ACTA ZOOLOGICA BULGARICA
Acta zool. bulg., 61 (1), 2009: 49-54

Avian Remains from the Late Chalcolithic Settlement near Hotnitsa Village (Veliko Tarnovo Region, CN Bulgaria)

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Abstract: Fourteen bird bone remains (MNI=11), of 6 orders, 7 families and 8 species, dated ca. 7000 BP of *Cygnus olor, Tetrao tetrix, Gallus gallus domestica, Gypaetus barbatus, Circus aeruginosus, Columba palumbus*, and *Pica pica* have been identified. Hotnitsa is the 3rd site in Bulgaria proving the existence of poultry-breeding in the Chalcolithic-Early-Bronze-Age period. Game fowling, along the poultry-breeding, played an important role in the life of the inhabitants of the settlement. The ecological preferences in relation to the nesting habitats and the sites for feeding of the species indicate, that in the vicinity of the settlement were spread openland grassy terrains of scattered shrubs, mixed deciduous woods, wetlands (swamps, lakes and river floods), as well as rocky habitats.

Key words: Chalcolithic birds, Holocene avian remains, Bulgaria, Archaeozoology, early poultry-breeding, gamefowl

Introduction

Location: The archaeological site near Hotnitsa (UTM grid: LH87) is located in Orlovka locality at ca. 200 m a. s. l. at Tarnovski Visochini Hills (43-06'00"N; 25-38'00"E), 15 km NW of the town of Veliko Tarnovo, CN Bulgaria).

Excavations: The excavations of the site started in 1956-1959 by N. Angelov. Studied material of this paper was collected during the 1990s by a team leaded by Dr. Stefan Chohadzhiev (Veliko Tarnovo University 'St. St. Cyril and Methodius), and dated Late Chalcolithic.

Cultural interrelationships: The site belongs to a large number (over 80) prehistoric settlements in the region, all referred to the s. c. Hotnitsa Culture type (Velkov 1982; Todorova, Vaysov 1993). Earlier Todorova (1979) referred its culture to Polyanitsa IV Culture type. The height of the local culture is referred to Chalcolithic (5th to 4th millennium BC). Uncovered artifacts proved it's belonging to the earliest civilization in Europe. Population was settled, resident, and its farm was based on the agriculture and the livestock husbandry, supplemented by the hunting, fishing and fruit gathering. The famous Hotnitsa gold treasure deserves special mentioning, because it reveals the traditional contacts to the Black Sea, the Mediterranean and the trans-Danubian regions. In the 4th millennium BC nomad tribes, arrived from North, presently named protothracian, lead to the resident population of Hotnitsa settlement mound undoing. The culture, followed the Hornitsa Culture, in the next 800 years developed as transitional, from which later derived the highly developed Thracian Culture (Wikipedia 2008).

Associated fauna: Mammalia: *Spermophilus citellus*, *Castor fiber*, *Lepus europaeus*, *Bos primigenius, Felis silvestris, Lynx lynx, Canis lupus, Vulpes vulpes, Mustela putorius, Martes foina, Equus caballus, Canis familiaris, Cervus elaphus, Capreolus*

capreolus, Sus scrofa, Capra hircus,; Osteichthyes: *Silurus glanis*; Mollusca (Bivalvia): *Unio* sp. (Nikolay Spassov, NMNHS – unpubl. data).

Material and Methods

Collected avian material numbers 14 bones. It has been handed for examination by Dr. Vet. Nikolay Iliev in September, 2005. All finds are kept at the Fossil and Recent Birds Department of the National Museum of the Natural History (NMNHS) of Bulgarian Academy of Sciences in Sofia (No NMNHS 16 489-16 502). They have been identified through the comparative avian osteological collection of NMNHS. All measurements are given in mm (Table 1).

Abbreviations: ad. – adult, BC – before Christ, BP – before present, dex. – dextra, dist. – distal, Ma – million years ago, MNI – minimum number of individuals, prox. – proximal, sin. – sinistra.

Species composition

According to the identified bird remains collected material belongs to eight avian taxa/forms, referred to six orders, and seven families (Table. 1).

Mute Swan *Cygnus olor* (Gmelin, 1789). Larger waterfowl game birds are represented only by the Mute Swan. This species is relatively well represented in the archaeological context in Bulgaria from 8 sites – Krivnya, Kazanlak, Durankulak – 1 (see Boev 1999 a), Urdoviza, Nicopolis-ad-Istrum, Karnobat, Iskritsa, Durankulak – 2 (Boev 1999 a). Its chronostratigraphic range is Early Neolithic – recent. The occurrence of bone remains of *C. olor* among the 'kitchen maddens' in Hotnitsa is not surprising.

Bearded vulture *Gypaetus barbatus* (Linnaeus, 1758). Hotnitsa is the fourth site of subfossil record of Bearded vulture. This rare raptorial bird has been known so far from the (1) Early Neolithic settlement in Kazanlak (Kovachev 1988, Boev 1993); (2) Roman period in the Roman town Nicopolis-ad-Istrum, the capital of the Roman Province Lower Moesia (Boev 1991, Boev, Beech 2007); and (3) Medieval ages in Bulgarian medieval capital Pliska (two finds of an adult specimen) (Boev 1995 a, 1999 a). This it is the second prehistoric occurrence of *G. barbatus* of Bulgaria. Both sites lie in Central Stara Planina Mountain (Central Balkan), located north and south of its ridge. These sites are ca. 73 km away each from other.

Western Marsh Harrier *Circus aeruginosus* (Linnaeus, 1758). This species has been known from two Pleistocene sites of Bulgaria, Bacho Kiro Cave (Bochenski 1982), and Devetashka Cave (Boev 2001 a). Hotnitsa is the first Holocene record of the Western Marsh Harrier.

Domestic Fowl *Gallus gallus* (Linnaeus, 1758), forma *domestica.* Most interesting is the presence of the Domestic Fowl (domestic chicken) of very large size (ca. 3 kg; Here and next lines the body mass has been evaluated after reference specimens of the avian collection of the NMNHS). As the bone finds of this domestic birds in the archaeological sites are extremely numerous throughout the country, we shall concentrate our discussion only on its record from the prehistoric periods (Neolitic, Chalcolithic and Bronze Age), partly discussed by Boev (1995b). The oldest remains of *Gallus gallus* in Bulgaria so far originate from Galabovo (transitional period-Early Bronze Age, ca. 5500 BP; Boev 2004) and Dyadovo (Early Bronze Age, ca. 5000 BP; Boev 2006 a). Hotnitsa adds the next evidence for the distribution of Domestic Fowl in the Chalcolithic on the Balkans. The find No 16 502 belongs to an adult large individual of body mass weighted ca. 3 kg. The subfossil specimen has been compared to an adult male of Leghorn Breed of *Gallus gallus domestica*, weighted ca. 4.3 kg (Fig. 1 a, b). The body mass of the wild Red Junglefowl *Gallus gallus* (Linnaeus, 1758) is 450-1050 g. Body mass of other species of g. *Gallus* Brisson, 1760 are 454-1140 g (McGowan 1994). This excludes the possibility of wild junglefowl. Most probably the examined specimen belongs to a domestic individual, indicating advanced meat-sellecting domestication. Besides of the occurrence of a single bone find, the specimen suggests a meat breed, completely corresponding to modern meat breeds of domestic chicken. It is interesting to mention, that *Gallus gallus*, believed to have been introduced in the Iberian Peninsula (Hernandez 1992) in the Early Iron Age (8th century BC), has been probably spread there even in the Chalcolithic (Gourichon, Cardoso 1995). This could be an argument for the 'hypothesis

Table 1. Taxonomic list, collection numbers and measurements of the avian finds of the Early Chalcolithic birds of the settlement near Hotnitsa village

Species	Skeletal element/ Age	NMNHS collection number	Measurement	Dimension	MNI
ANSERIFORMES					
Anatidae					
Cygnus olor (Gmelin, 1789)	ulna sin. dist. ad. (distal two thirds)	16 489	diameter of condylus dorsalis	19.5	3
	ulna dex. ad. (diaphysal fragment)	16 498	minimum thickness	8.7	
	ulna sin. ad. (diaphysal fragment)	16 499	minimum thickness	10.0	
ACCIPITRIFORMES					
Accipitridae					
Gypaetus barbatus	carpometacarpus sin. ad. (without proximal epiphysis)	16 493	lenght of spatium intermetacarpalis	66.1	1
Circus aeruginosus	humerus sin. ad. (without distal epiphysis)	16 494	maximum width of proximal epiphysis	18.2	1
GALLIFORMES					
Phasianidae					
Gallus gallus domestica	tibiotarsus sin. ad. (without proximal epiphysis)	16 502	width of distal epiphysis	14.8	1
Tetraonidae					
Tetrao tetrix	femur dex. dist. ad.	16 490	width of distal epiphysis	12.6	2
	femur sin. dist. ad.	16 495	width of distal epiphysis	12.1	
	humerus sin. prox. ad.	16 501	maximum width of diaphysis in distal end of facies mi. latissimi dorsi	10.1	
	tibiotarsus sin. prox. ad.	16 496	cranio-caudal width of proximal epiphisys without crista cnemialis caudalis	13.4	
	femur dex. ad. (without proximal epiphysis)	16 500	width of distal epiphysis	ca. 13.0	
GRUIFORMES					
Otitidae					
cf. *Otis tarda*	femur sin. ad. (without epiphyses)	16 497	minimum width	15.1	1
COLUMBIFORMES					
Columbidae					
Columba alumbus	humerus sin. ad.	16 491	maximum total length	57.8	1
PASSERIFORMES					
Corvidae					
Pica pica	humerus sin. ad.	16 492	maximum total length	45.1	1
Total		**14**			**11**

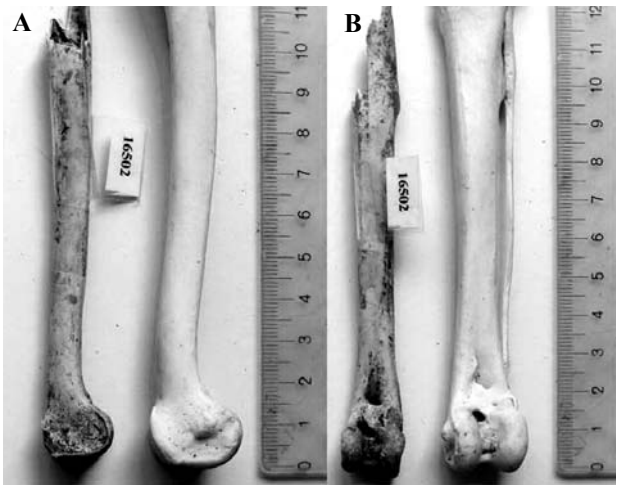

Fig. 1. *Gallus gallus domestica*, tibiotarsus sin. ad.: medial view (A) and cranial view (B), – Chalcolithic specimen from Hotnitsa, NMNHS 16 502 (left) and recent specimen of Leghorn Breed, NMNHS 17/1991 (Photo: the author).

of continental dispersion of domestic fowl into Iberia from Eastern Europe' (Hernandez 1992: 50).

Black Grouse *Tetrao tetrix* Linnaeus, 1758. Hotnitsa is the third Neolitic/Chalcolithic site of the Black Grouse in Bulgaria. This species has been established for the first time in the present day territory of Bulgaria in the Early Neolithic settlement in Kazanlak (Boev 1993). Latter it has been recorded in Chalcolithic layers in Yagodinska Cave (Boev 1997). In the last decade the Black grouse has been recorded in a dozen of localities: Its Late Pleistocene sites are seven: Razhiska Cave (Boev 2000), Devetashka Cave (Boev 2001 a), Kozarnika Cave (Boev 2001 b), Mirizlivka Cave (Boev 2001 a), Cave No 16 (Boev 1999 b), Filipovska Cave – 1 (Boev 2001 a), and Toplya Cave (Boev 2001 a); while the Holocene sites, including the site in Kazanlak, are three: a site of Late Holocene in Lakatnik (Boev 2001 c), and a site of Holocene from Topchii (Boev 1997; Mitev, Boev 2006). In addition finds of '*Tetrao tetrix*/ *Lagopus* sp.' has been found in the Early Pleistocene site near Kunino (Boev 2006 b), '*Tetrao tetrix*/ *urogallus*' in the Late Pleistocene of Devetashka Cave and Kozarnika Cave (Boev 2001 b), '*Tetrao* cf. *tetrix*' in Filipovska Cave – 1 (Boev 2001 a) and of Late Pliocene (Middle Villafranchian) of Varshets. Thus, the chronostratigraphic distribution of this species in Bulgaria could be determined 'Middle Villafranchian – Middle Ages' (i. e. ca. 2.25 Ma to ca. 400 BP). The species probably was widely spread in the Chalcolithic, as its sites mark the species distribution both, north and south of the Balkan Range.

Great Bustard cf. *Otis tarda* Linnaeus, 1758. The former distribution of Great Bustard through the country is relatively well documented by numerous finds of a series of archaeological sites, both (1) prehistoric (Kazanlak, Galabovo, Dyadovo, Madara), and (2) historic sites – of antiquity (Kabile, Nicopolis-ad-Istrum) and the medieval ages (Iskritsa, Karnobat, Hisarlaka, Omurtag, Yasa-Tepe) (Boev 1995 a, 2003, 2004, 2006 c; Mitev & Boev 2006). The specimen No NMNHS 16497 is damaged and both epiphyses of the femoral bone are missing.

Wood Pigeon *Columba palumbus* Linnaeus, 1758. No fossil record of Wood Pigeon is known so far in Bulgaria. Its subfossil finds are known from three Holocene sites – the roman town of Nicopolis-ad-Istrum (Boev 1991, Boev, Beech 2007) and two former feeding places of the Eagle Owl (*Bubo bubo* (Linnaeus, 1758)) in the valley of Rusenski Lom River – Shirokovo (Early-Late Holocene) and Nisovo (Late Holocene) (Mitev 2006). Hotnitsa provides the oldest more exactly dated record of *C. palumbus* in Bulgaria.

Magpie *Pica pica* (Linnaeus, 1758). The fossil/subfossil record of Magpie in Bulgaria includes 9 Quaternary sites, 4 of them Late Pleistocene (Temnata Dupka Cave, Cave No 16, Filipovska Cave – 1, and Mirizlivka Cave) (Boev 2001 a), and 5 Holocene (Topchii and Madara – Late Holocene; Nicopolis-ad-Istrum – 1st-6th century AD; Veliki Preslav – 9th-10th century AD, and Voden – 10th-14th century AD) (Boev 1999 a).

Conclusions

One species, *Gallus gallus*, is represented by its domesticated form, *G. g.* forma *domestica*, confirming the advanced poultry breeding in the Late Chalcolithic period on Balkans. On the other hand, the game fowling was also practiced, and the hunting of Black Grouse and Mute Swan possibly consisted prevailing share among the game/waterfowl catches. Most of the bone finds bear features of the s.

c. 'kitchen middens' and usually their epiphyses are damaged, broken or missing.

According to the nesting habitats preferences, established bird fauna could be divided into four main components: (1) Openland/openland with scattered trees (Great Bustard, Magpie); (2) Woodland (Wood Pigeon, Black Grouse); (3) Wetland (Mute swan, Western Marsh Harrier), as well as (4) Rock massifs (Bearded Vulture). Openlands are dominating in the present-day landscape.

Even innumerous, the examined avian remains contribute to the knowledge of former distribution of bird species and the mode of life of ancient population of the region. The find from Hotnitsa provides the first confirmation of poultry-breeding in the end of the 7th millennium BP in Bulgaria. Even more, it is the first site, located beyond the Balkan Range (i. e. north of Stara Planina Mountain). The record of *G. gallus domestica* confirms the distribution of Domestic Fowl in the Chalcolithic on the Balkans.

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Received: 05.12.2008
Accepted: 27.01.2009

Останки от птици от късноенеолитното селище при с. Хотница (Великотърновска област, Средна Северна България)

З. Боев

(Резюме)

Проучени са 14 костни находки (MNI=11) на птици от 6 разреда, 7 семейства и 8 вида, датирани преди 7000 г. от *Cygnus olor, Tetrao tetrix, Gallus gallus domestica, Gypaetus barbatus, Circus aeruginosus, Columba palumbus* и *Pica pica*. Хотница е третото находище в България, потвърждаващо наличието на развито птицевъдство през енеолитния период. Ловът на птици, наред с птицевъдството, е имал важно значение в поминъка на населението от селището. Екологичните изисквания към гнездовите местообитания и стациите за хранене на видовете сочат, че в околността на находището са били разпространени открити тревисти терени с редки разпръснати храсти, смесени широколистни гори, влажни зони (блата, езера и речни разливи), както и скални местообитания.