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PRACE

IRENA PAPRECKIENĖ AND GINTAUTAS ČESNYS

ODONTOLOGY OF THE 14th-17th cc. LITHUANIANS
II. PATHOLOGY OF THE MASTICATORY APPARATUS

Paleopathological investigations of teeth and the masticatory apparatus in general are interesting in two ways. First, epidemiology and epochal changes in the frequency of various dental diseases provide supplementary information for a better comprehension of their etiology and pathogenesis, consequently, the investigations are of practical value in modern medicine and stomatology. Second, condition of the masticatory apparatus of ancient populations enables one to judge indirectly about their health status, practical hygiene, mode of nutrition and some habits, and this can fill up considerably an anthropological picture of the populations. Paleostomatological investigations in Lithuania were started by Žilinskas [1938] and Baltrušaitiene [1976], who characterized diseases of dental hard tissue in the 2nd-5th cc. series of skulls. The aim of present work is elucidation of dental pathology in the 14th-17th cc. Lithuania.

MATERIALS AND RESULTS

621 intact and 39 fragmentary skulls, excavated at 29 burial sites, were investigated. The names and localization of cemeteries are listed in the first part of our work [Papreckienė, Česnys 1980], dealing with the ethnic odontology and odontoglyphics of the same populations.

Caries was stated in 68.39% of investigated skulls of adults (above 20 years of age) in the 14th-17th cc. Lithuania. A similar frequency was established in the synchronous osteological materials from various European countries — Poland [Borysewicz and Otocki 1975; Malinowski et al. 1969; Otocki and Borysewicz 1976], Sweden and Holland [Mellquist and Sandberg 1939], Hungary [Toth 1970], Roumania [Popovici 1976], Bulgaria [Boev and Maslinkov 1963] and others. In comparison with the data on the 20th c. Lithuanians, such a percentage of dental caries must be regarded as moderate.

Table 1. Caries in the 14th - 17th cc. Lithuania

Age (years)	Investigated skulls	Investigated teeth	Extracted teeth	Carious teeth		Teeth with several carious cavities	
				N	%	*N*	%
Subadults	21	519	3	5	0.96±0.42	–	–
20 - 30	140	3830	89	157	4.09±0.32	3	1.91±1.09
30 - 40	89	2160	243	183	8.47±0.59	7	3.82±1.41
40 - 50	101	2342	476	262	11.18±0.65	9	3.43±1.12
Over 50	143	2202	1615	296	13.44±0.72	7	2.36±0.88
Totally over 20 ys	473	10 534	2423	898	8.52±0.27	26	2.89±0.55

The incidence and intensity of caries depends on a person's age. We have formed separate groups of children (0 - 13 years) and subadults (14 - 20 years) in our material. The adult crania were divided into groups with interval of ten years (Table 1). The number of carious teeth increases in older age groups, but the amount of caries cavities does not tend to grow. The intensity of caries was not very high in our materials: every 11th - 12th tooth investigated was affected. The cariosity of the upper teeth exceeds that of the lower ones, and this coincides with the data of other researchers [Gleń 1975; Labhardt 1974; Pytlik 1959]. There is no sex difference in caries frequency (Table 2). Nevertheless, a larger amount of carious teeth appears at an earlier age (40 years) in

Table 2. Sexual dimorphism of caries and its frequency on maxilla and mandible in adults

Age years	Mandible			Maxilla		
	Investigated teeth	Caries		Investigated teeth	Caries	
		N	%		*N*	%
20 - 30	1907	97	5.08±0.50	1923	60	3.12±0.39
30 - 40	1106	89	8.04±0.81	1054	94	8.91±0.87
40 - 50	1270	117	9.21±0.81	1072	145	13.52±1.04
Over 50	1292	139	10.75±0.86	910	157	17.25±1.25
Totally	5575	442	7.92±0.36	4959	456	9.19±0.41

Age (years)	Males			Females		
	Investigated teeth	Caries		Investigated teeth	Caries	
		N	%		*N*	%
20 - 30	1479	49	3.31±0.46	2351	108	4.59±0.43
30 - 40	1266	109	8.60±0.78	894	74	8.27±0.92
40 - 50	1437	141	9.81±0.78	905	121	13.37±1.13
Over 50	1451	192	13.23±0.88	751	104	13.84±1.26
Totally	5633	491	8.71±0.37	4901	407	8.30±0.39

Table 3. The caries frequency on different teeth

Investigated	Carious		The tooth in the	Investigated	Carious	
N	*N*	%	dental formula	*N*	*N*	%
187	24	12.83 ± 2.44	18 48	245	33	13.46 ± 2.18
278	43	15.46 ± 2.16	17 47	274	47	17.17 ± 2.27
289	46	15.91 ± 2.15	16 46	263	48	18.25 ± 2.38
295	25	8.47 ± 1.62	15 45	329	27	8.20 ± 1.51
309	30	9.70 ± 1.68	14 44	345	7	2.02 ± 0.75
298	13	4.36 ± 1.18	13 43	349	9	2.57 ± 0.84
273	9	3.29 ± 1.07	12 42	321	4	1.24 ± 0.61
252	5	1.98 ± 0.87	11 41	293	3	1.02 ± 0.58
246	5	2.03 ± 0.89	21 31	299	2	0.66 ± 0.46
269	6	2.23 ± 0.90	22 32	336	8	2.38 ± 0.83
306	18	5.88 ± 1.34	23 33	353	14	3.96 ± 1.03
311	33	10.61 ± 1.74	24 34	360	14	3.88 ± 1.01
301	18	5.98 ± 1.36	25 35	324	29	8.95 ± 1.58
278	61	21.94 ± 2.48	26 36	259	46	17.76 ± 2.37
267	37	13.85 ± 2.11	27 37	282	44	15.60 ± 2.16
198	24	12.12 ± 2.31	28 38	247	38	15.38 ± 2.29

females (13.37%) than in males, who tend to show a considerable increase in cariosity (13.23%) at a somewhat older age (50 years).

The caries frequency on separate teeth was examined in a part of our materials (Table 3). The molars, especially the first one, are among the

Table 4. Frequency of caries in different tooth groups

Tooth group	Investigated	Carious	
		N	%
Incisors and canines	3595	96	2.67 ± 0.26
Premolars	2574	183	7.10 ± 0.50
Molars	3067	491	16.00 ± 0.66
Totally	9236	770	8.33 ± 0.28

most frequently affected. The rarest localization of caries is that on the lower incisors. The caries frequency in separate dental groups is demonstrated in Table 4. The decay of upper and lower molars dominates (16.0%) in caries epidemiology, premolars are affected usually half as much (7.1%), and the joined group of the frontal teeth (incisors and canines) almost 6 times less frequently (2.67%) than the first group of teeth. The predominance of molar cariosity was pointed out repeatedly [Boev and Maslinkov 1963; Boev and Maslinkov 1965; Gleń 1975; Hanakova and Stloukal 1975; Hovorka 1936; Menard 1978].

From the point of view of clinical stomatology, the territorial distribution of caries frequency and the localization of caries cavities on dental surfaces are of considerable interest. In order to detect possible geogra-

Table 5. Caries in different regions of the 14th-17th cc. Lithuania

Age (years)	Western Lithuania				Middle Lithuania				Eastern Lithuania			
	Investigated skulls	Investigated teeth	Carious teeth		Investigated skulls	Investigated teeth	Carious teeth		Investigated skulls	Investigated teeth	Carious teeth	
			N	%			*N*	%			*N*	%
20 - 30	61	1726	79	4.57±0.50	47	1229	48	3.90±0.55	32	875	32	3.65±0.63
30 - 40	31	784	60	7.65±0.94	34	803	75	9.34±1.02	24	567	48	8.46±1.16
40 - 50	46	1114	142	12.74±0.99	34	767	77	10.03±1.08	21	461	44	9.54±1.36
Over 50	70	1097	167	15.22±1.08	43	636	64	10.06±1.19	30	475	62	13.05±1.54
Totally	208	4721	448	9.50±0.42	158	3435	264	7.68±0.45	107	2378	186	7.82±0.55

Table 6. The caries localization on tooth surfaces

Age (years)	Investigated teeth	Amount of caries cavities	Localization					
			Masticatory surface		Approximal surfaces		Dental neck region	
			N	%	*N*	%	*N*	%
Subadults	519	5	0	–	5	100.00	0	–
20 - 30	3830	139	41	29.49±3.86	82	58.99±4.17	16	11.51±2.70
30 - 40	2160	148	24	16.21±3.02	105	70.94±3.73	19	12.83±2.74
40 - 50	2342	186	25	13.44±2.50	140	75.26±3.16	21	11.29±2.32
Over 50	2202	190	24	12.63±2.40	138	72.63±3.23	28	14.73±2.57
Totally	11 053	668	114	17.06±1.45	470	70.35±1.76	84	12.57±1.28

phical differences of the caries process, Lithuania was divided into three regions — Western, Middle and Eastern Lithuania —, that differed significantly in the physique of inhabitants during the 1st and 2nd millenia A. D., namely, their stature diminished constantly from North-West to South-East [Česnys 1980]. However, no relation between cariosity and physique was found (Table 5). The minimal frequency of caries was stated in the middle part of the country and its increase in the Western one, where the body height of inhabitants was higher than in the other parts of Lithuania.

The approximal dental surfaces were affected most often (70.35%) in the 14th - 17th cc. Lithuania (Table 6). The caries of occlusal surfaces diminished progressively in older age groups: 29.49% in the group of 20 - - 30 years and only 12.63% in the group above 50 years of age. The caries localization on the tooth neck prevailed in the latter age group. Most likely, it can be explained by an attrition of occlusal surfaces [Baltrušaitienė 1976; Gleń 1975]. The abrased occlusal surface has no points in which food particles could stay too long, and thus create possibilities for caries development. On the contrary, Bily et al. [1979] pointed out predominance (75.0%) of caries on the occlusal surfaces in childhood. As regards our materials, cariosity of permanent dentition in children was as low as 0.78% in the 14th - 17th cc. Lithuania. In addition, the approximal surfaces were mostly (50.0%) affected, and the caries localization on occlusal surfaces (25.0%) and on the collum (25.0%) was reduced by half.

Relations between caries occurence and dental attrition were studied in more detail in our materials by determining the degree of dental attrition for all age groups and on different kinds of teeth after Zubov [1968]. In the age group of 20 - 30 years (Table 7), the 2nd degree of attrition is common to all kinds of teeth: the enamel is abrased usually only from the very top of the molar cusps (tubercles) and narrow dentine strips emerge on the cutting edges of the incisors and canines. The frequency of caries on the occlusal surfaces amounts to 29.49% at this age. In the age group of 30 - 40 years, the thrid degree of attrition is characteristic of the first molars, the incisors and the canines: all the tubercles of masticatory surfaces are abrased, large areas of dentine emerge and small remnants of enamel are visible in the very bottom of furrows. Second molars show usually the second degree of attrition. The frequency of caries on the masticatory surface is 16.21% in this age group, that is, it is smaller by half in comparison with the previous age group. At the age of 40 - 50 years, the attrition degree of various teeth differs considerably. The first lower molar shows the fifth and the sixth degree (the dental crown is cut down to the half of its height or even to the neck), the first upper molars show usually the fourth degree (enamel is completely abrased from the occlusal surface), and the thrid degree is common to the second molars, the incisors and canines. The frequency

Table 7. Dental attrition by age in the 14th-17th cc. Lithuanian materials

Attrition degree	M_1								M_2								M^1							
	20 - 30 Y.		30 - 40 Y.		40 - 50 Y.		Over 50 Y.		20 - 30 Y.		30 - 40 Y.		40 - 50 Y.		Over 50 Y.		20 - 30 Y.		30 - 40 Y.		40 - 50 Y.		Over 50 Y.	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
6	1	0.8	4	6.3	17	8.3	19	36.5	0	–	1	1.7	4	6.3	5	8.9	1	0.8	3	4.2	14	24.1	16	32.7
5 - 6	0	–	0	–	0	–	2	3.8	0	–	0	–	0	–	2	3.6	0	–	0	–	1	1.7	2	4.1
5	3	2.5	15	23.4	16	26.7	20	38.5	1	0.8	6	10.3	10	15.6	17	30.4	3	2.5	18	25.4	13	22.4	21	42.9
4 - 5	0	–	0	–	2	3.3	2	3.8	0	–	0	–	0	–	4	7.1	0	–	1	1.4	2	3.4	2	4.1
4	14	11.6	17	26.6	14	23.3	7	13.5	2	1.7	6	10.3	12	18.8	13	23.2	13	10.7	16	22.5	16	27.6	5	10.2
3 - 4	0	–	0	–	2	3.3	0	–	2	1.7	1	1.7	6	9.4	0	–	1	0.8	0	–	1	1.7	0	–
3	29	23.9	20	31.3	9	15.0	1	1.9	7	5.9	15	25.9	19	29.7	13	23.2	31	25.6	23	32.4	11	18.9	2	4.1
2 - 3	31	25.6	7	10.9	0	–	1	1.9	13	11.9	10	17.2	10	15.6	1	1.8	27	22.3	8	11.3	0	–	1	2.0
2	40	33.1	1	0.0	0	–	0	–	61	51.7	18	31.0	3	4.7	1	1.8	42.	34.7	2	2.8	0	–	0	–
1 - 2	0	–	0	–	0	–	0	–	16	13.6	1	1.7	0	–	0	–	0	–	0	–	0	–	0	–
1	3	2.5	0	–	0	–	0	–	16	13.6	0	–	0	–	0	–	3	2.5	0	–	0	–	0	–
Total number of teeth	121		64		60		52		118		58		64		56		121		71		58		49	

Attrition degree	M^2								Incisors, canines and premolars							
	20 - 30 Y.		30 - 40 Y.		40 - 50 Y.		Over 50 Y.		20 - 30 Y.		30 - 40 Y.		40 - 50 Y.		Over 50 Y.	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
6	0	–	0	–	4	7.7	5	12.5	0	–	0	–	0	–	0	–
5 - 6	0	–	0	–	0	–	1	2.5	0	–	0	–	0	–	1	1.5
5	1	0.9	4	6.3	4	7.7	9	22.5	0	–	0	–	2	2.9	4	2.9
4 - 5	0	–	0	–	0	–	2	5.0	0	–	1	1.7	7	10.3	21	30.9
4	0	–	3	4.8	8	15.4	11	32.5	1	1.0	3	5.0	10	14.7	11	16.2
3 - 4	1	0.9	1	1.6	3	5.8	0	–	3	3.0	8	13.3	15	22.1	24	35.3
3	8	7.3	16	25.4	22	42.3	7	17.5	12	12.0	28	46.7	28	41.2	5	7.4
2 - 3	12	11.0	13	20.6	5	9.6	2	6.0	15	15.0	13	21.7	4	5.9	2	2.9
2	49	44.9	25	39.7	6	11.5	1	2.5	51	51.0	7	11.7	2	2.9	0	–
1 - 2	20	18.3	1	1.6	0	–	0	–	12	12.0	0	–	0	–	0	–
1	18	16.5	0	–	0	–	0	–	6	6.0	0	–	0	–	0	–
Total number of teeth	109		63		52		40		100		60		68		68	

of the occlusal surface caries (13.44%) is smaller by half in this age group in comparison with the age group of 20 - 30 years. In the oldest age group (over 50 years), the fifth and the sixth attrition degrees of the first upper and lower molars as well as the fourth and the fifth degrees of the second molars are common. Such a high abrasion is followed by a minimal frequency (12.63%) of the masticatory surface caries in this age. These facts point out to the role of exogenous factors (the long-term deposition of food remnants and thin dental coating in the recesses of the masticatory surfaces) in the caries etiology and pathogenesis.

When studying cariosity on the paleoanthropological materials, the extent of caries damage and its relation to the subject's age are of some interest (Table 8). In general, deep caries was diagnosed very seldom (7.64%) in the 14th - 17th cc. Lithuania, and this is especially true of the oldest age group (3.63%). Thus the hard tooth tissue was resistant enough to the caries process. On the whole, moderately deep caries and periodontitis prevailed in all age groups. The frequency of completely disintegrated tooth crowns (roots) increased rather consistently in older age groups, and, on the contrary, that of superficial caries decreased. To all appearances, some stabilization of the caries process took place in older age. Undoubtedly, the fact may be connected with an extent of dental attrition, too. When occlusal surfaces are strongly abrased (the 4th - 6th degrees), food remnants and thin dental coating cannot stay too long even on the contact surfaces of dental crowns. For this reason, caries grows rarer not only on masticatory surfaces, but even on the approximal ones in old age, however, it develops more often in the collum region (Table 6). Perhaps, it may be explained by the fact that due to the senile atrophy of alveolar ridges uncovered root cement emerges and it is in this region that conditions for the preservation of a thin dental coating appear.

Dental diseases of non-carious origin were not frequent (2.31%) in the 14th - 17th cc. Lithuania. We have diagnosed 8 cases (2.05%) of generalized enamel hypoplasia, only one case (0.25%) of enamel hyperplasia (on the tooth 48).

Parodontosis was a rather widespread disease in the 14th - 17th cc. Lithuania. We have ignored the initial stage of parodontosis, when the resorption of alveolar ridge did not reach 1/3 of the root length [Širšov 1979]. The following degrees of developed parodontosis were checked up: I° — resorption of alveolar ridge equals 1/3 of the root length, II° — 1/2, and III° — 3/4 of the root length. Developed parodontosis was determined in 68.29% of cases and its terminal stage in 8.67% of cases (Table 9). A similar extent of the disease was registered in other countries, too [Boev and Maslinkov 1965; Malinowski and Wypych 1966]. Characteristically, parodontosis was not disease of old age only. Thus 40.33% of young people (20 - 30 years) were affected with a marked parodontosis in the 14th - 17th cc. Lithuania. We feel inclined to agree

Table 8. Extent of carious damage in the permanent dentition of the 14th - 17th cc. Lithuanians

Age (years)	Number of caries cavities	Superficial caries		Moderate caries		Deep caries		Periodontitis		Only dental roots preserved	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
Subadults	5	1	20.00	2	40.00	–	–	2	40.00	–	–
20 - 30	160	39	24.37 ± 3.39	59	36.87 ± 3.81	16	10.00 ± 2.37	25	15.62 ± 2.87	21	13.12 ± 2.60
30 - 40	190	23	12.10 ± 2.36	68	35.78 ± 3.47	17	8.94 ± 2.06	40	21.05 ± 2.95	42	22.10 ± 3.01
40 - 50	271	25	9.22 ± 1.75	74	27.30 ± 2.70	27	9.96 ± 1.81	60	22.14 ± 2.52	85	31.36 ± 2.80
Over 50	303	24	7.92 ± 1.55	84	27.72 ± 2.57	11	3.63 ± 1.07	71	23.43 ± 2.43	113	37.29 ± 2.77
Totally	929	112	12.05 ± 1.06	287	30.87 ± 1.51	71	7.64 ± 0.87	198	21.31 ± 1.34	261	28.09 ± 1.47

Table 9. The parodontosis frequency in the 14th - 17th cc. Lithuania

Age (years)	Investigated skulls	Alveolar atrophia								Concrements							
		I°		II°		III°		Totally		Over gum		Over and under gum		Totally present		Absent	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Subadults	14	3	21.43 ± 10.96	0	–	0	–	3	21.43 ± 10.96	2	14.28 ± 9.35	0	–	2	14.28 ± 9.35	12	85.71 ± 9.35
20 - 30	119	41	34.45 ± 4.35	4	3.36 ± 1.65	3	2.52 ± 1.43	48	40.33 ± 4.49	37	31.09 ± 4.24	12	10.08 ± 2.75	49	41.17 ± 4.51	70	58.82 ± 4.51
30 - 40	70	32	45.71 ± 5.95	13	18.57 ± 4.64	5	7.14 ± 3.07	50	71.42 ± 5.40	37	52.85 ± 5.96	14	20.00 ± 4.78	51	72.85 ± 5.31	19	27.14 ± 5.31
40 - 50	83	42	50.60 ± 5.48	25	30.12 ± 5.03	6	7.22 ± 2.84	73	87.95 ± 3.57	36	43.37 ± 5.43	32	38.55 ± 5.34	68	81.92 ± 4.22	15	18.07 ± 4.22
Over 50	83	30	36.14 ± 5.27	30	36.14 ± 5.27	18	21.68 ± 4.52	78	93.97 ± 2.61	39	46.98 ± 5.47	29	34.93 ± 5.23	68	81.92 ± 4.22	15	18.07 ± 4.22
Totally	369	148	40.10 ± 2.55	72	19.51 ± 2.06	32	8.67 ± 1.46	252	68.29 ± 2.42	151	40.92 ± 2.55	87	23.57 ± 2.20	238	64.49 ± 2.49	131	35.50 ± 2.49

with G l e ń [1976], that, unlike the caries, an increase in the parodontosis frequency nowadays is not connected with the progress of civilization. In most instances, parodontosis was followed by dental concrements, localized either above or above and under the gum. The first case is more characteristic of young people. At the age of over 40 years, pathological gingival recesses appear, and the concrements grow up mostly under the gum. However, there is no strict parallelism between parodontosis and the concrements, their frequency (64.49%) lagging behind that (68.29%) of parodontosis in our materials.

The bite anomalies were determined in 33.60% of cases. Such a high percentage was registered in other European countries, too [B i l y et al. 1979; P e r z y n a and S t o p a 1976]. As regards more severe pathology of the masticatory apparatus, 2 cases (0.32%) of mandibular osteomyelitis, 9 cases (1.44%) of odontogenic cysts and 94 cases (0.89%) of granulomatous periodontitis with fistules were diagnosed in our materials. Very characteristically, 'dead' teeth and periodont changes occured due to dental attrition but not to caries complications in 55 out of 94 cases of granulomatous periodontitis, diagnosed in our materials. The loss of all teeth (a toothless mouth) was found in 0.95% of investigated skulls.

CONCLUSIONS

1. The incidence of caries war moderate and its intensity comparatively small in the 14th - 17th cc. Lithuania.
2. Molars were most frequently affected by caries while incisors and canines suffered least of all.
3. The majority of caries cavities were situated on the approximal dental surfaces.
4. The decrease in caries localization on occlusal surfaces in old age was connected with their attrition.
5. Sexual dimorphism of cariosity was insignificant.
6. Caries frequency differred in various regions of the 14th - 17th cc. Lithuania, but it was unrelated to the physique of inhabitants.
7. Parodontosis was a rather common dental disease, and it developed at a comparatively young age.

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Irena Papreckienė
Antakalnio 48-20, Vilnius 232 055, Lithuanian SSR
Gintautas Česnys
Antakalnio 95-15, Vilnius 232 040, Lithuanian SSR

ODONTOLOGIA LITWINÓW z XIV - XVII W. II. PATOLOGIA NARZĄDU ŻUCIA

IRENA PAPRECKIENĖ I GINTAUTAS ČESNYS

Zbadano 660 czaszek pochodzących z XIV - XVII w., wydobytych na 29 litewskich cmentarzyskach. Nazwy i lokalizacja uwzględnionych stanowisk archeologicznych zawarte są w pierwszej części niniejszej pracy. Wnioski z analizy patologicznych cech uzębienia są następujące.

1. Na czaszkach Litwinów z XIV - XVII w. stwierdzono umiarkowaną częstość próchnicy, a równocześnie jej stosunkowo niską intensywność.
2. Najczęściej próchnicą dotknięte były zęby trzonowe, najrzadziej — kły i siekacze.
3. Większość ubytków próchniczych obserwowano na stycznych powierzchniach zębów.
4. Zmniejszenie liczby przypadków próchnicy na powierzchniach zgryzowych wraz z wiekiem związane jest ze starciem zębów.
5. Dymorfizm płciowy w występowaniu próchnicy był statystycznie nieistotny.
6. Częstości próchnicy różniły się w różnych częściach XIV - XVII-wiecznej Litwy, zróżnicowanie to jednak nie wykazywało związku ze zróżnicowaniem innych cech fizycznych ludności.
7. Parodontoza była dosyć powszechnym schorzeniem i rozwijała się w stosunkowo młodym wieku.

Ž. Mikić, *Stanje i problemi fizičke antropologie u Jugoslaviji — praistorijski periodi*, Akademija Nauka i Umjetnosti Bosne i Hercegovine, posebna izdanja, Knjiga LIII, Centar za Balkanološka Ispitivanja, Kniga 9, Sarajevo 1981

Z. Mikić od kilku lat żywo interesuje się antropologią historyczną. Obecne opracowanie jest pierwszą próbą całościowego przedstawienia problematyki badań populacji pradziejowych w Jugosławii. Ma ono wszelkie walory opracowania monograficznego i prezentuje niezbędny zakres informacji antropologicznych i archeologicznych o materiałach kostnych, wydobytych w trakcie różnych badań wykopaliskowych prowadzonych na terenie Jugosławii. Przegląd znalezisk kostnych został wykonany bardzo starannie. Zebrano i zestawiono bogatą literaturę dotyczącą opracowań materiałów kostnych. Jeśli zachodziła taka możliwość, wykonano powtórne badania antropologiczne szkieletów z różnych okresów chronologicznych oraz przedstawiono dokumentację rysunkową i fotograficzną czaszek.

Zaprezentowane zostały materiały kostne z okresu paleolitu, mezolitu, neolitu, eneolitu, epoki brązu i żelaza. Materiały paleolityczne pochodziły z następujących miejscowości: Krapina, Velika pečina, Vindija, Veternica, Gornja Cerovačka pečina, Šandalja II, Romualdova pečina, Vergotinova pečina, Pečina pod Jerinim brdom, Belgrad i okolice, Bački Petrovac i Žitište. Mezolityczne materiały to: Baderna, Oporovina, Vlasac, Lepenski vir, Padina i Hajdučka vodenica. Neolityczne materiały kostne pochodzą ze stanowisk: Lepenski vir, Auzabegovo, Starčevo, Tečić — Kragujevac, Vinča, Obrež — Baštine, Obre I - II, Smilčic, Danilo, Dirostin, Gomolova, Zelena pečina, Grapčeva Špilja, Pokrivenik, Lisičići. Z epoki brązu na uwagę zasługują serie: Brinjeva Gora, Bezdanjača, Varvara, Ljubomirsko polje, Bela Crkva, Mokrin.

Szczególnie cenne są dane z cmentarzyska w Mokrin, na którym odkryto przeszło 300 dobrze zachowanych szkieletów. Omówione materiały z epoki brązu pochodzą z 19 cmentarzysk. Najważniejsze znaleziska antropologiczne pochodzą z cmentarzysk: Magdaleńska gora, Jezerine, Donja Dolina, Gomolava, Glasiuac.

Ogółem przedstawiono dane o 2000 szkieletów pochodzących z różnych okresów chronologicznych.

Pracę kończy rozdział poświęcony szerokiej analizie porównawczej. W ramach poszczególnych okresów chronologicznych obliczono odległości ogólne (C) Penrose między populacjami z południowej Europy. Otrzymane macierze współczynników odległości biologicznej zostały uporządkowane za pomocą dendrogramów. Wydzielone zespoły podobnych populacji naniesiono na mapy analizując zróżnicowanie morfologiczne w przestrzeni geograficznej.

Należy podkreślić, że omówione opracowanie jest wyróżniającym się, zarówno pod względem metodycznym jak i materiałowym, przyczynkiem do poznania historii biologicznej populacji europejskich, stanowiąc zarazem znaczące osiągnięcie w rozwoju jugosłowiańskich badań z zakresu antropologii historycznej.

J. Piontek (Poznań)