a little bit smaller than specimens of *M. medius* from La Grive and distinctly smaller than the bones of *M. altus*. The differences among the *M. medius* specimens seem however to be not larger than individual variation within the species. This can be seen also in photographs (Pl. XVII, Phot. 4).

Table I

A comparison of the measurements (in mm) of the proximal articular part of humerus in the specimens from Przeworno and in the representatives of the genus *Miophasianus* from La Grive-Saint-Alban. The manner of measuring is given in Fig. 1

Species and specimen	Humerus	
	b	c
<i>Miophasianus medius</i> , Przeworno, AF/P-1	16.4	6.9
<i>Miophasianus medius</i> , Przeworno, AF/P-2	> 15.5	6.9
<i>Miophasianus medius</i> , La Grive, N 6026	17.9	7.4
<i>Miophasianus medius</i> , La Grive, N 106	—	7.6
<i>Miophasianus altus</i> , La Grive, N 6024	24.4	10.0
<i>Miophasianus altus</i> , La Grive, N 6023	25.9	10.8
<i>Miophasianus altus</i> , La Grive, N 62254	—	ca. 11.2

Tibiotarsus (Nos: AF/P-3 and AF/P-4).

The larger and better preserved distal fragment of right tibiotarsus represents about 1/3 of the bone (the total length of the fragment is 30 mm). In this specimen the both condyles (medialis and lateralis) as well as incisura intercondyloidea, ligamentum transversum ossificatum and canalis m. extensoris digitorum are well seen (Pl. XVII, Phot. 3). The plantar side of the fragment is also well preserved.

The second remnant (AF/P-4) belonged evidently to a smaller bird. It is also badly preserved: the ridges of its both condyles are damaged, also the part of ligamentum transversum ossificatum is crushed. Only the general shape of the rests of condyles, the position of canalis musculi ext. digitorum and the whole proportions of epiphysis point that it is the remnant of a gallinaceous bird, very similar to the previous one.

The both bones were measured and those measurements were compared with those of the bones from Sansan and La Grive-Saint-Alban determined as *Miophasianus medius* and *M. altus*. The results are presented in Table II. The larger fragment (AF/P-3) has dimensions very similar to two fragments of *M. medius* from La Grive (one of them was determined by BALLMANN, 1969). It is also smaller than all bones determined as *M. altus*. Measuring of the smaller fragment (AF/P-4) is very difficult because of its damage — only two but

Table II
A comparison of the measurements (in mm) of the distal portion of tibiotarsus in the specimens from Przeworno and in the representatives of the genus *Miophasianus* from La Grive-Saint-Alban. The manner of measuring is given in Fig. 1

Species and specimen	Tibiotarsus						
	g	h	i	j	k	l	m
<i>Miophasianus medius</i> , Przeworno, AF/P-3	10.7	7.9	ca 10.5	ca 9.8	ca 7.3	5.0	ca 3.7
<i>Miophasianus</i> cf. <i>medius</i> , Przeworno, AF/P-4	—	—	—	—	ca 6.0	ca 4.5	—
<i>Miophasianus medius</i> , La Grive, N 100	—	ca 8.1	10.3	—	7.1	5.1	ca 3.8
<i>Miophasianus medius</i> , La Grive, without number	—	—	—	9.4	7.1	5.3	ca 2.9
<i>Miophasianus altus</i> , La Grive, N 6066	—	—	12.2	—	9.3	6.4	4.7
<i>Miophasianus altus</i> , La Grive, N 107	15.8	—	15.0	14.2	11.2	6.8	5.2
<i>Miophasianus altus</i> , La Grive, without number	13.3	11.1	13.8	13.9	9.6	6.8	4.3

not exact dimensions could be taken. This remnant is the smallest of all the compared ones but distinctly larger than bones of *Palaeortyx phasianoides* MILNE EDWARDS 1871, found together with *Miophasianus* at La Grive (the measurements of this bird are given by BALLMANN, 1969). Taking into account the morphological similarity on one hand and the differences in sizes on the other it is difficult to decide if the both bones from Przeworno belong to the same species. One must remember the individual variation and also sexual dimorphism in sizes observed in majority of gallinaceous birds but very small series of bones of *Miophasianus medius* as well as *M. altus* do not permit to state if the smaller bone from Przeworno represents the minus-variant of *M. medius* or lies off the lower limit typical for this species.

Phalanx III digiti 3 pedis (No: AF/P-5).

The bone is complete with a little damaged margins of proximal articular surface and distal epiphysis. Its total length is 9.6 mm, width and height of proximal articular portion are 2.9 and 3.3 mm respectively and the width of distal articular portion is 2.9 mm. It is typical for a gallinaceous bird, similar in size to corresponding bone of the recent *Phasianus colchicus*, but differs a little in the shape of proximal articular surface which is more triangular. The direct comparison of this bone with that of *Miophasianus medius* is not possible as it is not known yet. It seems on the other hand that this phalange belongs to *Miophasianus medius* because of its proportional size and the fact that no other gallinaceous bird was found at Przeworno.

The final determination of the bird bone fragments from Przeworno is following: the both humera and larger tibiotarsus belong to *Miophasianus medius* (MILNE EDWARDS 1869); the other two fragments represent also the genus *Miophasianus* of not exactly determined species, which is probably *medius* but not *altus*.

III. GENERAL REMARKS

The genus *Miophasianus* has been known from European land sediments of several localities. The correlation of datation of those localities is controversial. Different authors mention such periods as Vindobonian, Sarmatian, Tortonian and Helvetian, encountered generally by BRODKORB (1964) to Upper Miocene, by EYSINGA (1975) to Middle and Upper Miocene with synonymizing Tortonian and Helvetian, and according to FAHLBUSCH (1981: Table 1) the recent division of Miocene is different from the older one, however the same names of periods are used among others.

By now the genus *Miophasianus* has been represented by 5 species (BRODKORB, 1964), of which three are known only from single bones. *Miophasianus altus* and *M. medius* are on the contrary represented by the series of various

bones and bone fragments coming from more than one locality. *Miophasianus medius* had been known before the excavations at Przeworno only from Sansan and La Grive-Saint-Alban the former being encountered by ESTES (1981) to the biozone 6 and the latter to biozone 7/8. So, according to FAHLBUSCH (1981) the

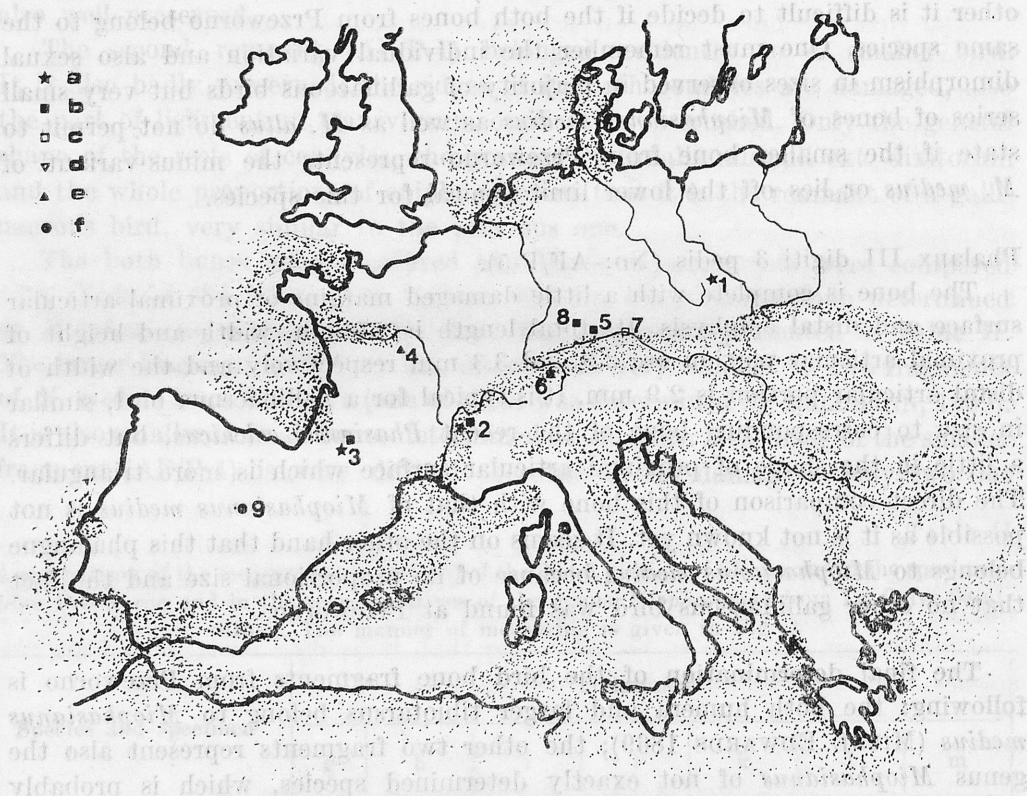


Fig. 2. European localities containing the remnants of the genus *Miophasianus* and the distribution of lands and seas (dotted) in the Middle Miocene (POMEROL, 1973). a — *Miophasianus medius*, b — *M. altus*, c — *M. augustus*, d — *M. maximus*, e — *M. desmoyersi*, f — *Miophasianus* sp. Localities: 1 — Przeworno, 2 — La Grive, 3 — Sansan, 4 — Touraine, 5 — Neuburg 6 — Oeningen, 7 — Regensburg, 8 — Steinheim, 9 — Guadalajara Province (BRODKORB, 1964; CRUSAFONT, QUINTERO, 1970, and present materials)

geological age of Sansan is the lower part of Middle Miocene and that of La Grive is the boundary between Middle and upper Miocene. The locality of Przeworno is easternmost for all the representatives of the genus *Miophasianus* (Fig. 2) and, on the other hand, being encountered to the biozone 7, its age is between the ages of sedimentation of the above mentioned French localities. Not only *Miophasianus medius* but among others also *Pliopithecus antiquus* described from Przeworno II by KOWALSKI and ZAPFE (1974) correspond to the faunas of Sansan and La Grive and suggest that those faunas lived in the

similar period of time. KUBIAK (1982) however writes that there is no basis for such a statement.

One of the most interesting remnants of the genus *Miophasianus* were found at Steinheim. The fauna from that locality belongs to the biozone 7 (ESTES, 1981) and to the upper part of Middle Miocene (FAHLBUSCH, 1981) as well. The above mentioned remnants are stored at the Natural History Museum in Stuttgart (Nos: 50881, 50888, 50892) and have not been described so far. They are so interesting because various skeletal elements of them belong to the same bird individual. Seeing those specimens in 1983 I was sure they were of the large species of *Miophasianus*. Their measurements (HEIZMANN, in litt.) are shown in Table III. These of humerus and tibiotarsus are nearly identical with those of *M. altus* from La Grive, so I think the specimens from Steinheim belong also to this species. On the other hand the sizes of femur from Steinheim

Table III

A comparison of the measurements (in cm) of three bones of large species of *Miophasianus* coming from La Grive-Saint-Alban, Steinheim and Regensburg. The manner of measuring is shown in Fig. 1

Species and specimen	Humerus		Femur			Tibiotarsus				
	a	b	d	e	f	g	h	i	j	m
<i>Miophasianus altus</i> , La Grive, (Gaillard, 1939)	10.1	2.5	—	—	—	—	—	—	—	—
<i>Miophasianus altus</i> , La Grive, N 6023	—	2.44	—	—	—	—	—	—	—	—
<i>Miophasianus altus</i> , La Grive, N 6024	—	2.59	—	—	—	—	—	—	—	—
<i>Miophasianus altus</i> , La Grive, N 107	—	—	—	—	—	1.58	—	1.50	1.42	0.52
<i>Miophasianus altus</i> , La Grive, without number	—	—	—	—	—	1.33	1.11	1.38	1.30	0.43
<i>Miophasianus altus</i> , La Grive, N 6066	—	—	—	—	—	—	—	1.22	—	0.47
<i>Miophasianus altus</i> , Steinheim, 50881	—	2.6	10.1	2.1	1.9	1.6	1.2	1.6	1.5	0.4
<i>Miophasianus altus</i> , Steinheim, 50888	10.1	2.6	—	—	—	1.5	1.1	1.5	1.4	0.5
<i>Miophasianus altus</i> , Steinheim, 50892	—	—	—	—	—	1.5	1.2	1.6	1.4	0.5
<i>Miophasianus augustus</i> , Regensburg, (VON AMMON, 1918)	—	—	10.0	2.0	2.0	—	—	—	—	—

are the same as of the specimen described from Regensburg by VON AMMON (1918) as *Miophasianus augustus*. The drawing presented in the paper of VON AMMON (1918) looks also very similar to *M. altus*. The characteristic specific feature pointed by VON AMMON (1918) for *M. augustus* is the presence of the foramen pneumaticus in front of the proximal part of the bone. This feature cannot be characteristic because it is very variable in the recent phasianids. The above mentioned facts suggest that *Miophasianus augustus* VON AMMON 1918, is the synonym of *Miophasianus altus* (MILNE EDWARDS 1869).

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STRESZCZENIE

Podczas wykopalisk w Przewornie w latach 1971, 1974 i 1975 znaleziono 5 fragmentów kostnych ptaków, oznaczonych wstępnie jako kuraki. Szczątki te były porównane z 53 gatunkami współczesnych kuraków, a także z dwoma miocenijskimi bażantami z rodzaju *Miophasianus* (tabele I i II). Ostatecznie okazało się, że 3 fragmenty: 2 proksymalne części kości ramieniowych i dystalna część prawej kości piszczelowej należą do gatunku *Miophasianus medius* (MILNE EDWARDS 1869). Pozostałe 2 fragmenty (k. piszczelowa i paliczka stopy) należą też do tego rodzaju i prawdopodobnie do tego samego gatunku, czego jednak nie można stwierdzić bezspornie.

Przeworno jest najdalej na wschód wysuniętym stanowiskiem przedstawicieli rodzaju *Miophasianus* (ryc. 2), a zaliczane do biozony 7 wykazuje podobieństwa do faun z francuskich stanowisk Sansan i La Grive-Saint-Alban ze środkowego miocenu.

Porównanie wymiarów kilku kości *Miophasianus altus* z Francji i okazów ze Steinheim pozwala na oznaczenie tych ostatnich jako *M. altus*. Wymiary kości udowej ze Steinheim są takie same jak okazu z Regensburga, opisanego przez VON AMMONA (1918) jako *Miophasianus augustus*. Przy braku wyraźnych cech wyróżniających sugeruje to, że *Miophasianus augustus* VON AMMON, 1918, jest synonimem *Miophasianus altus* (MILNE EDWARDS 1969).

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Plate XVII

Miophasianus medius (MILNE EDWARDS 1869) from the Miocene of Przeworno:

Phot. 1. Right humerus, specimen AF/P-1 ($\times 2$)

Phot. 2. Right humerus, specimen AF/P-2 ($\times 2$)

Phot. 3. Right tibiotarsus, specimen AF/P-3 ($\times 2$)

Phot. 4. Two fragments of right humera from Przeworno (in the middle) compared with right humerus of *Miophasianus altus* (on the left side) and left humerus of *Miophasianus medius* (on the right side) from La Grive-Saint-Alban

Phot. 5. The fragment of tibiotarsus from Przeworno (specimen AF/P-3 — in the middle) compared with corresponding fragments of *Miophasianus medius* (on the left side) and *Miophasianus altus* (on the right side) from La Grive-Saint-Alban

Phot. Z. Bocheński

