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PALEOPATHOLOGICAL STUDIES ON COPPER AGE SKELETONS FOUND AT ALSÓNÉMEDI

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Introduction

In historical anthropological research concerned with biological and social aspects, attention is devoted not only to the classical typological problems, but also to the fullest possible biological reconstruction. Within the framework of biological reconstruction, the problems should be approached from various angles to obtain the most complete information as to various prehistoric populations. In the present report we shall describe, as part of the biological reconstruction, the paleopathological state of a population that had lived in the Great Hungarian Plain between the Danube and Tisza rivers, in the late copper age (Pécel culture), around 2100 to 2000 B. C.

The copper age cemetery studied was unearthed in 1949 by KOREK et al. [8], of the Hungarian National Museum. In the cemetery of the small colony 41 copper age graves were found ; on the basis of the cemetery's size, there must have been about 60 graves. Archeological evidence suggests that the cemetery had been in use for about 2 or 3 generations, *i. e.* for 50 to 75 years, as it is indicated also by the uniformity of the burial rituals. Chronologically, the copper age population of the cemetery forms a facies living side-by-side with the population of the copper age Bodrogkeresztúr culture in the Great Hungarian Plain [4, 7, 9].

The archeological and anthropological aspects of the cemetery have been described in 1951 [8, 9]. In the present paper an account will be given of the results of paleopathological studies on the skeletal findings from the 41 graves.

Materials and methods

A total of 43 people was buried in the 41 graves. In two graves (No. 3 and No. 57) there were two bodies each. In the records made of the skeletal findings right at the beginning of the investigations we listed the intact, the fragmented and the defective bones, as well as the pathological changes and anatomical variations detectable on them. If so required, the gross findings were supplemented by X-ray examinations. The inventory made it clear that the skeletal findings from the single graves were greatly defective, mostly fragments and were in a poor condition. The graves were at a depth where sand met clay and this lead

Table I

Data for age and their confirmation

No.	Grave No.	Inventory* No.	Sex	Age at death	Age index	Endocranial ossification coefficient	Dental state		Internal structural and surface phases indicative of age			Notes
							Dentition	Abrasion	Humerus	Facies, symphyseos	Femur	
1.	3.	In situ	♂	35—39	— 50	—	—	—	—	—	—	Double grave on exhibition
2.	3.	In situ	♀	23—40	— 50	—	—	—	—	—	—	Double grave on exhibition
3.	4.	—	o	0,6	— 1	—	I_b	—	—	—	—	
4.	5.	4993	♀	49—53	— 50—	0,0	—	A_2—A_1	—	—	V.	
5.	9.	—	o	8	7—14	—	—	—	—	—	—	
6.	11.	4995	♀	21—22	— 22	0,0	—	A_0—A_0	—	—	—	Trace of epi-diaphyseal line still visible
7.	14.	—	o	4,5— 5	— 6	—	6_a	—	—	—	—	
8.	15.	—	♂	61—65	50 —	4,0	—	—	—	—	—	
9.	18.	—	o	3— 4	— 6	—	—	—	—	—	—	
10.	19.	4997	♂	54—58	— 50—	1,0	—	A_1—A_0	V.	—	V.	
11.	20.	—	o	1,5— 2	— 6	—	V_b	—	—	—	—	
12.	22.	4998	♂	64—68	50 —	4,0	—	A_3—S	III.	—	—	
13.	23.	4999	o	11—12	— 14	—	3_b	—	—	—	—	
14.	24.	5000	♂	28—32	— 50	0,0	—	A_0—A_0	—	—	—	
15.	25.	5002	♀	42—46	— 50	1,4	—	A_1—A_0	III.	II.	II.	
16.	26.	—	o	0,1	— 1	—	I_i	—	—	—	—	
17.	28.	5004	♂	52—56	— 50 —	4,0	—	A_1—A_0	III.	III.	II.	
18.	29.	5005	♂	54—58	— 50 —	3,2	—	S—S	III.	—	III.	
19.	30.	—	G	23— x	50	—	—	—	—	—	—	
20.	32.	5006	o	1,5	— 6	—	V_b	—	—	—	—	
21.	33.	5007	o	0,2	— 1	—	I_i	—	—	—	—	

Table I
(Continued)

No.	Grave No.	Inventory No.	Sex*	Age at death	Age index	Endocranial ossification coefficient	Dental state		Internal structural and surface phases indicative of age			Notes
							Dentition	Abrasion	Humerus	Facies, symphyseos	Femur	
22.	34.	—	o	0,1	— 1	—	I_i	—	—	—	—	
23.	35.	5008	o	1,5— 2	— 6	—	V_b	—	—	—	—	
24.	36.	5009	♂	62—66	50 —	3,5	—	A_3—A_3	—	—	—	
25.	38.	5011	♂	43—47	— 50 —	0,9	—	A_2—A_2	VI.	—	II.	
26.	39.	5012	♀	23—40	— 50	0,0	—	A_0—A_1	—	—	—	
27.	40.	5013	o	1,5— 2	— 6	—	V_b	—	—	—	—	
28.	41.	5014	♀	71—75	50 —	3,4	—	A_3—S	VI.	V.	V.	
29.	42.	5015	♂	44—48	— 50	4,0	—	A_2—A_1	—	II.	II.	
30.	43	—	♀	0,2	— 1	—	I_i	—	—	—	—	
31.	44.	5016	♀	30—34	— 50	0,4	—	A_2—A_1	II.	I.	II.	With one foetus
32.	45.	5017	o	1,5— 2	— 6	—	V_b	—	—	—	—	
33.	46.	5018	♂	42—46	— 50	0,0	—	A_1—A_0	IV.	—	IV.	
34.	47.	—	o	0,2	— 1	—	I_i	—	—	—	—	
35.	48.	5019	♀	56—60	50 —	—	—	—	V.	—	—	
36.	52.	—	?	23—x	— 50 —	—	—	—	—	—	—	
37.	53.	5020	♂?	16—17	— 22	—	8_b	—	—	—	—	Ossification of epi-diaphysis not yet begun
38	54.	—	G	23—x	— 50 —	—	—	—	—	—	—	Observed at excavation
39.	55.	5021	♀	24—28	— 50	—	—	—	I.	—	I.	
40.	56.	5022	♀	43—47	— 50 —	0,8	—	—	IV.	—	—	
41.	57/1.	5023	♂	43—47	— 50 —	0,5	—	A_1—A_0	II.	—	III.	
42.	57/2.	5024	♂	35—39	— 50	1,1	—	A_1—A_0	IV.	—	I.	
43.	58.	5025	♀?	20—21	— 22	0,0	—	—	—	—	—	Signs of epi-diaphysis ossification

* G = grown-ups o = child

to the deformation of bones. Petrification and porosity were also evident. Nevertheless, the material was exceptionally suitable for paleopathological studies.

First we determined the sex and age of the remains. Sex was determined by the methods used in anthropology; in estimating age, the complex method of NEMESKÉRI and HARSÁNYI [12] was employed, taking into account several factors determining age. The data for age and their corroboration are presented in *Table I.*

In *Table II* are shown the data for sex and age incidence; these furnish the basis for the evaluation of the results of paleopathological analysis.

Table II

Age and sex incidence in the skeletal material explored

Age groups	Male *n*	Female *n*	Total		In the case of the estimated 60 individuals *n*
			n	%	
Infant I			13	30.2	18
Infant II			2	4.6	3
Juvenile		2	2	4.6	3
Adult	4	4	8	18.6	11
Mature	7	4	11	25.5	15
Senile	3	1	4	9.5	6
Adult age not determined		1	3*	6.9	4
Total	14	12	43	99.9	60

* The sex of two adults can not be determined

Results

The pathological changes found are summarized in *Table III.* A description according to groups is given of the more significant pathological changes, developmental anomalies and of the few anatomical variations found.

Table III

Survey of pathological changes found

Grave No.	Inventory No.	Sex	Age	Changes	Diagnosis
19.	4997	male	Mat. 54—58	The orbital aspect of the frontal bone porous on the left side	Cribra orbitalis
22.	4998	male	Sen. 64—68	Lipping of vertebral bodies. Osteophytes on the margin of the cervical and lumbar intervertebral joints. The 10, 11 and 12 elongated up- and downward, due to ossification of the supraspinous ligament. Osteophytes on the margin of certain peripheral joints	Spondylosis (osteoarthritis of the spine). Ossification of ligaments. Arthrosis degenarative joint disease)

Grave No.	Inventory No.	Sex	Age	Changes	Diagnosis
29.	5005	male	Mat. 54—58	Lipping of the cervical and lumbar vertebral bodies. Osteophytes on the cervical and lumbar intervertebral joints ; bony union of those between cervical vertebrae 3 and 4. A fragment had detached from, then fused again with the upper margin of the body of, lumbar vertebra 4. The tendon of the extensor digitorum communis muscle shows ossification on the lateral condylus of the right tibia. Osteophytes on the right patella, at the insertion of the quadriceps femoris muscle. Spurs on both calcaneus bones, at the site of insertion of Achilles'tendon	Osteoarthritis of the spine and knee. Marginal hernia. Ossification of ligaments.
38.	5011	male	Mat. 43—47	Fenestration of right pelvic bone. Circumscribed impression of left pelvic bone, with thinning	Pressure atrophy?
41.	5014	female	Sen. 71—75	Lipping of cervical and lumbar vertebrae. Osteophytes on lumbar intervertebral joints. Marginal osteophytes on the tubercular articular facets of two right ribs	Spondylosis (osteoarthritis of the spine and costovertebral joints)
44.	5016	female	Adult 30—34	Lipping, 6 mm high, on the right side, on adjacent aspects of thoracic vertebrae 8 and 9. An impression 4 × 8 mm in size, 2 mm deep, in the lower aspect of thoracic vertebra 8. Tuberosities on adjacent aspects of lumbar vertebra 5 and sacrum	Spondylosis, Schmorl's hernia osteochondrosis
48.	5019	female	Mat. 56—60	Minor marginal lipping on the lumbar vertebral joints	Osteoarthritis (spondylosis)
55.	5021	female	Adult 24—28	Anterior wedging of lumbar vertebra 2.	Compression fracture (eventually spondylitis?)
56.	5022	female	Mature 43—47	Lipping, 1 to 2 mm high, on the anterior-superior margin of lumbar vertebra 5.	Spondylosis
57/2.	5024	male	Adult 35—39	Circumscribed, shallow impressions in the superior and inferior aspects of the bodies of lumbar vertebrae 2 to 5.	Schmorl's hernia

Pathological changes

a) *Spondylosis, spondylarthrosis (hypertrophic spondylitis, osteoarthritis of the spine)*

Severe spondylosis and spondylarthrosis occurred in the spine of 3 individuals. These are described in detail below.

A male aged 64 to 68 years (No. 4998, grave No. 22) showed osteophyte formation, at the superior and inferior circumferences of the cervical vertebrae 4 to 7. At sites, the osteophytes coalesced to a mass, at other sites they formed protuberances and spurs *(Fig. 1)*. The osteophytes at the superior margins of the 4th and 5th cervical vertebrae continue in the superior vertebral notch and thus narrow the intervertebral foramen. The left articular facets of the 4th and 5th cervical vertebrae are widened by osteophytes and are therefore much larger than the contralateral, intact facets. The affected articular facets are worn down and porous *(Fig. 2)*. The right lumbosacral joint shows evidence of severe spondylarthrosis. The enormous osteophyte originating from the inferior articular process of the 5th lumbar vertebra bridges over the articular space and almost completely covers the articular process of the sacrum *(Fig. 3)*. The other joints of the lumbosacral region show less severe spondylotic changes. On the affected side of the 5th lumbar vertebra the articular process is considerably widened, the articular surface is worn down and porous *(Fig. 4)*.

A male aged 54 to 58 years (No. 5005, grave 29) has osteophytes at the anterior margin of the cervical vertebrae ; those on the body of the cervical vertebrae 5, 6 and 7 extend also into the vertebral notches, narrowing thereby the intervertebral foramen. Osteophyte formation is visible at the margin of the intervertebral joints between the 2nd and 5th cervical vertebrae on the left side, and between the 3rd and 4th cervical vertebrae on the right side. Those between the 3rd and 4th cervical vertebrae show bony union on both sides *(Fig. 5)*. As a result of marginal osteophyte formation, the left intervertebral articular facet of the 3rd cervical vertebra is about 4 times the size of the unaffected right articular facet. The affected articular facet is worn down and porous *(Fig. 6)*. On the lumbar vertebrae the osteophytes increase in size downwards, protruding by 10 mm at sites *(Fig. 7)*. From the superior margin of the 4th lumbar vertebral body a piece, 12 × 4 mm in size, had detached, then formed a bony union with the vertebral body *(Fig. 8)*. We believe this change to be a marginal hernia. SCHINZ ET AL. [13] explain its development in the following way. Insofar as the cartilage covering the vertebral body breaks near the margin, cartilaginous tissue will undermine the vertebral margin by penetration through the hole formed and may detach it completely from the vertebral body. A condition similar to fracture arises. Later, the detached fragment is fixed to the vertebral body by spongious

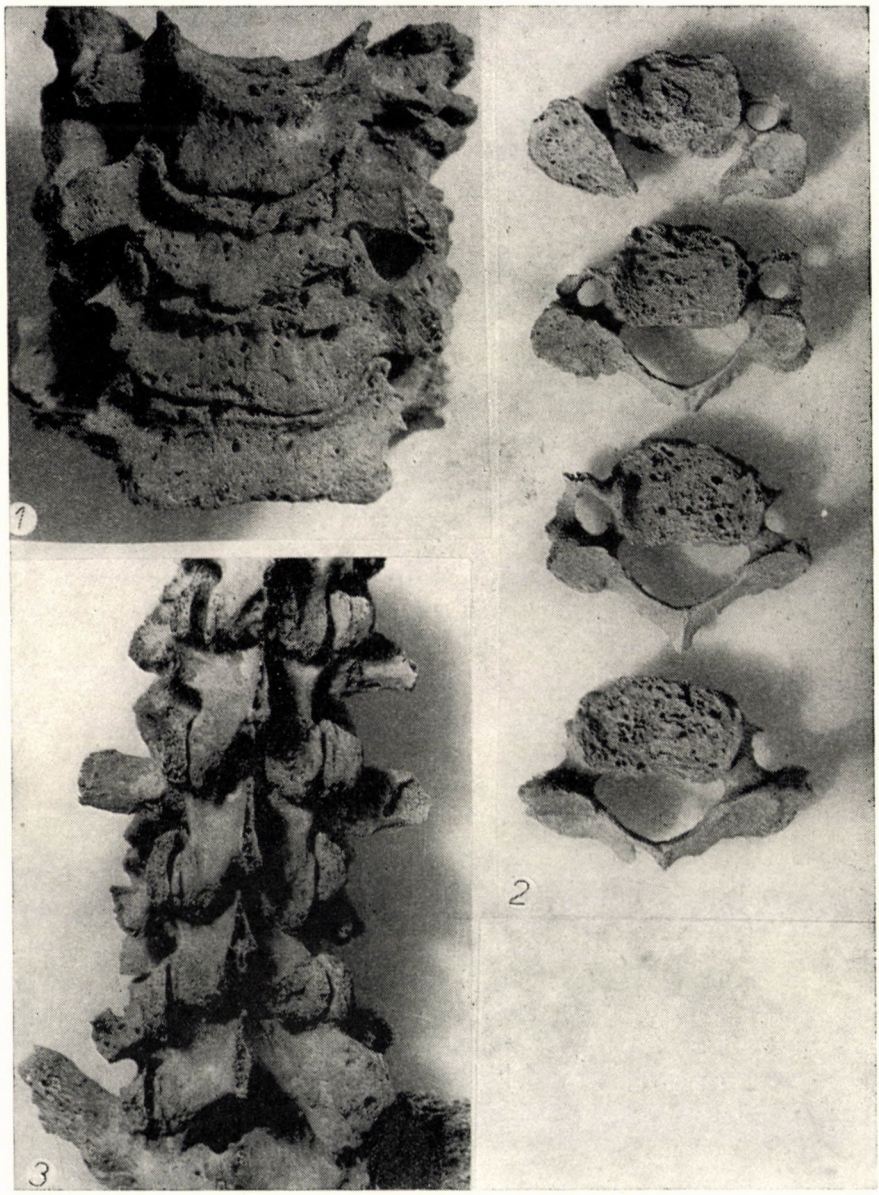

Fig. 1. Spondylosis, spondylarthrosis (hypertrophic spondylitis, osteoarthritis of the spine). Anterior view of cervical vertebrae 4 to 7 of a male aged 64 to 68 years (No. 4998)

Fig. 2. Spondylosis, spondylarthrosis, osteochondrosis. Superior aspect of the vertebrae shown in *Fig. 1*

Fig. 3. Severe osteoarthritis of the right lumbosacral joint. Posterior view of the spine (No. 4998)

Fig. 4. Severe spondylarthrosis (osteoarthritis) on the right side. The lumbar vertebra 5 shown in *Fig. 3.* turned upside down (No. 4998)

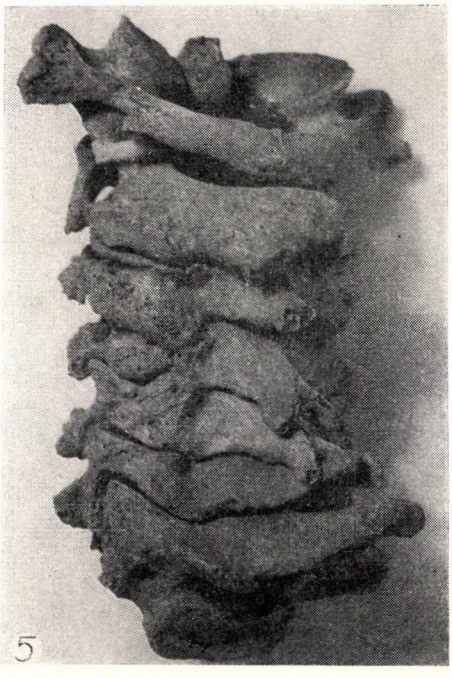

Fig. 5. Spondylosis, spondylarthrosis (hypertrophic spondylitis, osteoarthritis of the spine). Bony union of osteophytes on cervical vertebrae 3 to 4. (No. 5005)

Fig. 6. Spondylosis, spondylarthrosis (hypertrophic spondylitis, osteoarthritis). Superior aspect of cervical vertebra 3 shown in *Fig. 5*. The left articular facet increased to fourfold its original size by marginal osteophytes (No. 5005)

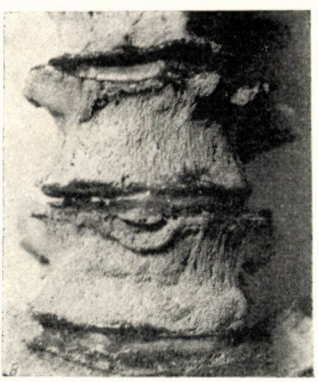

Fig. 7. Spondylosis, spondylarthrosis, Baastrup's disease. Posterior-right view of lumbar vertebrae (No. 5005)

Fig. 8. Spondylosis (hypertrophic spondylitis). Marginal hernia at the superior margin of lumbar vertebra 4. Anterior view (No. 5005)

tissue and the margin in this area shows osteophyte formation. This was demonstrable also in our case. The lumbar spinous processes are widened and those of the lumbar vertebrae 2 to 4 are in contact with one another. The contagious surfaces are worn down *(Fig. 7)*.

A female aged 71 to 75 years (No. 5014, grave 41), shows osteophytes at the upper margin of the fovea dentis of the atlas. There is a small osteo-

phyte on the apex of the dens epistrophei, and osteophytes on the adjacent anterior margins of the cervical vertebrae 6 and 7. The costal transversal fovea of the 11th thoracic vertebra is widened by osteophytes. On the anterior margin of the lumbar vertebrae 4 and 5 there are marginal spurs, 2 to 3 mm high. Osteophytes increasing in size downward are visible on the lumbar vertebrae and the sacrum, widening the articular facets.

b) *Arthrosis (osteoarthritis, hypertrophic arthritis, degenerative arthritis)*

Osteoarthritis (arthrosis) did not seriously effect any of the peripherial joints. Most of the changes were noted in the peripherial joints of the subject who had severe osteoarthritis of the spine as well.

Fig. 9. Spina bifida occulta in thoracic vertebrae 11 and 12. Male aged 42 to 46 years. Thoracic vertebrae 10 to 12 and lumbar vertebra 1. (No. 5018)

In one of them (male No. 4998, from grave 22) the acromial articular facet of the clavicle and the acromial facet of the scapula shows osteoarthritis. The styloid process of the left ulna and the volar aspect of the ulnar capitulum likewise display osteophytes. In both femurs the intercondyloid fossa is separated from the articular surface by a bone ridge, 1 to 2 mm high.

Likewise, osteoarthritis involving several joints is demonstrable on the skeleton of *a male aged 54 to 58 years* (No. 5005, grave 29), whose spine shows

severe pathological changes. The acromial articular facet of the right clavicle is widened by a tuberal exostosis. The lateral part of the acromion of the right scapula is widened and worn down. Osteophytes are visible on the margin of the right ulnar capitulum. Exostoses varying in height from 2 to 3 mm are found at the margin of the iliac tuberosity, lateral labium of the iliac crest, as well as on the tuber ischii.

c) *Pressure atrophy in the iliac bone*

The right iliac bone of *a male aged 43 to 47 years* (No. 5011, grave 38) had thinned centrally. An opening, 15 × 20 mm in size, with irregular outlines,

Fig. 10. Pressure atrophy of unknown cause in both pelvic bones of a male aged 43 to 47 years (No. 5011)

is visible in the centre of this area. Opposite to this area the left iliac bone exhibits an impression, 20 × 40 mm in size; here the bone had thinned *(Fig. 10)*.

d) *Compression fracture of a vertebra*

The 2nd lumbar vertebra of *a female aged 24 to 28 years* (No. 5021, grave 55) shows wedging anteriorly. The vertebral body has a height of 20 mm dorsally and 3 mm anteriorly. Osteophytes are visible to protrude 12 mm from the anterior-superior part of the vertebra *(Fig. 11)*. The body of the

Fig. 11. Compression fracture of lumbar vertebra 2. Female aged 24 to 28 years. Thoracic vertebra 12, lumbar vertebrae 1 to ? with gibbus formation. (No. 5021)

Fig. 12. Superior view of lumbar vertebra 2, showing osteophytes at the anterior-superior margin (No. 5021)

vertebra superior to it fits into this lipping. As a result of the compression fracture of the 2nd lumbar vertebra, the curve of the spine has altered and there is a gibbus at the level of the broken vertebra *(Fig. 12)*. The changes in the 2nd lumbar vertebra appear to have been caused by a compression fracture or eventually by spondylitis.

e) *Orbital cribra*

The left orbital aspect of the frontal bone is perforated like a sieve in a *male aged 54 to 58 years* (No. 4997, grave 19).

Developmental anomalies and anatomical variations

a) *Occult spina bifida*

Occult spina bifida occurs most commonly in the lumbosacral junction of the spine, whereas it is uncommon in the dorsal area. For this reason we think it worth while to describe this, otherwise most common, change. The arc of the thoracic vertebra 11 did not unite posteriorly and no spinous process was formed in the *male aged 42 to 46 years* (No. 5018, grave 46). The arc of the thoracic vertebra 12 did not unite posteriorly and only the left part of the arc took part in the formation of the rudimentary spinous process *(Fig. 9)*.

b) *Transitory lumbosacral vertebra*

The vertebra at the lumbosacral junction of *a male aged 28 to 32 years* (No. 5000, grave 24) is widened and increased in size at the lower portion of the transversal process. The articular facet is smaller on the left side. The facets are in contact with the lateral mass of the sacrum. The arc of the transitory vertebra is patent posteriorly.

c) *Spondylolysis*

The arc of lumbar vertebra 5 of an *individual aged 16 to 17 years* (No. 5020, grave 53) shows a cleavage along the pars interarticularis. According to BROCHER [5], in European people this change has an incidence of 5 per cent and, according to orthopaedic statistics, spondylolysis or spondylolisthesis is responsible for 10 per cent of the cases of sacral pain.

d) *Intercondyloid foramen*

Intercondyloid foramen occurs in both humeri of *a male aged 49 to 53 years* (No. 4993, grave 5) and in the left humerus of *a male aged 52 to 56 years* (No. 5004, grave 28).

e) *Variations of the transversal foramen*

In a *female aged 42 to 46 years* (No. 5002, grave 25) the transversal foramen on the right side of the cervical vertebra 5 is merely a round opening, 2 mm in diameter.

In a *female aged 30 to 34 years* (No. 5016, grave 44) the right transversal foramen forms a complex of intersecting foramina.

Discussion

The results of the paleopathological studies on the copper age remains of Alsónémedi do by themselves not suffice to draw conclusions of any great detail as to the public health relations of this population. Comparison with the results of similar investigations will, however, make it possible to determine whether in a certain period health conditions had improved or deteriorated. Good health relations are usually characterized by a low infant mortality rate and by high age. In *Table IV* we have compared the mortality rate of the population of Alsónémedi with that of the copper age population of Polgár—Basatanya; both cemeteries have been explored almost completely. The two populations had lived in the copper age, but geographically so distant from each other that any contact between them was unlikely. Yet, their mortality rates were practically identical, suggesting that the living conditions and health relations, too, were closely similar in the two populations.

Table IV

Comparative analysis of the age incidence in two copper age cemeteries

Site of excavation	Age groups					
	Infant I.	Infant II.	Juvenile	Adult	Mature	Senile
Alsónémedi	17.2	3.4	13.8	34.3	20.7	10.3
Polgár—Basatanya	11.1	6.9	14.5	33.3	29.7	4.1

In connection with the evaluation of paleopathological results it is to be mentioned that the average life span of both sexes was 30.5 years and that the subjects 20 years of age had a life expectancy of 32.2 and 34.1 years, respectively. We do not wish to deal here with the potential causes of death, but it has to be mentioned that foetal bones were found in the pelvis of a female skeleton from grave 44 (No. 5016). The woman had obviously died during pregnancy at the age of 30 to 34 years. It is questionable whether or not death has been in causal relationship with pregnancy. The same skeleton shows vertebral changes disproportionately severe for the woman's age.

The pathological changes found in 10 of the skeletons examined are presented in *Tabie V.*

Table V

Summary of the changes found

Diagnosis	Males			Females			Combined n
	Adult n	Mature n	Senile n	Adult n	Mature n	Senile n	
Cribra orbitalis					1		1
Spondylosis		1	1		2	1	5
Spondylarthrosis		1	1		1	1	4
Ossification of ligaments		1	1				2
Arthrosis			1			1	2
Schmorl's hernia	1	1		1			3
Costovertebral arthrosis						1	1
Osteochondrosis				1			1
Pressure atrophy		1					1
Compression fracture of a vertebra				1			1
Total	1	5	4	3	4	4	21

As seen, in the 10 individuals 10 different pathological conditions have been established in 21 cases ; each one of six individuals showed one pathological condition, 4 showed 3 or 4 simultaneously.

Most of the pathological changes occurred in the spine. This finding is in agreement with the view of ACKERKNECHT [1] that osteoarthritis (spondylosis and arthrosis) of the spine is the most frequent change ; this condition was wide-spread even in the big reptiles of the geological middle age. The signs of arthritis detected in skeletons from distant geological areas induced ANDERSON to claim [2] that articular diseases are the oldest and most wide-spread skeletal changes. Paleopathological research revealed a high incidence of osteoarthritis in Pithecanthropus, man of Neanderthal and *Homo sapiens fossilis.* A decisive role has to be attributed to constitutional factors in the genesis of these diseases, as such factors did not change for thousands of years, whereas the diseases caused by bacteria and viruses are subject to continuous variations, as a result of the mutual adaptation of both the organism and the pathogen.

The incidence of pathological skeletal changes in the adult population (28 adults) was 35.7 per cent, as 10 adults show such changes.

Of the 21 cases of 10 different changes occurring in 10 individuals, 20 may be considered to have been due to disease, whereas one might have

been caused by injury. Four subjects had such vertebral changes that they must have been unable to work.

To supplement the results of paleopathologocal studies we shall now discuss briefly the general anthropology of copper age populations. (As to our previous studies, see 10, 11).

There are two types of anthropological character in the Alsónémedi copper age population. Those of the first type are of small-medium stature, have a dolicho-mesocranic skull and a lepto-mesoprosopic face. The skeletal bones are fine and the constitution is gracile, leptosomic. This typological element may be considered to be a local variation of the mediterranean race, with brachycranic elements. The second type is characterized by medium, tall-medium stature, a meso-brachycranic skull and a meso-leptoprosopic face. The skeletal bones are of medium strength, the constitution is picnic-athletic. This type is the atlanto-mediterranean variant of the mediterranean race, with a secondary admixture of a brachycranic element. Anthropological analysis according to age and sex suggests the basic type to have been a dolichomorphic one, modified by the appearance of a brachycranic, brachymorphous element.

The aim of the paleopathological studies was to supplement the usual anthropological reconstruction by biological reconstruction. Demographical, anthropological and paleopathological reconstruction, together with archeological reconstruction, will furnish the basis for a fuller information as to the population in a given colony living in a certain era. Similar studies of several cemeteries will make biological reconstruction and its interpretation possible. This study has been intended to contribute some data to such future work.

Summary

Pathological changes and anatomical variations have been studied on skeletons found in a copper age cemetery at Alsónémedi.

As to the anthropological characteristics, the population belonged to the Europoid group, showed two variants of the Mediterranean type, mixed with a brachymorphic component.

Most pathological changes occurred in the vertebrae. Besides osteoarthritis of the spine, one case of marginal herniation and one case of vertebral compression were revealed. The peripheral joints showed only degenerative osteoarthritis (arthrosis) of mild nature.

The total number of individuals unearthed was 43 ; among these, 10 adults showed 10 diagnostically different skeletal changes, an incidence of 35.7 per cent.

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РЕЗУЛЬТАТЫ ПАЛЕОПАТОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ СКЕЛЕТОВ ИЗ МЕДНОГО ВЕКА, ОБНАРУЖЕННЫХ ПРИ РАСКОПКАХ В АЛШОНЕМЕДИ (ПЕЦЕЛЬСКАЯ КУЛЬТУРА)

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Авторы исследовали патологические изменения и анатомические варианты на скелетах из медневекового могильника, раскрытого в ходе раскопок в Алшонемеди.

Антропологическую характеристику исследованной популяции представляет в пределах европидного форменного круга комплекс двух видоизменений средиземноморского типа, смешанный брахиморфным компонентом.

Больше всего патологических изменений наблюдались на позвоночном столбе. Наряду со спондилозом и артрозом позвоночного столба в одном случае наблюдалась краевая грыжа, а в другом случае компрессионный перелом позвонка. На суставах конечностей наблюдался только незначительный артроз. В одном случае была установлена вызванная внешним давлением атрофия вертлужной впадины, которая на одной стороне обусловливала окончатость вертлужной впадины.

Из 43 скелетов могильника можно было установить на скелетах 10 взрослых лиц 10 диагностически обособляемых патологических изменений, что соответствует 35,7%-ой частоте.

PALÄOPATHOLOGISCHE UNTERSUCHUNGEN DER SKELETTFUNDE AUS DER KUPFERZEIT (PÉCELER KULTUR), FREIGELEGT IN ALSÓNÉMEDI

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Verfasser untersuchten an den Skelettfunden des in Alsónémedi freigelegten kupferzeitlichen Friedhofes die pathologischen Veränderungen und die anatomischen Variationen.

Das anthropologische Charakteristikum der untersuchten Population vertritt im Rahmen des europiden Formenkreises ein Komplex von zwei Varianten des mediterranen Typs, der mit einem brachymorphen Komponenten gemischt ist.

Die meisten pathologischen Veränderungen wurden an der Wirbelsäule beobachtet. Neben Fällen von Spondylosen und Arthrosen der Wirbelsäule wurde in einem Fall Randhernie und in einem anderen Kompressionswirbelbruch beobachtet. In den Gliedmaßgelenken waren nur Arthrosen geringen Grades zu beobachten. In einem Fall wurde die durch äußeren Druck hervorgerufene Atrophie der Hüftpfanne festgestellt, die auf einer Seite zur Fenestration der Hüftpfanne geführt hatte.

An den Skeletten von 10 Erwachsenen des 43 Individuen erhaltenden Friedhofs konnten 10 diagnostisch differenzierbare pathologische Veränderungen festgestellt werden, was einer 35,7%igen Häufigkeit entspricht.

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