PRELIMINARY ANTHROPOLOGICAL DATA FROM THE NECROPOLIS NEAR THE VILLAGE OF BALEY (NORTH-WEST BULGARIA)

GALABOVA Borislava*; ATANASSOVA-TIMEVA Nadezhda**

Abstract. *The work presents the anthropological analysis of the 23 graves from Late Bronze Age to Early Iron Age discovered between 2010 and 2013 in the necropolis of prehistoric settlement near village of Baley, Vidin District. The only burial practices are cremations. The partial skeletal remains of thirty three individuals were recovered. Basic osteological analysis of the individuals which includes determining of sex and age at death was undertaken.*

Keywords: *Late Bronze Age and Early Iron Age, urnfield necropolis, cremation burial practices, Paleoanthropological investigations, Age and sex distribution.*

The village of Baley (Bregovo Municipality, Vidin District) is located at the right bank of the Timok River, approximately 2 kilometers south of the Danube River. The site was first registered in the 1960s by Jordanka Atanassova (Vidin Museum). The archaeological excavations were carrying out between 1970 and 1989 under the direction of Rumen Katinčharov (NAIM-BAS) and Ana Iocova (Vidin Museum)[1]. In 2009 the necropolis of the settlement has been found. It is located on an elevation, ca. 450 m south-east from the settlement. The 2010 and ongoing excavations revealed that it is partially overlapped by the modern day village (Alexandrov et al. 2011, 127)[2]. Three chronological stages are present in necropolis: 1) around the middle of the 2nd mill. BC; 2) second half of the 2nd mill. BC (15th - 13th cent BC and 3) 12th cent. BC. The burial practices and the pottery assemblage found in Baley necropolis find parallels in, and are synchronous to, the Verbicioara III, Žuto Brdo - Gârla Mare, Bistreț-Șalnița, and Vârtop phenomena[3].

The human material from all graves was completely cremated. Burnt human remains were placed in ceramic vessels of various sizes[4].

ANTHROPOLOGICAL ANALYSIS

Material and Methods

A total of 52 burial structures were found up to 2014 - 27 in the period 2010-2013 and 25 in 2014. The anthropological analysis of bone fragments, discovered in 2014 is forthcoming. This work presents the paleoanthropological study of human remains revealed between 2010 and 2013. Human bones were found in 23 graves out of total 27. Chronologically they are distributed as follows: 17 graves are from 12th cent. BC; 4 from second half of the 2nd mill. BC and 2 graves are dated in mid-2nd mill. BC. (Fig. 1).

Totally 33 individuals were identified in them: 24 from 12th cent. BC; 7 from second half of the 2nd mill. and 2 from mid-2nd mill. BC. (Fig. 2).

The macroscopic analysis of the bone remains was carried out in the laboratory of the National Anthropological Museum in Sofia at Bulgarian Academy of Sciences.

For age at death estimation in cremations were applied the same phenomena of maturation used for inhumation burials: the obliteration of cranial sutures, the fusion of epiphyses of postcranial skeletal bones and the status of teeth[5]. Age is split into a number of categories: Early childhood (*Infans* I - newborn to 6 years), Late childhood (*Infans* II - 7-14 years), Adolescence (*Juvenis* - 14-18/20 years), Adult (*Adultus* - 18/20-40 years),

*Researcher, Institute of Experimental Morphology, Pathology and Anthropology with Museum – Bulgarian Academy of Sciences (IEMPAM-BAS); galabovab@gmail.com.

** Senior Assist. Prof., Institute of Experimental Morphology, Pathology and Anthropology with Museum – Bulgarian Academy of Sciences (IEMPAM-BAS); naditimeva@gmail.com.

[1] S. Alexandrov, T. Hristova, G. Ivanov, *Stratigraphic sequence and archaeological complexes of the Late Bronze Age Baley settlement (North-West Bulgaria)*, in "Oltenia. Studii şi comunicări. Archeologie-istorie", XVIII-XIX, 2011-2012, pp. 60-67.

[2] Idem, *BALEY: New Discoveries*, in "Bulgarian e-Journal of Archaeology", vol. 1, no. 1, 2011, p. 127.

[3] Idem, *Stratigraphic sequence...*, p. 67; Idem, *BALEY...*, pp. 127-136; Stefan Alexandrov, Georgi Ivanov, Tania Hristova, Nikolai Kazashki, *The necropolis of the prehistoric Baley settlement (preliminary note on the results from the 2013 investigations)*, in "Bulgarian e-Journal of Archaeology", vol. 3, 2013, p. 316.

[4] *Ibidem*, pp. 127-136.

[5] W. Bass, *Human Osteology: A Laboratory and Field Manual of the Human Skeleton*, 1987, Missouri, Special Publication, 2, 1987; А. Зубов, *Одонтология*, Moskva and Valois, 1968.

Maturus (40-60 years) and Elderly (Senilis - 60+). However, age at death of the individuals could not be determined with any more precision, because of the fragmentation of cremated bones.

Fig. 1
Chronological distribution of graves in Baley Necropolis

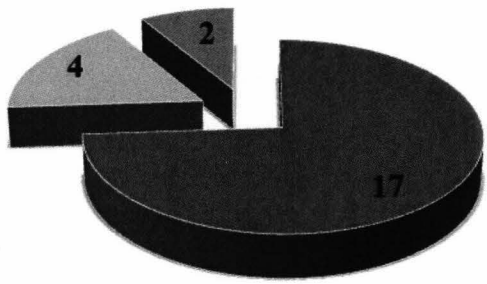
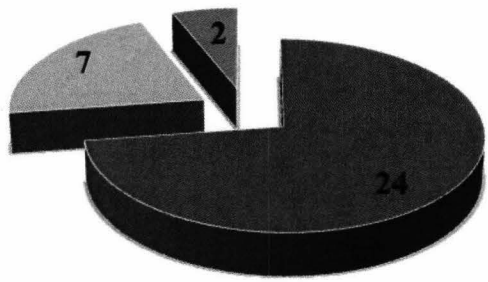


Fig. 2
Number of individuals by periods in Baley Necropolis



Sex determination was carried out using the measurements of bones, because of the lack of more voluminous characteristics of cranium and pelvis[6].

Due to samples fragmentation and lack of entirely preserved limb long bones, the stature could not be calculated.

Condition of the bones

Discovered human bones are very fragmented, deformed and with small dimensions as a result of high temperature combustion. That does not allow a detailed anthropological research. The cortical surfaces are in very poor condition. Neither cut-marcs nor pathological changes were identified.

[6] I. Kühl, *Skelettreste aus prähistorishe Brandbestattungen und ihre Aussagemöglichkeiten, mit Hinweisen auf spezielle Fragestellungen in Schlesvig-Holstein*, in „Mitteilungen der Anthropologischen Gesellschaft in Wien", 15, 1985; William Bass, *op. cit.*; R. Martin, K. Saller, *Lehrbuch der Anthropologie in sistematischer Darstellung*, 1957.

The "burning" deformations - deep transverse and concave fractures on long bones, distortion, shrinkage or twists on some of the bones are clearly evidence that the bodies were still fleshed when placed on the pyre. (Fig. 3 and 4).

Fig. 3. "Burning" deformation of bones of 20-40 years old (*Adultus*) female?, Structure 24.

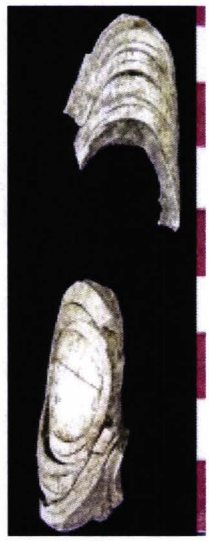


Fig. 4. "Burning" deformation of bones of 20-40 years old (Adultus) female?, Structure 24.

The analysed specimens from necropolis have grey or brown to the pure white colour. Frequently the colour of burnt bones from the site is light grey to white, for very high temperature white colour with an almost pink hue.

This coloring, suggesting that cremation has a long duration at high heat above 1000°C degrees[7]. This is confirmed also by the fact that only teeth roots are found in the material. (Fig. 5). Because of high temperature (above 700°C) in the pyres the dental enamel shatters into microscopic fragments[8].

Exceptions are identified crowns of dentition, indicating that they have not been erupted yet and have been in their crypts. (Fig. 6).

Fig. 5. Roots fragments of permanent dentition of *Adults+* male, Stricture 18.

Fig. 6. Milk teeth germ of subadult individual aged 0-6 months (*Infans I*), Stricture 26.

Traces of ash and charcoal were not detected in all urns. This clearly indicates that the bones have been treated after cremation - cleaned or washed before being placed in the jars. (Fig. 7).

[7] J. Devlin, N. Herrmann, *Bone Color as an Interpretive Tool of the depositional History of Archaeological Cremains*, in Christopher W. Schmidt and Steven A. Symes (eds.), *The Analysis of Burned Human Remains*, United Kingdom, 2010, p. 111.

[8] Joachim Wahl, *Investigations on Pre-Roman and roman Cremation Remains from Southwestern Germany: Results, Potentialities and Limits*, in Christopher W. Schmidt and Steven A. Symes (eds.), *The Analysis of Burned Human Remains*, United Kingdom, 2010, p. 148.

Fig. 7. Bones from Stucture 21.

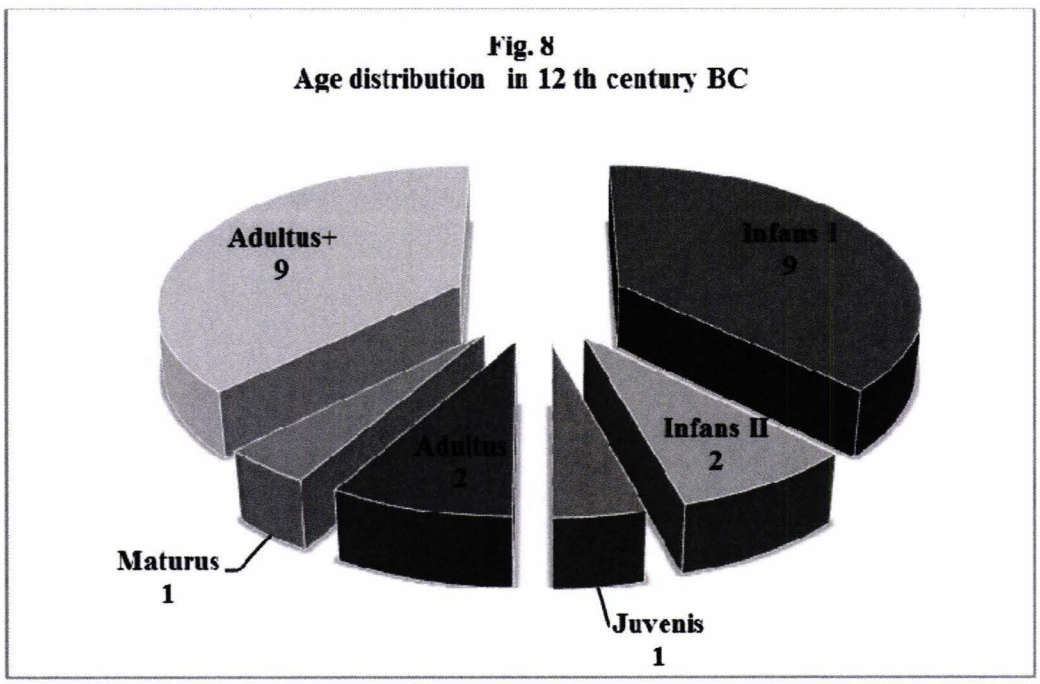
Age and sex determination

The age and sex determination of the discovered cremated human bone remains is done chronologically.

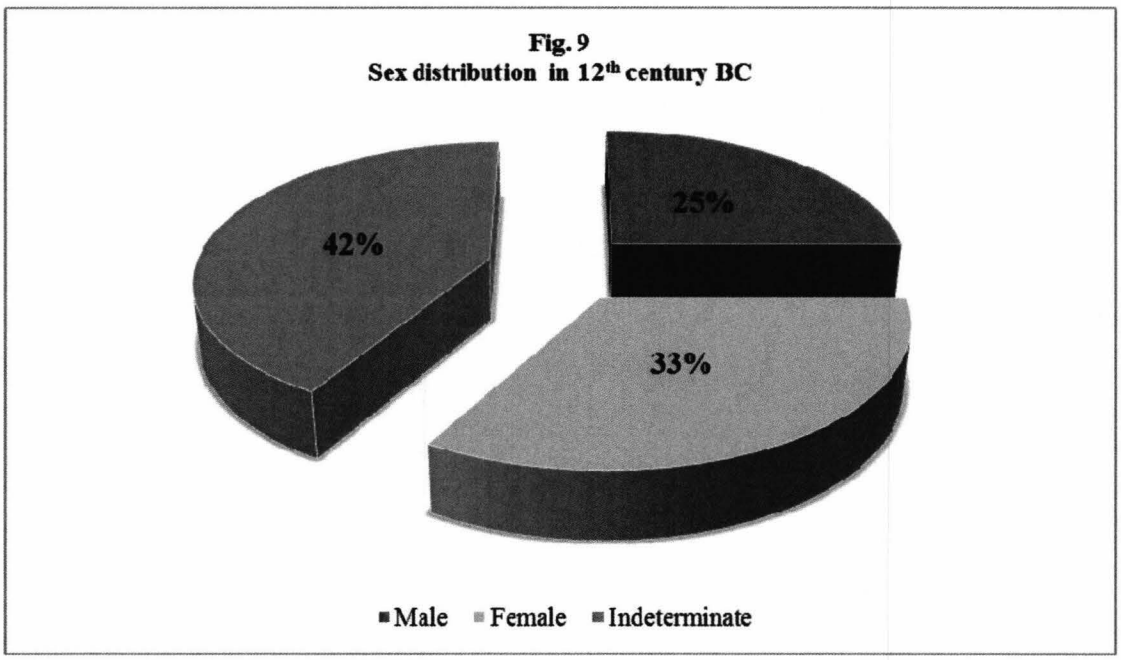
12th century BC

Of that period bone remains of 24 individuals were identified. The skeletons were divided into five age categories: Early and Late Childhood; Adolescence, Adults and Maturus.

Diagnostic bone fragments for more precise age assessment are missing in nine cases. (Fig. 8).



At this stage of the necropolis investigation we could not to say which gender prevails. Large numbers of bone remains can not be gendered as we said above the bones are poorly preserved. (Fig. 9).



Age and sex distribution of the studied individuals in this period is as follows: 9 individuals in early childhood, 2 individuals in late childhood, one in adolescence, one female and one of indeterminate gender in the age group of Adultus; one male in mature; two males, three females and four of indeterminate sex and age. (Table 1).

Table 1 Age and sex distribution of the individuals in the Baley Necropolis from 12th cent. BC.

Age group																Total
Infans I	Infans II	Juvenis	Adultus					Maturus			Indeterminate age (Adultus+)					
			♂	♀	♂?	♀?	♂♀	♂	♀	♂♀	♂	♀	♂?	♀?	♂♀	
9	2	1	-	1	-	-	1	1	-	-	2	3	-	-	4	**24**

Second half of the 2nd millenium BC

Skeletal remain of seven individuals in four burial structures were detected from this period (Fig. 10): three in early childhood, two female adults and two individuals of undetermined age and sex. (Table 2).

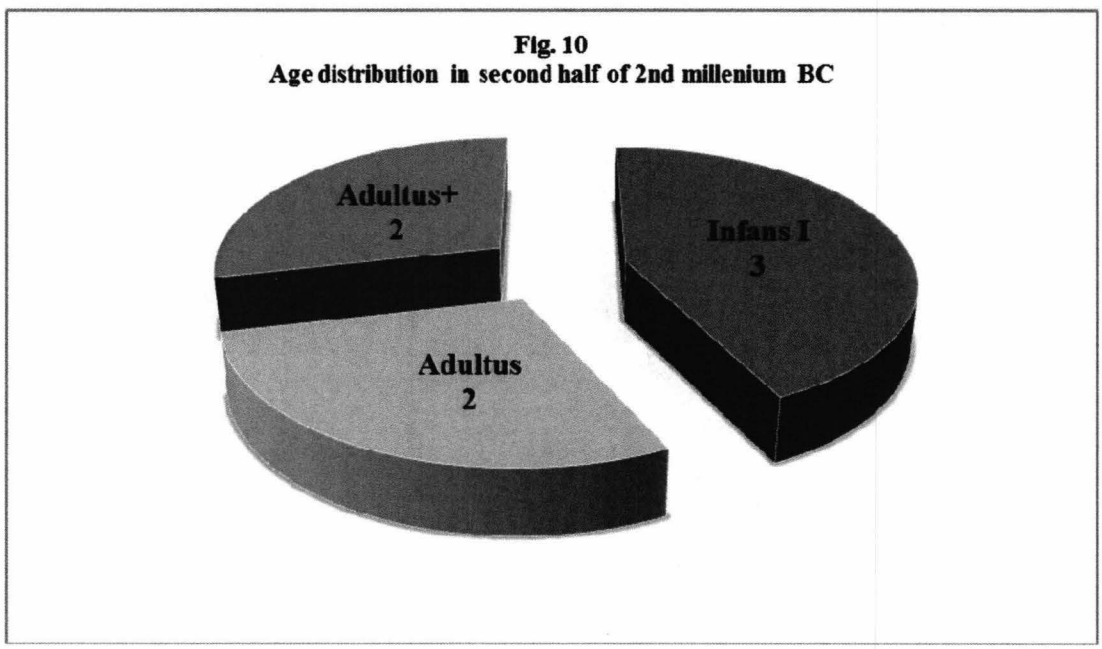


Table 2. Age and sex distribution of the individuals in the Baley Necropolis from second half of 2nd millemium BC.

Age group																	Total
Infans I	**Infans II**	**Juvenis**	**Adultus**					**Maturus**			**Indeterminate age (Adultus+)**						
			♂	♀	♂?	♀?	♂♀	♂	♀	♂♀	♂	♀	♂?	♀?	♂♀		
3	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2		**7**

Mid 2nd millenium BC

Remains from two individuals only were distinguished - one in later childhood of 10-13 years old, and very small fragments of individual with indeterminate age and sex. (Table 3).

Table 3 Distribution by sex and age of the individuals in the Baley Necropolis mid-2nd mill. BC.

Age group																	Total
Infans I	**Infans II**	**Juvenis**	**Adultus**					**Maturus**			**Indeterminate age (Adultus+)**						
			♂	♀	♂?	♀?	♂♀	♂	♀	♂♀	♂	♀	♂?	♀?	♂♀		
1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		**2**

Double and triple burials

It is important to note the existence of double and triple burials in necropolis of Baley. (Table 4)

From the 12th century BC were found a triple grave with an adult and two children in early childhood (Structure 11). Five double graves were identified also (Structures 1, 2, 5, 21C and 25). In one of them two children were placed in one vessel. The other burial structures are with an adult and a child. The bones discovered in structures 1, 5, 21C are placed in more than one vessel.

Triple (Structure 13) and double (Structure 14) graves were registered in second half of 2nd millenium BC. In triple grave a woman with two children in early childhood were placed and in the double one – an adult with a child were found.

Table 4 Double and triple burials in Baley necropolis.

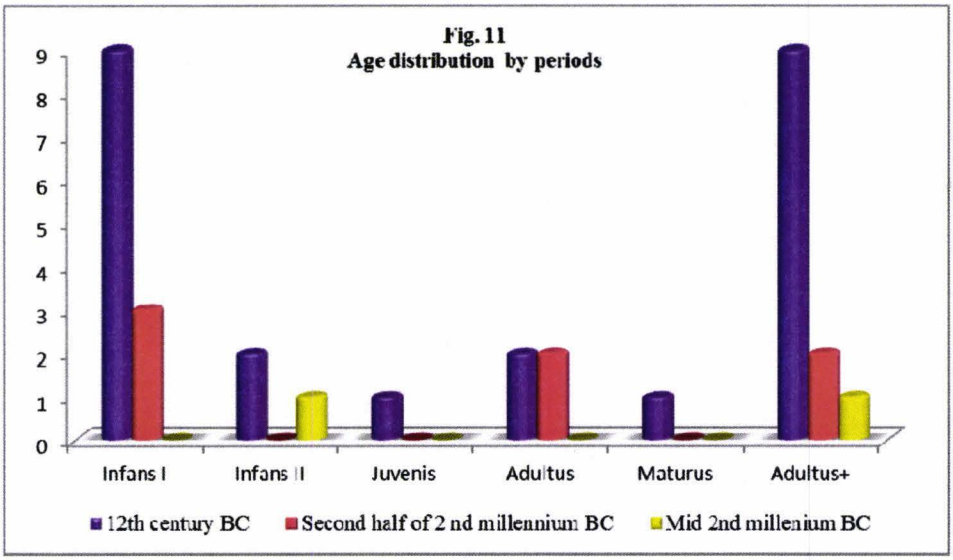
double	**triple**
12th century BC	
Str. 1 Adultus+, ♀? + Juvenis 14-18 years	Str. 11 Adultus+, ♀♂(ad+) + child (under 6 m.) +child between 2-4 years
Str. 2 Child (about 1 y.) + child (about 2y)	
Str. 5 Adultus 20-40, ♀♂+ childe under 1year	
Str. 25 Adultus+, ♀♂ + child (about 6 y.)	
Str. 21C Adultus+, ♀♂ + child (about 5 y.)	
Second half of 2nd millennium BC	
Str. 14 Adultus+, ♀♂ + childe (3-4y.)	Str. 13 Adultus (20-40 r.), ♀? + child (6 m.-1y.) + child (2-2.5y.)

The anthropological result of the Baley necropolis has a close parallels with those in the Bronze Age necropolis in Cîrna, Romania. There are also registered double burials - adult with a child and two adults. The age distribution of buried individuals in Baley is similar to those in Cîrna[9].

Conclusion

At this stage of research is striking high infant mortality rate, which decreases during adolescence and again soared in adults. (Fig. 11). None of the burials are registered in the elderly, indicating that the healthiest individuals have survived at this age.

[9] V. Dumitrescu, *Necropola de incineraţie din epoca bronzului de la Cîrna*, Editura Academiei, 1961, pp. 365-382.



BIBLIOGRAPHY

Alexandrov, Stefan; Ivanov, Georgi; Hristova, Tania, *Baley: New Discoveries*, in "Bulgarian e-Journal of Archaeology", vol. 1, 2011, pp. 127-136.

Alexandrov, Stefan; Ivanov, Georgi; Hristova, Tania; Kazashki, Nikolai, *The necropolis of the prehistoric Baley settlement (preliminary note on the results from the 2013 investigations)*, in "Bulgarian e-Journal of Archaeology", vol. 3, 2013, pp. 315-324.

Bass, William, *Human Osteology: A Laboratory and Field Manual of the Human Skeleton*, 1987, Missouri, Special Publication, 2, 1987.The Missouri Archaeological Society.

Devlin, Joanne, B.; Herrmann Nicholas P., *Bone Colour as an Interpretive Tool of the depositional History of Archaeological Cremains*, in Christopher W. Schmidt and Steven A. Symes (eds.), *The Analysis of Burned Human Remains*, United Kingdom, 2010, pp. 109-128.

Dumitrescu, Vladimir, *Necropola de incineraţie din epoca bronzului de la Cîrna*, Bucureşti, 1961, Academia Republicii Socialiste România. Institutul de Arheologie. Biblioteca de arheologie; 4. Editure Academiei Republicii Populare, pp. 365-382.

Facchini, F.; Vesch, S., *Age Determination on Long Bones in a Skeletal Subadults Sample (b - 12 Years)*, in "Collegium Antropologicum", 28 (1), 2004, pp. 89-98.

Kühl, I., *Skelettreste aus prähistorishe Brandbestattungen und ihre Aussagemöglichkeiten, mit Hinweisen auf spezielle Fragestellungen in Schlesvig-Holstein*, in „Mitteilungen der Anthropologischen Gesellschaft in Wien", 15, 1985, pp. 113-137.

Martin, R.; Saller, K., *Lehrbuch der Anthropologie in sistematischer Darstellung*, Stuttgart, Band I, 1957.

Meindl, R.; Lovejoy, C., *Ectocranial suture closure: a revised method for the termination of skeletal age at death based on lateral-anterior sutures*, in "American Journal of Physical Anthropology" 68, 1985, pp. 57-66.

Trotter, M.; Gleser G., *Estimation of Stature from Long Bones of American Whites and Negroes*, in "American Journal of Physical Anthropology", 10, 1952, pp. 463-514.

Wahl, Joachim, *Investigations on Pre-Roman and roman Cremation Remains from Southwestern Germany: Results, Potentialities and Limits*, in Christopher W. Schmidt and Steven A. Symes (eds.), *The Analysis of Burned Human Remains*, United Kingdom, 2010, pp. 145-161.

Зубов, А. *Одонтология*, Москва, 1968.