AQUILA

A MAGYAR MADÁRTANI INTÉZET

(KTM ORSZÁGOS TERMÉSZETVÉDELMI HIVATAL MADÁRTANI INTÉZETE)

ÉVKÖNYVE

ANNALES INSTITUTI ORNITHOLOGICI HUNGARICI 1992

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TARTALOMJEGYZÉK

CONTENTS

LOWER PLEISTOCENE BIRD REMAINS FROM BEREMEND, (S–HUNGARY, LOC. 15. and 16.)

Dr. Dénes Jánossy

Abstract

Lower Pleistocene Bird Remains from Beremend, (S–Hungary, Loc. 15. and 16.)

During the last years the hitherto known outstandingly significant series of Lower Pleistocene vertebrate localities of the Villány Hills (S–Hungary) was enriched by two new ones, Beremend, Locality 15 and Locality 16–17. Numerous small and large mammal remains help us determine the exact stratigraphical position: the first one is Lowest Pleistocene („Lower Villafranchian", Beremendian, estimated age 1.5 million years), the other one is Lower Pleistocene („Upper Villafranchian", estim. age 1 million years). The locality-complex Beremend 16–17 with its 45 bird species is the hitherto known richest ornitho-fauna of Hungary of this age. Two new taxa (Ciconia stehlini n. sp., Anas crecca percrecca n. ssp.) *are described together with morphological, taxonomical-evolutionary and paleoenvironmental remarks.*

The limestone of the Szőlőhegy of Beremend – southernmost point of Hungary – has been quarried for more than a hundred years. *János Salamon Petényi* was the first in 1847, who collected material from the fissures of the quarry-system. Also presently there is intensive commercial quarrying being carried out and karstic hollows and fissures containing bones are opened up every year *(Jánossy, 1986).*

During the last years two new vertebrate-paleontological localities were found i. e. in order of discovery Loc. 15 and 16 (17), (in this paper designated as „Ber. 15–16–17", Fig. 1.). Both localities yielded a very rich vertebrate fauna, also containing a better than average bird-assemblage.

Beremend Loc. 15 is the geologically older one, the „Beremendian", characterised by the vole-assemblage of *Dolomys milleri*, the classical Lowermost Pleistocene. The other one, geologically younger, Beremend Loc. 16 (a part of them called Loc. 17) is a larger cave system, locally with an *Allophaiomys-Mimomys savini-assemblage*, Lower Pleistocene in a wider sense. Both localities also yielded rich large mammal-assemblages (chiefly antelopes, sabretooth cats etc., *see Jánossy, 1987; Jánossy and Topál, in: K. Takácsné-Bolner, 1985, Topál, 1989.* For more technical details about the localities Beremend 16 and 17, see these papers. Here I have to thank the Speleological Society, Budapest, whose members explored the localities Ber. 16, 17 and handed the matter over to me for elaboration).

The fossil bird fauna of these two localities seems to be of such significance (45 species, as the richest Lower Pleistocene ornithofauna in Hungary, Ber.

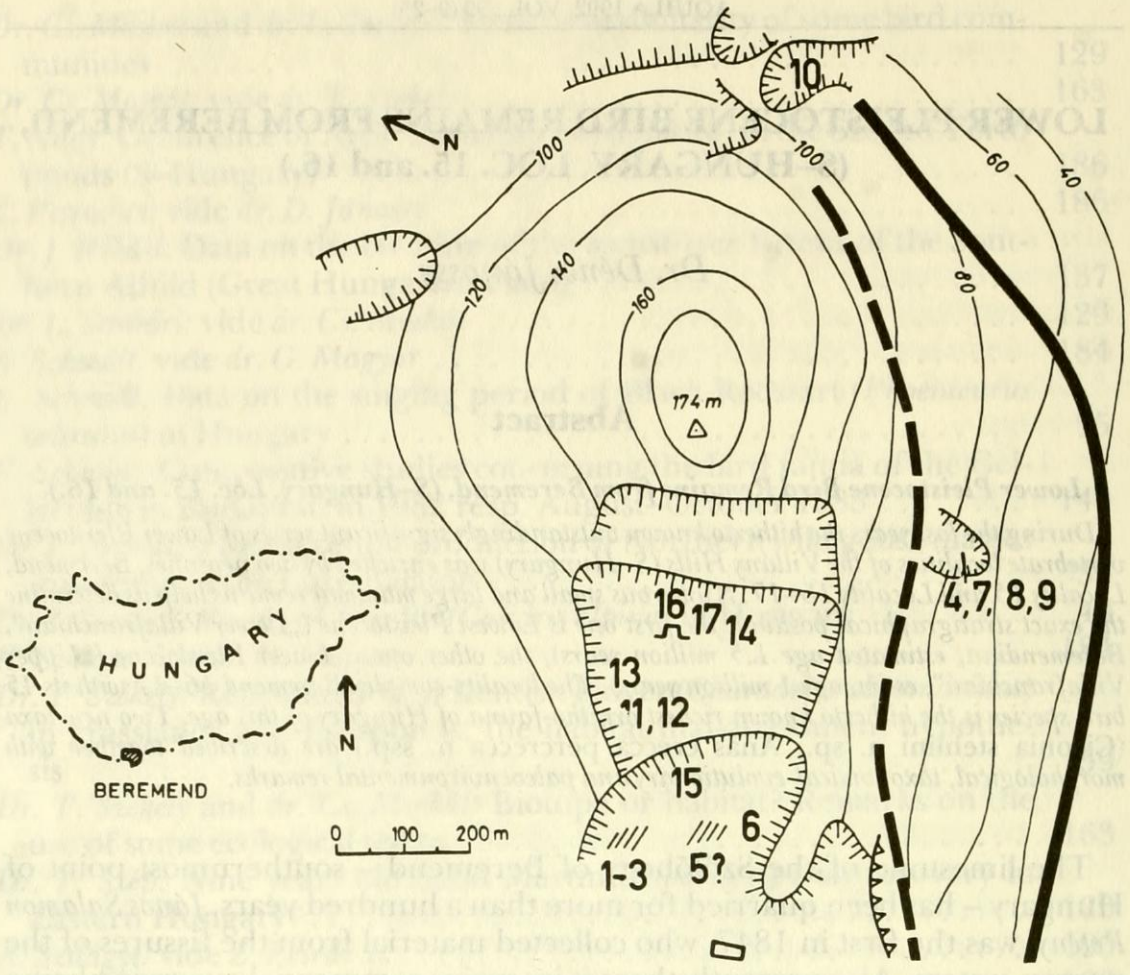


Fig. 1. The geographical situation of localities Beremend 15., 16. and 17. in the Quarry-System of the „Szőlőhegy"
1. ábra. A Beremend 15., 16. és 17. számú lelethelyek földrajzi fekvése a „Szőlőhegy" kőfejtőrendszerében

16, 17) in the series of Plio-Pleistocene bird remains of the Carpathian Basin (summarized *by Jánossy, 1981,* citations of former parts of the series see this paper) that it deserves our special attention.

Thus, I want to present some notes about these bird remains and the description of subspecies-species proposed to be new for science.

I determined the following taxonomical units (with the number of bones) from the two mentioned localities:

Beremend	Loc. 15	Loc. 16	(17)
Ciconia stehlini n. sp.	8	3	–
Anas crecca percrecca n. ssp.	2	5	1
Anas cf. acuta L.	–	–	1
cf. Spatula clypeata (L.)	–	1	1

Beremend	Loc. 15	Loc. 16	(17)
Anas cf. strepera, L.	–	–	1
Falco tinnunculus atavus Jánossy	8	30	2
Lyrurus partium Kretzoi	–	3	4
Tetrastes praebonasia Jánossy	–	–	1
Francolinus minor Jánossy	17	?1	–
Fr. (Lambrechtia) capeki Lambrecht	1	3	17
Fr. subfrancolinus Jánossy	–	–	2
Coturnix cf. coturnix (L.)	–	–	3
Perdix sp.	–	1	1
Otis khozatzkii beremendensis Jánossy	1	–	–
Otis kalmani Jánossy	–	2	–
Otis cf. lambrechti Kretzoi	–	–	1
Crex sp.	–	–	1
Porzana cf. porzana (L.)	–	1	–
Porzana cf. parva (Scopoli)	–	–	1
Gallinula cf. chloropus (L.)	–	–	1
Tringa sp.	–	1	–
Limosa cf. limosa (L.)	–	–	2
Vanellus cf. vanellus (L.)	–	1	–
Numenius cf. arquata (L.)	1	–	–
Larus (?) cf. ridibundus L.	–	–	1
? Cursorius sp.	–	1	–
Cuculus sp.	1	–	–
Columba cf. livia (Gmelin)	–	–	1
Strix intermedia Jánossy	–	1	1
Asio sp.	–	–	4
Athene veta Jánossy	–	1	3
Alauda cf. arvensis L.	–	1	–
Galerida sp.	–	–	15
Melanocorypha sp.	–	–	3
Hirundo sp.	–	1	–
Anthus sp.	1	–	–
Bombycilla cf. garrulus (L.)	–	–	3
Turdus aff. iliacus (L.)	–	–	2
Turdus cf. philomelos (Brehm)	–	1	1
Erithacus sp.	–	–	1
Emberiza sp.	–	–	1
Carduelis sp.	–	–	3
Pyrrhula sp.	–	1	1
Serinus sp.	1	–	1
Sturnus cf. vulgaris L.	–	1	1
Pyrrhocorax graculus vetus Kretzoi	–	–	4
Garrulus cf. glandarius L.	–	–	2
Corvus janossyi Mourer-Chauviré	7	34	21

I give below the detailed description of *Ciconia stehlini n. sp., Anas percrecca n. ssp.* and *Athene veta.*

Among anatid remains – except for *Anas percrecca* – a damaged proximal fragment of humerus better agrees with *Spatula clypeata* (width of diaphysis about 5.3 mm) another one of a distal part of the same bone falls within the range of *Anas strepera* (cca. 12 mm in width), a very damaged fragment of cmc agrees with *Anas acuta.*

The constant member of the Lower-Middle Pleistocene ornithofaunas of our territory is the extinct form of the Kestrel *(Falco tinnunculus atavus).* The extraordinarily large dimensions of some bones (Ber. 16 and 17) show the tendency of this form to larger plus-variants than the recent form. The maximal length of a somewhat fragmentary humerus measures about 60 mm, the width of the diaphysis in the middle 5.5 mm (the same measurements in 15 recent specimens are 50–55 viz. 4.0–4.8 mm). The tmt is also a plus-variant (length 45.0 mm), other bones are smaller, partially within the variation of the recent Kestrel (fragments of 3 coracoidei, 2 ulnae, tibiotarsus (dist.) and a tarsometatarsus dist. fr.).

The special phenomenon of mosaic-like evolution and the unambiguous proof of the presence of an extinct form indicates a tarsometatarsus (Ber. 16) of a *Tetraonid,* similar in size to a female Capercaillie, in morphology to a Black Grouse. The length of the bone measures 62.5, the prox. width 13.8, the dist. width 15.0, the diaphysis in the middle 5.5 mm. The length of tarsus is given in recent literature for *T. urogallus* as 50–80 mm, for *T. tetrix* as 37–53 mm. The size agrees also – as mentioned – with *T. urogallus,* but the proximal and distal widening of the bone, the position of the foramen inferior and the narrowness of the middle trochlea indicates *T. tetrix* (Fig. 4/10). Some phalanges (ph. 1 dig. 3 post.) in Ber. 15 and in Ber. 17 of *Tetraonids* have different proportions from recent specimens of the same size, while the tibiotarsus and a distal fragment of a coracoideum (Ber. 16) agrees in the smallest details with that of recent Black Grouse. The presence of *Tetrastes praebonasia* in such a southern situation in Hungary is remarkable (Fig. 4/7).

As mentioned in other places *(Jánossy, 1987, 1990),* the remains of francolins are noteworthy in both localities. In Ber. 15 *Francolinus minor* alone is present [fragments of cmc, ulna, humerus, coracoideum, tibiotarsus, tmt (complete, without a spur (!): length 28, diaph. in the middle 2.6 mm), phal. 1 dig. 3]. In Ber. 16 and 17 most of the material represents in size and morphology *Francolinus capeki:* 4 ulnae fragm., carpometacarpus (length 18.6 mm), humerus dist. fr. (width of epiphysis 11 mm), tmt dist. fr. (without spur! width of epiphysis 9.6 mm) and an oral fragm. of a sternum. The last one is especially remarkable: it agrees in all morphological details with *Francolinus,* but the two dorsal pneumatical holes, observable in my recent comparative material of *Francolinus francolinus* and *Francolinus coqui* – are missing. This may be new proof for distinguishing this form as an independent subgenus *(Lambrechtia)* (Fig. 4/5–6).

Some very large specimens (ulna-fragm.) in Ber. Loc. 16 may be distinguished as *Francolinus subfrancolinus,* a very small one (cmc-fragm., prox. width about 6 mm) in Ber. 16 perhaps ranks with *Fr. minor.*

A few bones of small *Galliforms* are in their morphological features more like those of a Quail *(Coturnix)* in Ber. 17, than those of francolins.

The taxonomical position of the bustard-remains of both localities of Beremend [Loc. 15 and 16 (17)] is problematic. A distal fragment of tibiotarsus from Ber. 17 is in size and morphology nearest the Little Bustard (distal width 8.0 mm). The same regards a phalanx 1. dig. 3 post. from Ber. Loc. 16, which have different proportions from recent examples of the Little Bustard (Fig. 4/9). These two remains may be designated as *Otis kalmani.* Somewhat larger size-category (dimensions of Houbara) is represented by the fragment of tarsometatarsus and a phalanx from Ber. 15, which I designated as *Otis khozatskii beremendensis (Jánossy, 1991).* The difference or identity of these two forms is reserved for more complete remains of the same ages. A tenth or rather eleventh cervical vertebra of a larger bird from Ber. 16 deserves our attention. It differs in several details from those of birds of the same size-category: from *Pelecanus, Ciconia, Cygnus, Anser, Grus, Aquila (s. l.) spp.* or *Bubo* and agrees in most details with the same bone of a female Great Bustard (orocaudal length of the corpus vertebrae about 18 mm).

A distally damaged carpometacarpus (Ber. 17, originally about 15.4 mm long), with the unambiguous morphological features of crakes (genus *Porzana*) is proof of the presence of rails. Considering the fact that the bone agrees in size and morphological features with one of my recent comparative skeletons of the Little Crake *(Porzana parva),* I rank it preliminary with that one. I do'nt have comparative matter from the Baillon's Crake *(P. pusilla),* but according to literary data the latter is on average smaller than the former. Therefore I decided to rekon this form as *P. cf. parva* (which may be an extinct form.) This is the first proof of the former presence of a small Crake in our territory. I have only found it in the material of Přezletice, near Prague, of nearly the same geological age *(Jánossy, 1983)* and *Mourer-Chauviré* found it in Saint Estève Janson, SW-France *(Mourer-Chauviré, 1975).* A distal part of tibiotarsus of a rail in Ber. 16 (width 3.6 mm) agrees with *P. porzana,* a proximally 9.0 mm broad humerus-fragment corresponds with *Crex.* A nearly intact tarsometatarsus (length: 49.0; width of the diaphysis: 3.6; width of the dist. epiphysis 8.0 mm) agrees in all details with the same bone of the Common Gallinule *(G. chloropus),* although it seems to be stouter than my recent comparative pieces (N = 6).

Considering the fact that the extreme osteological homogeneity of shorebirds *(Charadriiformes)* often makes it hard to determine the genus or even the family, the determination of some fragments from Beremend is uncertain. Two bone-fragments from Ber. 17 (scapula prox. fr., ulna dist. fr.) agree in most details with those of the recent Black-Tailed Godwit *(Limosa limosa).* A broken coracoideum assimilates in all details among shorebirds of the same size-category in Europe from Ber. 17 to the Northern Lapwing *(Vanellus vanellus).* A proximal fragment of tarsometatarsus (Ber. 15) closely resembles the size and the morphological features of the „Eurasian" Curlew *(Numenius arquata),* without claiming the specific identity of the recent and fossil forms. A proximal fragment of a humerus from Ber.

16 is of the size and morphology of a Sandpiper *(Tringa sp.)*. An other one agrees with more of the morphological details of the Courser *(Cursorius)* than those of Sandpipers *(Tringa spp.)*. Considering the fact that the bone seems to be not quite adult, the determination must remain open.

A carpometacarpus with the morphological features of a dove (length 31 mm) is in the size-range of *Columba livia.*

A distal fragment of a humerus from Ber. 15 shows the unambiguous features of a cuckoo, with a distal width of 9.5 mm. This measurement seems to be a little stronger as in the recent *Cuculus canorus.* The designation of *„Cuculus sp."* seems most realistic. *Cuculus csarnotanus* seems to be smaller and morphologically different.

I want to discuss the remains of owls later in this article, although I have to mention two forms here, one represented by a fragment of a carpometacarpus, a femur and a phalanx (phal. 1 dig. 1 posterior) of the size and morphology of a Tawny Owl *(Strix sp.)*. With regards to the morphology and age, the identification of the remains with *Strix intermedia* seems to be the most probable, which was very widespread during the Lower-Middle Pleistocene in Europe *(Mourer-Chauviré, 1975)*.

A coracoideum, a very damaged humerus-fragment, a carpometacarpus-fragment and a tarsometatarsus (length of the last one 28 mm, proximal width 6.4 mm, distal width 7.2 mm) agree with *Asio otus,* but a part of the bone seems to be smaller than recent material (length of recent tmt, n = 32; 36–43 mm, data partially by courtesy of Z. Bohenski, Krakow). The species from Beremend may be an ancient form of *Asio otus.* Although the systematical homogeneity of different *„Asio"*-bones is in any case uncertain.

As it is well known in the shorebirds, the same is the situation in the *Passeriformes:* the greatest osteological homogeneity combined with an extreme high number of taxonomical units. This is more problematic, because we also have to count extinct forms theoretically. Thus, I restrict myself to the smaller members of this order, chiefly to the determination of humeri.

Among the *Passeriformes* the larks are relatively more numerous. Seven humeri and two ulnae from Ber. 17 are morphologically nearest to the larger *Alaudidae,* especially to *Galerida.* The length of the humerus ranges between 27.2–28.0 mm, in average larger than in my recent comparative matter of *Galerida cristata* and *G. theklae* (n = 5; 24.8–27.5 mm). My student, *P. Ujhelyi,* who studies the premaxillae of *Passeriformes* established that four „bones of bill" agree in all details with that one of a recent *Melanocorypha calandra,* but they seem to be smaller. Thus, the presence of a species of *Melanocorypha* is highly probable in the material of Beremend *(M. gracilis Tchernow 1968?)*. This is the first proof of the presence of this genus in the fossil ornithofauna of Hungary (Fig. 2.). One humerus of a lark agrees with *Alauda.*

The intensive analysis of small humeri unambiguously proved the identity of two of them (Ber. 17), to originate from the osteologically relatively well specialized Waxwings *(Bombycilla sp.)*. The details of the proximal and distal epiphysis as well as the robust form of the bone indicate this determination.

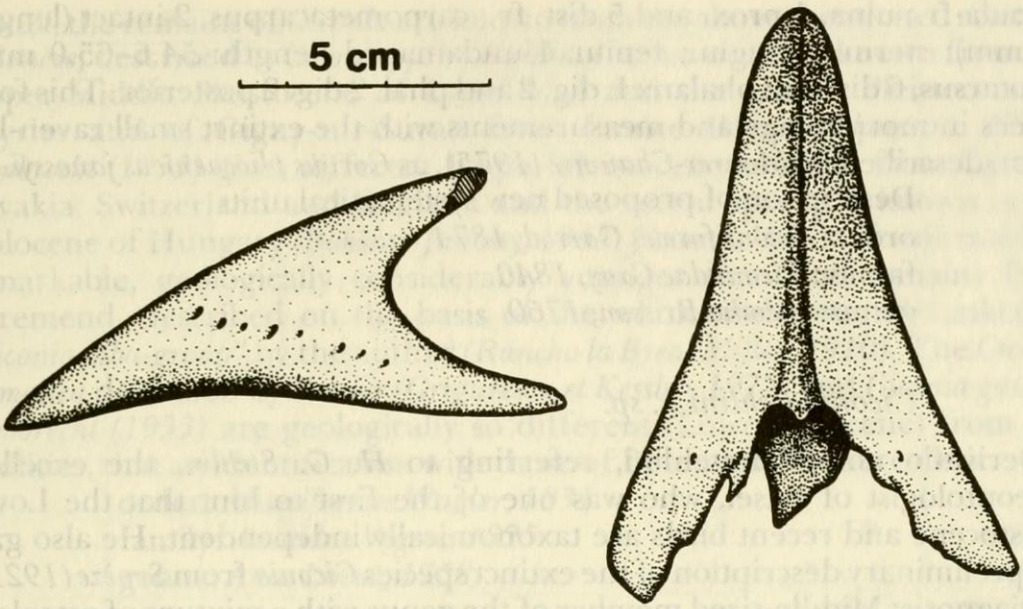


Fig. 2. Lateral and ventral view of a premaxilla of a Calandra Lark ***(Melanocorypha sp.)*** *from Beremend, Loc. 17. Pinxit P. Ujhelyi*

2. ábra. Kalandrapacsirta ***(Melanocorypha sp.)*** *felső csőrkávája laterális ill. ventrális nézetben, Beremend 17-es lelethely. (Ujhelyi Péter rajza.)*

The measurements of the humeri (length 22.4 and 23.0 mm) are in the same range as equivalent ones in the recent material of the Budapest collection from *Bombycilla garrulus* (n = 7; 21.2–24.1 mm). Considering the fact that the only two other recent species of the genus, *B. japonica* and *B. cedrorum* are of smaller dimensions, in Beremend we have to consider with the evolutionary line of *B. garrulus*. This is the first proof of this form in the Lower-Middle Pleistocene of our country.

The analysis of other smaller humeri of *Passeriformes* proves the presence of a middle sized finche, most probably *Carduelis*. Since a premaxilla may be ranked in size and morphology, – due to determination of *P. Ujhelyi*, – also with *Carduelis*, this genus can be listed in Beremend 17. A smaller humerus of a finche-like bird agrees more closely with *Serinus*. An about 19 mm long humerus (Ber. 16) with the morphological features of *Erithacus* is too large to be the European Robin *(E. rubecula)*, thus we can only presume the presence of the genus. Lastly I have to mention in this place a proximal fragment of humerus with the morphology of *Emberiza* (Ber. 17). The identification of some other taxa of smaller *Passeriformes* must remain on generic level or may be determined only with „open" nomenclature.

The corvids are represented by two or three different forms. One femur prox. fragm. may be ranked with *Pyrrhocorax*, two other ones of *Garrulus* (all from Ber. 17). Most of the bones originate from the large corvid, very widespread in the older Pleistocene of Europe. The list of the remains are as follows: premaxilla-fragm., mandibula-fragm., quadratum, 3 adult and 1 semiad. coracoideum (length: 50 and 44 mm); 1 humerus + 3 fr.; 4

scapula-fr.; ulna, 1 prox. and 5 dist. fr.; carpometacarpus, 2 intact (length: 61 mm); sternum-fragm.; femur 4 undamaged (length: 54.6–65.0 mm); tibiotarsus, 6 dist. fr.; phalanx I. dig. 2 and phal. 2 dig. 2 posterior. This form agrees in morphology and measurements with the extinct small raven-like form, described by *Mourer-Chauviré (1975)*, as *Corvus pliocaenicus janossyi.*

Description of proposed new systematical units
order: *Ciconiiformes Garrod, 1874*
family: *Ciconiidae Gray, 1840*
genus: *Ciconia Brisson, 1760*

Ciconia stehlini n. sp.

Derivatio nominis: stehlini, referring to *H. G. Stehlin,* the excellent paleontologist of Basel, who was one of the first to hint that the Lower Pleistocene and recent birds are taxonomically independent. He also gave the preliminary description of the extinct species *Ciconia* from *Senèze (1923).*

Diagnosis: Middle-sized member of the genus with a mixture of osteological features of *Ciconia alba* and *C. nigra.*

Locus typicus: Beremend 15, Villány Hills, Southern Hungary.

Stratum typicum: Lowermost Pleistocene, Beremendian, Lower Villafranchian.

Type: Proximal and distal fragment of tarsometatarsus, Beremend, Loc. 15, Inv. Number: V. 91. 151, Paleontological Department of Natural History Museum, Budapest.

Referred specimens: Beremend 15: 2 distal fragments of tibiotarsus, phalanx 1 digiti 1 posterior; Beremend 16: Dist. fragm. of ulna, prox. fragm. of tarsometatarsus, phal. 1 dig. 2 anterior and fragm. of posterior phalanx; Beremend 17: dist. fragm. of post. phalanx (Fig. 4/1–4).

Description: From a zoogeographical point of view the remains of storks in the localities of Beremend can only be compared in size and morphology with *Ciconia ciconia* and *C. nigra.* I could only find enough comparative material in the collection of the Natural History Museum of Basel. I used comparative matter from these two species (14 *C. ciconia,* 3 *C. nigra* specimens), which I could examine by the courtesy of *B. Engesser,* whom I have to thank here. The result of these comparisons may be summarized as follows:

The distal part of tibiotarsus closely resembles *C. ciconia* (Ber. 15: distal width: 14.5 mm). The hypotarsus in the proximal epiphysis of the tarsometatarsus is narrower as in *C. nigra,* the measurements of distal epiphysis agree with *C. alba,* but the widening of the distal part of the bone is lesser than in both recent species (Ber. 15, width of the middle trochlea 7.3 mm), the position of the foramen inferior is higher than in both recent species. Thus, we can observe the usual mosaic-like differences between recent and fossil species as in several other systematical group of birds.

Fossil stork-remains don't occur frequently. Apart from the large „marabu" of the older Pleistocene of Middle-Eastern Europe, *Pelargosteon tothi*

Kretzoi, the remains of *Ciconia* are known from the above mentioned remains *of Senèze*, described as *Ciconia sp.* by *Stehlin*, *Ciconia ciconia* is known from the Upper-Middle Pleistocene of Lunel-Viel and the Upper Pleistocene of Veyrier and of Gigny-sur-Suran from France *(Mourer-Chauviré, 1975)*. *Lambrecht (1933)* gives different Upper Pleistocene localities from Czechoslovakia, Switzerland and England and the recent species is known in the Holocene of Hungary *(Bökönyi-Jánossy, 1965, Jánossy, 1985)*. *Ciconia maltha* is remarkable, geologically considerably younger than our remains from Beremend, described on the basis of the whole skeleton and ranked as *„Ciconia alba-group"* by the author *(Rancho la Brea, Miller, 1910)*. The *Ciconia sarmatica* described by *Kessler (Grigurescu et Kessler, 1977)* and *Ciconia gaudryi Lambrecht (1933)* are geologically so different (Lower Miocene) from our localities, that an identification with those of Beremend is not realistic.

order: *Anseriformes Wagler, 1831*
family: *Anatidae Vigors, 1825*
genus: *Anas Linné, 1758*

Anas crecca percrecca n. ssp.

Among the bone-fragments originating from ducks, – as mentioned above in this article, – I found an intact ulna which is remarkably stout. I measured the length of the bone and the (anterio -posterior!) width of them and compared these measurements with the variation of the same of the two small anatids of our territory: *A. querquedula* and *A. crecca*. I found that the measurements of the Beremend-specimen (Ber. 16) fell outside that dispersion of those of recent species, compiled in a scatter diagram (see Fig. 3.). Considering the fact that we can observe from this tendency towards stouter bones, as in the recent *A. crecca*, but the dispersion seems to considerably overlap the recent one, I propose the subspecific name: *Anas crecca percrecca* for this form. The meaning of the name is „super"-crecca, type of the subspecies: ulna from Beremend, 16 (Natural History Museum, Budapest, Inv. Number: V. 91. 150), age: *Allophaiomys*-fauna, Lower-Middle Pleistocene. A humerus from the same locality (Ber. 16) with a length of 60.6 mm and the width of diaphysis in the middle of the bone: 5.4 mm, strengthens the tendency towards stouter bones of this form, as in the recent Green-Winged Teal *(A. crecca)*.

order: *Strigiformes (Wagler, 1830)*
family: *Strigidae Vigors, 1825*
genus: *Athene Boie, 1822*

Complementary description of Athene veta Jánossy, 1974

I described in 1974 from the SW-Polish lowest Pleistocene locality Rębielice Królewskie I. a fragment of a coracoideum under the designation *Athene noctua veta*. At that time I did not have recent comparative material from the Boreal-owl, *Aegolius funereus L.*, but I have since then by the courtesy of *J. Lepiksaar* (Göteborg, Sweden) a fragmentary recent skeleton of this species, for which I would like to give thanks. Since the material of Ber.

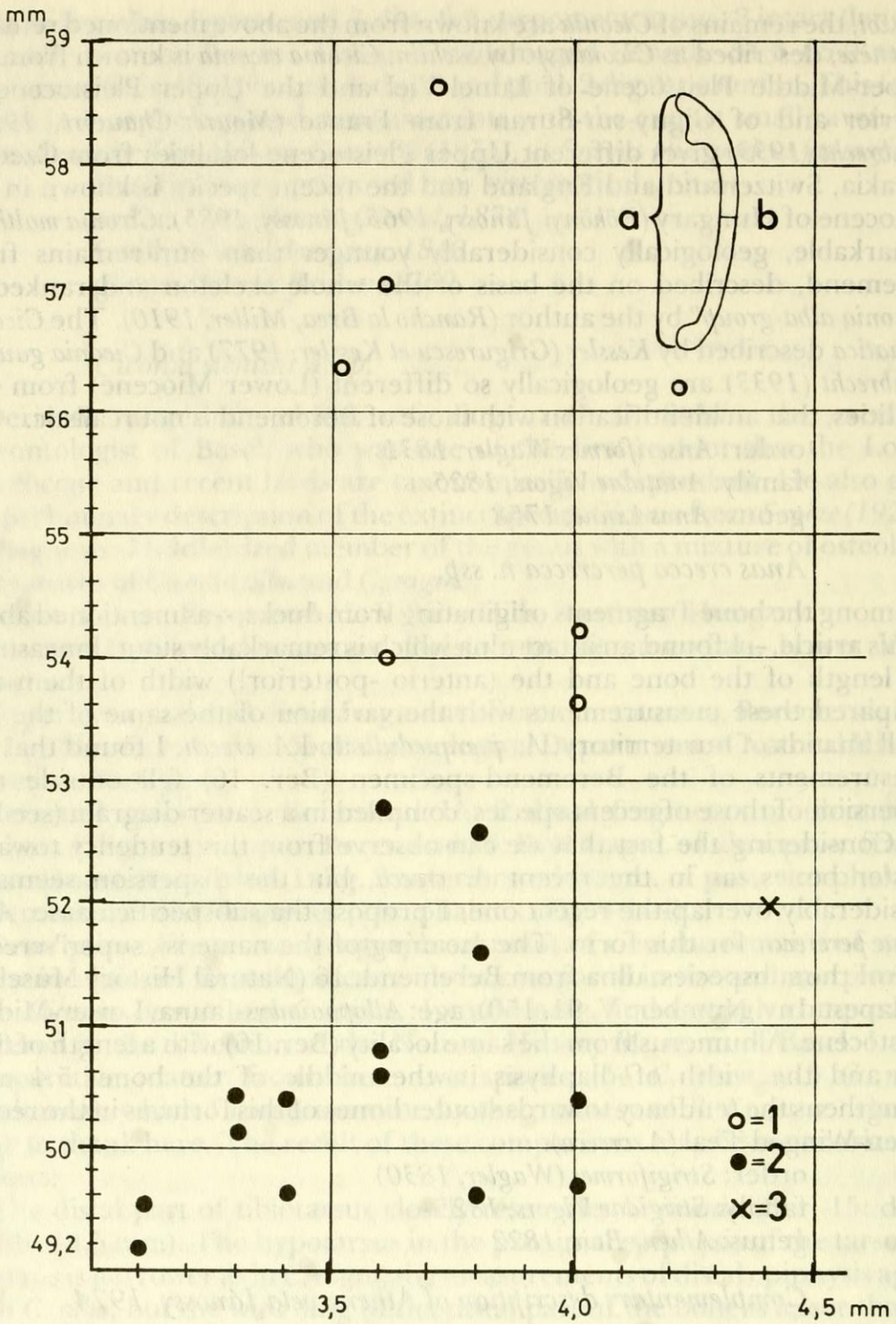


Fig. 3. Bivariate scatter plot of the length (vertical axis) and the breadth (horizontal axis) of the ulna of smaller ducks

1. *Anas querquedula,* recent; 2. *A. crecca,* recent; 3. *A. crecca* percrecca n. ssp. (Ber. 16)

3. ábra. Kisebb kacsafajok ulna-hosszának (függőleges tengely és vastagságának (vízszintes tengely) méretarány-szóródási diagramja

1. *Anas querquedula,* récens; 2. *A. crecca,* récens; 3. *A. crecca percrecca* n. ssp. (Ber. 16)

16 yielded the same anatomical unit of a small owl as in the Polish material, I recompared the bones in question, recent and fossil. It came to light that the diagnostic position and size of the fenestra coracoidea shows an *Aegolius*-feature, the form of the acrocoracoid, the groove between the procoracoid and the shaft of the bone shows an absolute mixture (mosaic) of *Aegolius* and *Athene*.

A distal fragment of a carpometacarpus from a small owl (Ber. 17) shows the morphological features of *Athene*, but is slenderer.

Some phalanges (posterior) of owls of the same size category deserve our special attention, especially that of the phal. I. dig. 1. Compared to the measurements of the same phalanges collected several years ago from the uppermost Pliocene of Csarnóta (S–Hungary) the („plantovolar") thickness of the bone against recent forms is conspicuous. The morphology of the bone resembles that of *Aegolius*.

Measurements of the phalanx I. digiti 1 posterior of small owls (mm):

	length	width of diaphysis (in the middle)	thickness of diaph.
Beremend 16	10.0	1.8	2.2
Csarnóta 2/0	9.6	1.6	2.1
Aegolius funereus recent I.	9.0	1.5	1.5
Aegolius funereus recent II.	8.5	1.3	1.4
Athene noctua recent	7.4	1.5	1.5

Other phalanges (e. g. phalanx–1 dig. 2 posterior, Ber. 17) show the same mosaic of morphology and size as the former one.

As we have to suppose that the phalanges originate from the same small owl as the extremity bones, we have before us – against absolute differences in the tarsometatarsi and in some phalanges (!), – again a phenomenon of „intergeneric" evolution as with several other groups of birds (we have to mention here that the two species were also formerly ranked in the same genus: *Athene tengmalmi* and *A. passerina*, both described by Boie in 1822).

Last but not least under these conditions we have to establish that *Athene veta* merits a specific rank and not a subspecific one. More complete anatomical material from this Lower Pleistocene small owl may change the taxonomical estimation of this form.

A comparison with *Athene cretensis Weesie 1987* seems to be not real, because it is an insular form.

General remarks

The Localities Beremend 15, 16 and 17 are fortunately by their above mentioned rich mammalian fauna stratigraphically so well defined that one cannot expect the bird fauna to complete this picture. On the other hand –

as we have seen above, in this paper, – the absolute dominance of *Francolinus minor* in Beremend Loc. 15 against the large francolins in Beremend 16–17 must also have a stratigraphical significance.

Considering the fact that most members of the fauna are from an environmental – climatical point of view indifferent, an indication of this nature is even harder. Larks of the genus *Melanocorypha,* as well as all living bustards are members of steppe-semidesert. Anatids, rails and shore-birds indicate near water biotopes. The greatest contradiction is the contemporaneous appearence of francolins, which today exclusively occur in mediterranean – tropical areas, and the Waxwing *(Bombycilla),* which today occur only in circumpolar pine and birch-woods. This facts shows that we have to be careful with the actualism from an ecological-climatical point of view: extinct species must have been occasionally quite different from that of the recent relatives!

The analysis of different bird-forms in this paper yields new data about the evolution of some groups. Especially the analysis of the bones of the small anatid in Beremend is newer proof for the evolutionary trends in birds and especially in Anseriformes. The changes of the sum of genes of different evolutionary lineages reflects the geologically very quick changes of the environment in temperate Europe during the Pleistocene (from tundra-taiga to Mediterranean climate several times and with a great variety). Some forms avoided the changes by migration, others produce more robust bones *(Somateria gravipes, Anser subanser, Anas percrecca),* or mosaiclike differences or slender forms *(Bucephala angustipes, Mergus connectens, Anas submajor).* The changes in some cosmopolitan groups (e. g. *Tadornini, Oxyurini)* are still today unclear. In any case, the covering up of these trends by forcing the conception of specific identity of Lower-Middle Pleistocene forms with recent ones, especially violently and pseudoscientifically by some authors *(Mlikovsky, 1982/a–b* and following him *Sanchez, 1990)* is very dangerous for the future understanding of the evolution of paleornithological research of our continent. The osteological differences are in such cases often very slight and hidden as in several recent „sibling species", ecologically – etologically absolutely isolated *(Jánossy, 1987 b etc.).*

I observed for example, as an active bird-watcher, such differences in biotope, sexual cicle and voice etc. between some sibling species (e. g. *Porzana pusilla and parva*), which differ osteologically only in the widely overlapping range of variation. This indicates the fact that very small differences also in fossil species may indicate taxonomically – biologically quite different forms. The evolutionary trends considerably resemble the puzzling adaptive radiation and convergencies of some small mammals (e. g. the genus *Mimomys*), where the recent analogies are not as clear as in birds.

Coming to other systematical groups of birds, – discussed in this paper, – it can be established that we have for the first time proof of the presence of a stork, as an ancestor of the modern species of Eurasia: *Ciconia ciconia* and *C. nigra.*

The evolutionary relations of bustards have been put in a new light during the last years, according to the recent revisions and the new fossil remains. It came to light that the Middle Eocene Palaeotis weigelti was not a bustard but a paleognath bird *(Houde, 1986; Peters, 1988)*. Thus, only the quite uncertain oligocene *Otis agilis Milne-Edwards* remains from the locality-group of Saint Gérand le Puy (Langy), as nomen nudum and already *Lambrecht (1933)* could not find the original matter of this form. The first concrete proof of the presence of a bustard in Europe remains the hardly recognizable fragmentary skeleton from the Lower Miocene (former called „Upper Miocene", Sarmatian) *Otis affinis Lydekker* from the travertine of Steinheim am Albuch (W from Heidenheim), which was a middle-sized bird of the dimensions of a Houbara (length of tmt 95 mm). Despite the intensive investigation of Tertiary birds in Western Europe during the last decades bustards have not been found. The Upper Miocene Polgárdi in Western Hungary yielded the first proof of also a middlesized *Otis* (*khozatzkyi* group) in our continent at that time *(Jánossy, 1991)*. The newly described, unfortunately stratigraphically somewhat uncertain upper pliocene („Moldavian Roussillon") remains from Southern Moldavia and S. Ukraine (Odessa) show at least the presence of three evolutionary lines and one absolutely collateral line, the endemic *Gryzaja*, belived formerly to be a loon or a pathologic-footed bird *(Bochenski and Kurochkin, 1987; Kessler, 1984)*. From these two remained in the Lower Pleistocene in the eastern parts of Europe and the later Pleistocene of the Middle East (as also in Beremend 15. and 16), which we can follow in our territory through the whole Pleistocene and Holocene *(Otis lambrechti – Otis tarda* and *Otis khozatzkii, Otis kalmani – tetrax)*, only occasionally reaching the western parts of Europe. The hitherto nearly absolute absence of bustards in the neogene of Mongolia *(Kurochkin, 1980)* and in the Pliocene – Pleistocene of subsaharan Africa *(Olduway, Brodkorb, 1985)*, recently known as the real home of bustards (14 recent species), in contrast to 6 species in Eurasia and 1 species in Australia is remarkable.

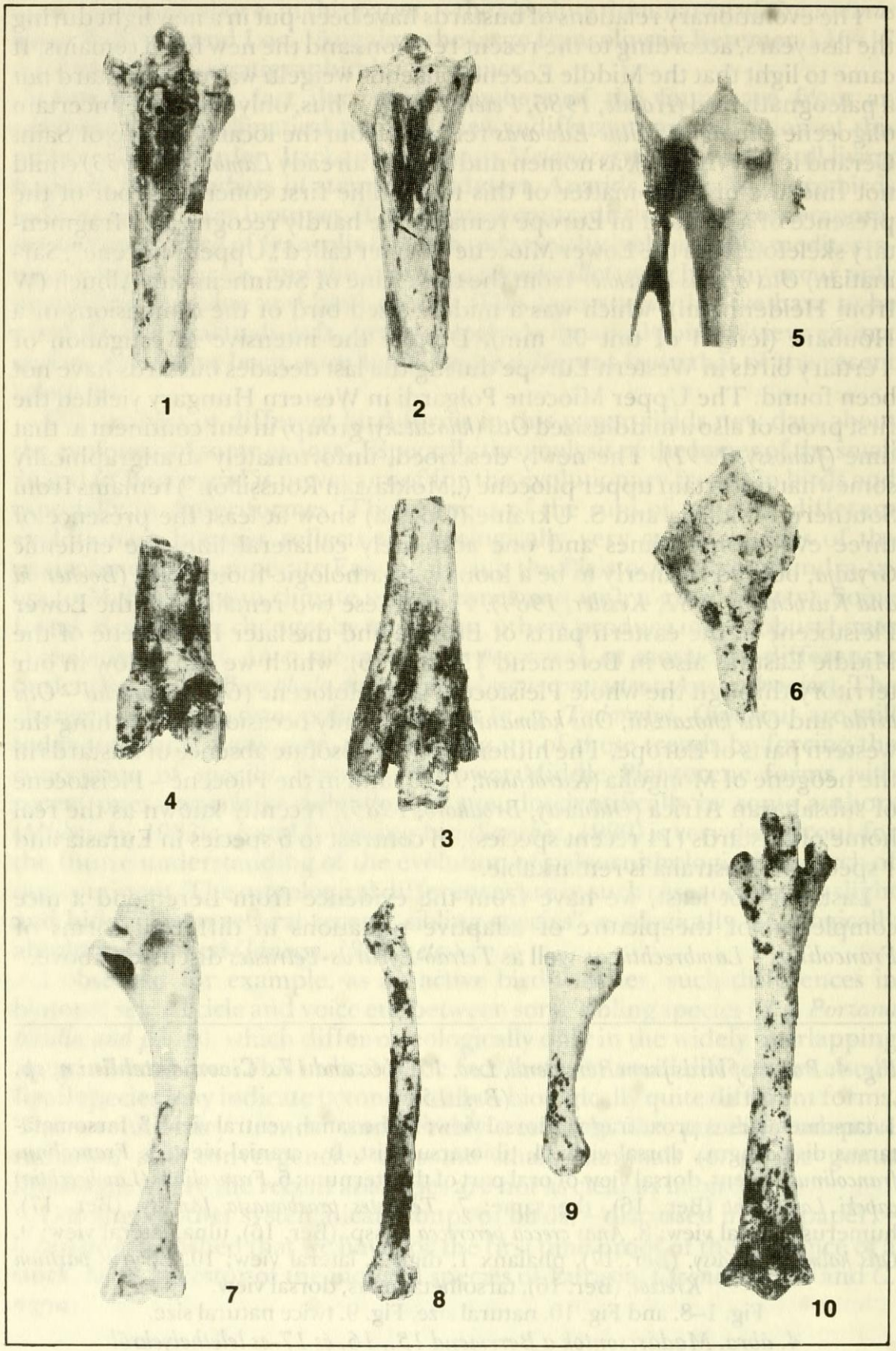
Last but not least, we have from the evidence from Beremend a nice completion of the picture of adaptive radiations in different forms of *Francolinus – Lambrechtia* as well as *Tetrao-Lyrurus-Tetrastes* discussed above.

Fig. 4. Bones of birds from Beremend, Loc. 15., 16. and 17.: ***Ciconia stehlini n. sp.*** *(Ber. 15);*

1. tarsometatarsus prox. fragm., dorsal view; 2. the same, ventral view; 3. tarsometatarsus dist. fragm., dorsal view; 4. tibiotarsus dist. fr., cranial view; 5. *Francolinus francolinus*, recent, dorsal view of oral part of the sternum; 6. *Francolinus (Lambrechtia) capeki Lambrecht* (Ber. 16), the same; 7. *Tetrastes praebonasia Jánossy*, (Ber. 17), humerus, caudal view; 8. *Anas crecca percrecca* n. ssp. (Ber. 16), ulna, lateral view; 9. *Otis kalmani Jánossy*, (Ber. 17), phalanx 1. digit 3, lateral view; 10. *Lyrurus partium Kretzoi*, (Ber. 16), tarsometatarsus, dorsal view.

Fig. 1–8. and Fig. 10. natural size, Fig. 9. twice natural size.

4. ábra. Madárcsontok a Beremend 15., 16. és 17-es lelethelyekről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Alsó-pleisztocén madármaradványok Beremendről (15. és 16. lelethelyek)

Dr. Jánossy Dénes

A jelen folyóiratban közreadott hatrészes összeállításban a Kárpát-mendencében 1980-ig napvilágra került felső-pliocén-pleisztocén (részben holocén) madárleletek kerültek feldolgozásra (összesítve: *Jánossy, 1981).*

Az elmúlt évek során a beremendi szőlőhegy kőfejtőinek iparilag újonnan feltárt bányarészeiben két olyan lelőhely került napvilágra (a felfedezés sorrendjében 15 és 16 (17) számúnak nevezett lelethelyek), melyek az emlősök mellett olyan madáranyagot is szolgáltattak, amely jelentős kiegészítést képez az eddig ismertekhez.

A Beremend 15-ös lelőhely alsó-pleisztocén (kb. 1,5 millió évvel ezelőtti) korú, a *Dolomys milleri* pocokfaj jelenlétével jellemezhető. A gazdag kisemlősleletek mellett antilopok és ragadozó emlősök maradványai, azonkívül 12 madárfaj csontjai kerültek elő (az utóbbiak jegyzékét lásd az angol szövegben).

A Beremend 16-os lelőhely (ill. annak a bányatérbe kiszóródott része: 17-es) egy nagyobb cseppkőbarlangba torkolló kürtő, amelybe annak idején nagyszámú antilop, kardfogú tigris, medve stb. mellett a *Dolomys*-pockokat felváltó *Mimomys savini* és *Allophaiomys sp.* mint fontos korjelzők kerültek. A Villányi-hegység gazdag ősmaradvány-leletei sorában először tömeges denevéranyag is szerepel. A lelőhely becsült abszolút kora kb. 1 millió év. A madárfajok száma 45 (lásd. angol szöveg), vagyis messze a leggazdagabb madárfauna a hazai régebbi pleisztocénből.

A két lelőhely madárfaunája sok tekintetben hasonló egymáshoz, de a tyúkfélék faji összetétele egymástól merőben eltér: az idősebb, 15-ös lelőhelyen kizárólag egy kistermetű frankolin *(Francolinus minor Jánossy)* fordul elő, míg a 16 (17)-es lelőhelyen nagyobb termetű frankolinok lépnek ennek helyére *(Francolinus [Lambrechtia] capeki Lambrecht).* Újabb csonttani érvek (a mellcsont szerkezete) a *Lambrechtia* alnemzetség fenntartását ismételten alátámasztják.

A dolgozatban az eddigi hasonló korú faunákban elterjedt fajok néhány alaki–méretbeli adatát közlöm. Ezek közül ki kell emelnünk egy kihalt gólyafajt *(Ciconia stehlini n. sp.),* mely a mai fehér és fekete gólya csonttani bélyegeit egyesíti magában, ezek egyúttal határainkon belül és az első ilyen korú gyólyamaradványok.

Ugyancsak alsó-pleisztocén madárleleteink sorában első ízben kerültek elő hazánkból a kis vízicsibe, a csonttollú és kalandrapacsirta, ill. azok ősi alakjainak maradványai *(Porzana cf. parva, Bombycilla cf. garrulus, Melanocorypha sp.).*-

A leletegyüttes egyes madárcsoportok törzsfejlődési viszonyaira vonatkozólag is új adattal szolgál. Így az eddigi ismert csörgő récékkel szemben egy vaskosabb csontozatú ősi alakot sikerült kimutatni *(Anas crecca percrecca)* és ezzel kapcsolatban a kacsafélék törzsfejlődési viszonyaira a pleisztocén folyamán vázlatosan fény derül. Egyes fejlődési vonalak a mainál karcsúbb *(Bucephala angustipes-Bucephala clangula)*, mások vaskosabb lábcsontozatúak *(Somateria gravipes – Somateria molissima)* voltak stb.

Jelentősek mindkét beremendi lelőhelyen a túzokleletek. Tekintettel arra, hogy a folyóirat hasábjain 1962-ben *Kretzoi Miklós* vázolta a túzokfélék származási kapcsolatait és az azóta eltelt 30 év alatt ez a kép gyökeresen átalakult, célszerű e helyen erre a kérdésre visszatérni. A több mint 60 éve a túzokok ősének tartott geiseltali (németországi) középső-eocén (55–60 millió éves) *Palaeotis weigelti Lambrechtről* teljes csontváz-előkerülése révén a hasonló korú Messel-ből, kiderült, hogy nem túzok, hanem futómadár (a nanduk távoli rokona?). Így a legrégibbi lelettel bizonyított túzokmaradvány kontinensünkön az alsó-miocén (12–15 millió éves) *Otis affinis Lydekker Steinheim* am Albuch édesvízi mészkőképződményeiből és behatóan kutatott nyugat-európai miocén madárfaunákból túzok azóta sem került elő. 1991-ben ugyancsak az Aquilában ismertettem (Jánossy, 1991) a mintegy 5 millió éves felső-miocén túzokleleteket a nyugat-magyarországi Polgárdiból. Ezek az eddig ismert miocén alakok a mai galléros túzok nagyságrendjébe sorolhatók. Korban következők a (talán 2–3 millió éves) legutóbb ismertetett moldáviai – dél-ukrajnai – leletek, melyek három nagyságrendet képviselnek (reznek, galléros túzok és nagy túzok fejlődési vonala), és a két beremendi lelőhelyen is ez a három alak szerepel (részletesebben *Jánossy 1979).*

Ezután a „jégkorszak" (pleisztocén) számos klímaingadozása folyamán a túzokok egy-egy száraz, melegebb éghajlati hullámmal jutottak el több ízben Nyugat-Európába, egészen az Ibériai-félszigetig is, de már csak az *Otis lambrechti-tarda* és *Otis kalmani-tetrax* fejlődési vonalával *(Kretzoi, 1962).* A túzokok a jégkorszak utáni felmelegedés idején a hazai és dél-orosz területeken, valamint közel-keleten állandóan előforduló leletek, de tőlünk nyugatra mindig csak alkalmi vendégek voltak (1–1 lelet Németország és Svájc területén).

Itt kell még megemlítenünk a *Kretzoi (1962)* összeállításában is szereplő fejlődési oldalágat, mely az odesszai „katakombákból" került leírásra *(Chlamidotis pliodeserti Serebrennikow 1941 = Gryzaja odessana Subarewa 1939).* A mintegy 1 millió éve kihalt oldalági alaknak oldalról annyira lapítottak a lábcsontjai (úszó-ásó végtag?), hogy először búvárnak, majd beteg csontozatúnak tartották (gödörásó túzokok?).

A túzokok származási helyéről még ma sem sokat tudunk mondani (Délkelet-európai-síkság? Közel-Kelet?). Érdekes negatívum, hogy sem a legújabban leírt igen gazdag mongóliai neogén madárfaunában (4–5 millió éves), sem a szubszaharai Afrikában talált (1–2 millió éves) leletegyüttesekben túzokok gyakorlatilag nem fordulnak elő. Pedig Afrikának ezen részeiből jelenleg 14 túzokfajt ismerünk, míg Eurázsiából csak 6-ot, Ausztráliából pedig csak egyet (Amerikába túzokok sohasem jutottak el).

Az itt vázoltakon kívül a fajdok és baglyok származására vonatkozólag is újabb adatokhoz jutottunk a beremendi leletekkel *(Lyrurus partium* és *Athene veta).*

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