

Elsa Pacciani

Anthropological description
of skeletons from graves no. 83, 84, 85,
87, 88, 95, 96, 97 and 99 at Skriðuklaustur
Monastery



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Anthropological description of skeletons from graves no. 83, 84, 85, 87,
88, 95, 96, 97 and 99 at Skriðuklaustur Monastery

Vala Gunnarsdóttir bjó til prentunar

Skýrslur Skriðusklaustursrannsókna XXII

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Forsíðumynd: A vertebra from grave 85. The bone has a thin lamina
embedded into it.

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Introduction

This description was made “on the field”, soon after the excavation, preliminary cleaning and restoration. Thus, its aim is mostly to record the identificative data and the relevant observations, thereby offering cues, research lines and suggestions for widening of particular aspects.

So there is no pretence of exhaustiveness, as the anthropological study requires more time and the simultaneous disposability of the whole sample, for screening and comparisons about the various characters. Moreover many features need to be examined by lab specific tools and equipping. However some generalities, observations and statements can be related here:

A marked sexual dimorphism characterizes this sample and makes the sex diagnosis relatively easy, together with the good state of preservation; very few cases raised some uncertainty. So a morphological diagnosis was performed, on the basis of the most discriminant hip bone and skull features, and taking into account also the other bones. No sex diagnosis was attempted on subadults.

About the age-at-death diagnosis I decided to avoid a subdivision of adult individuals in small age classes, because of the weakness of all the aging indicators due to the high individual and population variability. For this reason I adopted a gross subdivision in three classes: young adult (conventionally beginning from the spheno-occipital suture closure or the third molars eruption), mature adult and old adult, on the basis of a complex of traits appearance, such as pubic symphysis, auricular surface, dental wear and pathology, cranial suture closure, joint degeneration, spongy bone rarefaction etc. A more precise diagnosis will be possible when the whole sample will be examined in order to detect the “population” aging rate, or /and other traits will be examined, such as dental cement anulation, pulp/tooth ratio etc.

For dental wear quantification I used the Lovejoy 1985 graphic scheme which represents phases of maxilla and mandible wear, but without attributing the specimens to the associated age classes, because I have found, in my previous methodological research, a huge divergence with the real age.

As aging methods I adopted:

- for the pubic symphysis, Brooks and Suchey 1990 scale
- for the auricular surface, Lovejoy et al. 1985 scale
- for the sternal end of the ribs, Iscan et al. 1984 scale

Subadult age-at-death diagnosis was made according the Ubelaker (1989) dental development standard.

A restricted selection of measurements was made with a purely identificative aim regarding the skull, and with the purpose of underscoring some stress indicators and anthropological conditions (stature, robusticity, platymeria, platicnemia) regarding the postcranial bones. Of course it will be possible and advisable to take a much larger amount of measurements in the anthropology laboratory, where having the availability of all the necessary anthropometric tools, and above all having specific finalities in an organic research project.

The dental formula is presented for each individual in a table, whose legend is the following:

P = present

AM = lost ante mortem

PM = lost postmortem

-- = not detectable

The stature was calculated by the formulas of Olivier et al. 1978, based on the physiologic lenght of the femur (n. 2 according Martin and Saller).

Degree of resorption of alveolar bone at tooth roots, due to periodontal disease is attributed according to the simple scale of Brothwell 1981 (No alveolar destruction; Slight, Medium, Considerable).

The same author was followed for the degree of calculus formation (Slight, Medium, Considerable).

Diastema is a gap or space between two teeth. It happens when there is an unequal relationship between the size of the teeth and the jaw.

Anthropological description 2008

Grave 87



Fig: 87.1



Fig: 87.2

Sex: female

Age at death: young adult

- Still visible traces of the closure line at the iliac crest, the ischiopubic ramus and the femur proximal epiphyses.

- Fairly low dental wear (maxilla: phase E; mandible: F at left side, H at the right side).

- Cranial sutures, open except for an initial closure at the right end of the coronal and the posterior end of the sagittal.

- Youthful appearance of the auricular surface (phase 2).

- Not yet completely fused the first sacral vertebra, neither the body nor the intervertebral facets (this indicates that the individual is likely to be younger than 27 years of age).

Dental characteristics (Fig. 87.3; 87.4; 87.5; 87.6; 87.7):

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Mandibula | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |

- All the teeth are present, besides the deciduous upper right second molar is retained in place, because the underlying second premolar is not completely developed and is visible in the alveolus.

- Malocclusion is observable as a rotation of the upper right first premolar and the upper left second premolar.



Fig: 87.3



Fig: 87.4



Fig: 87.5



Fig: 87.6



Fig: 87.7



Fig: 87.8

Six diastema spaces are detectable: between upper left canine and left first premolar; between upper right first premolar and upper right second premolar; between upper right second premolar and upper right first molar; between lower canines and lower first premolars of both sides; between lower right lateral incisor and right lower canine.

- The upper central and lateral incisors, and canines also, have *shovel shape*.
- Enamel hypoplasia is absent.
- Caries is absent.
- Wear is asymmetric, greater on the right side.
- Calculus is present on all the teeth (degree: Heavy).
- Periodontitis involves all the teeth (degree: Medium). A particular bone resorption and calculus spreading on the discovered root is observable on the upper canines (Fig. 87.3).

- The upper incisors have chipped edges due to the use of the teeth for crushing hard materials.

Stature: cm 156.

Occupational stress indicators and pathological aspects:

On the whole, many muscle insertions are highly expressed, especially on the superior limbs, but without enthesopathies; moreover bones are well-shaped and

moulded. It means that an intense activity has been carried on, but without particular effort.

Both clavicles show an extraordinarily developed conoid tubercle (Fig. 87.8). It is the attachment point for the conoid ligament, which connects to the scapula's coracoid process, in order to strengthen the joint between the two bones.

The left clavicle is longer than the right one (12,1 cm against 11,5). Also the right arm is clearly longer than the left one: the difference is, for the humerus 7 mm; for the radius 8 mm; for the ulna 7 mm. A possible explanation is an habitual load carrying by the right arm extended downward, especially in juvenile age.

Both hands show indicators of a solid grip activity: metacarpals with sharp edges, phalanges with ridges for the attachment of flexor muscles, first metacarpal bone with marked insertion for the thumb opponens muscle.

Femurs are hyperplatymeric (Index = 66,6), indicating an intense locomotor activity, perhaps associated to a weak constitution. Besides the "anterior cervical imprint" (Capasso et al., 1999) is observable on the anterior side of the femoral neck bilaterally (Fig.87.9), which could mean an extension effort by the femur.

Among the pathological features we can observe a degenerative appearance of the upper part of the pubic symphysis and anterior (external) side of the pubic bones (Fig.87.10; 87.11). The surface is porous, sclerotic and remodelled; huge osteophytes protrude around the symphysis edge. This seems the result of a severe inflammatory process. The lower part of the symphysis has a juvenile (ridged) aspect. It seems related to some parturition infective complication, even though no parturition scars are visible on the pelvis.

On the right tibia, a bony beak located on the superior part of the medial face. The downward direction of the spine let us exclude that it represents the ossification of a ligament and rather diagnose an osteochondroma, a common benign bone tumor



Fig: 87.9



Fig: 87.10



Fig: 87.11

that occurs during the growing period (see also grave 74).

The posterior side of the sternum, particularly the manubrium and the upper part of the body, show a porotic, trabecular look, as if the spongy bone had appeared on the surface (Fig.87.12). This can be an indicator of porotic hyperostosis, a condition of anemia.



Fig: 87.12

Arthritis slight signs are observable at the occipital-atlas joint, the shoulder, the elbow, the hand bones, the intervertebral facets of the thoracic and lumbar segment of the column, the talus- calcaneum joint. This localized arthritis seems to be an activity effect, rather than an age indicator.



Fig: 87.13



Fig: 87.14



Fig: 87.15

Both tibial diaphyses are affected by slight periostitis (Fig.87.13). Two osteochondritis pits are detectable on the joint surface of the left talus and the right calcaneum (Fig.87.14; 87.15). The proximal articular surface of both first metatarsi also presents osteochondritis pits.

Grave 95



Fig: 95.1



Fig: 95.2

Age at death: newborn, on the basis of the 15 teeth development stage (Fig.95.2)

The skeleton is almost complete and rather well preserved, although many long bones are eroded at the extremities.

Some diaphysis measurements could be taken, with a little approximation:

Left humerus: (approx) mm 64

Left ulna: (approx) mm 63

Right radio: (approx) mm 55

Right tibia mm 69

Left fibula mm 66

Grave 96



Fig: 96.1



Fig: 96.2

Sex: female. The diagnosis is based on the most discriminant hip bone features, but some cranial features, like glabella, mastoid process and parietal eminences have an intermediate or masculine aspect.

Age at death: mature adult

- Dental wear. Maxilla: phase F (left side) and H (right side); mandible: H (left side) and I (right side).

- Moderately concave sternal ends of the ribs (phase 2) (Fig.96.3).

- Degree of ectocranial suture obliteration: lateral segments of the coronal, most of the sagittal, very little segments of the lambdoid are closed.

- Severe vertebral degenerative arthritis (see further) but, in opposition, the absence of osteoporosis of the humerus head and vertebral bodies.

- A little degenerated auricular surface (phase 5) (Fig.96.4).

Stature: cm 157.



Fig: 96.3



Fig: 96.4



Fig: 96.5



Fig: 96.6



Fig: 96.7



Fig: 96.8



Fig: 96.9



Fig: 96.10

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | -- | AM | P | AM | PM | P | P | P | P | P | P | AM | AM | P | -- | -- |
| Mandibula | P | AM | P | P | P | P | P | P | PM | P | P | P | P | P | P | P |

- Malocclusion: the upper left central incisor is displaced forward (Fig. 96.5; 96.6).

- A diastema is located between the upper left lateral incisor and the left canine, and another one between the lower right lateral incisor and the right canine (Fig. 96.6).

- The upper central and lateral incisors have *shovel shape*.

- One stria of enamel hypoplasia is observable on the upper central incisors, on the cervical part of the crown, but tooth wear prevents to detect the remaining part.

- Caries is absent.

- Calculus is present on all the teeth, in Considerable degree, covering also the roots.

- Severe periodontitis involves all the teeth discovering a large part of the roots (Stage: Considerable) (Fig. 96.7), and caused the loss of 5 teeth. Also the two peri-apical abscesses of both the upper first premolars (Fig. 96.8; 96.9) is probably due to the same cause.

- Wear is asymmetric, as already mentioned, probably because of the amount of teeth loss which caused chewing difficulty.

- A particularly advanced and oriented wear affects the lower anterior teeth of the right side (incisors, canine and premolars), as if a thread or some other tool had been passed through (Fig. 96.10).

Occupational stress indicators and pathological aspects:

The left scapula has the *bipartite acromion*. Despite of the post-mortem breakage of the acromion, it was possible to identify a scattered fragment with the articular facet for the os acromiale and later the os acromiale itself (Fig.96.11; 96.12). The character is not bilateral. The left scapula shows also a slight arthritis scar on the glenoid.

The right scapula shows marked enthesopathies for the biceps and triceps muscles (Fig.96.13; 96.14).

The clavicles appear exceptionally modelled by muscle and ligament insertions: deltoid and pectoralis major show enthesopathy which rarely can be found in a such a severe degree (Fig. 96.15); in addition the attachments for costoclavicular and conoid ligament are very evident (Fig. 96.16).

The humerus (particularly the right one) shows marked enthesopathies for the pectoralis major, dorsalis major and teres major (Fig.96.17), and evident insertions for the deltoid, really exceptional for a woman (Fig.96.18), so confirming the clavicle features and suggesting a heavy manual work by the shoulders and upper limbs.

The ulna and radio show bilaterally well developed but not pathologic muscle insertions, except the enthesopathy of the biceps on the right radio and the enthesopathy of the square pronator on the distal end of the right ulna and radio (Fig.96.19), where all the area assumes a degenerated aspect, included the radio-ulnar joint (Fig.96.20) with its lipping, porosity and extended surface.

The hand bones confirm the hypothesis of heavy manual work (sharp edges of metacarpals; crests on the palmar side of phalanges (Fig. 96.21).

Finally, like the individual nr. 87, the right arm is clearly longer than the left one: the difference is little for the humerus (2-3 mm), but large for the radius (8 mm), (the ulna is not detectable), and can be explained in the same way: load carrying by the right arm extended downward, especially in juvenile age.

The lower limb long bones reveal a good muscle development for active but regular practice.

Femurs are platymeric (Index = 76,9).

Cribræ cranii on the occipital and parietal bones, around the Lambda (Fig.96.22).

A rather rare pathological condition is the fusion of the right auricular surface, due to unilateral sacro-iliitis (Fig.96.23).



Fig: 96.11



Fig: 96.12



Fig: 96.13



Fig: 96.14



Fig: 96.15



Fig: 96.16



Fig: 96.17



Fig: 96.18



Fig: 96.19



Fig: 96.20



Fig: 96.21



Fig: 96.22



Fig: 96.23

Marked arthritis degeneration can be observed on the occipital condyles; acromion-clavicle joint bilaterally; left clavicle-sternal joint (Fig.96.15; 96.16); the right humerus head (Fig.96.24); some cervical vertebrae (porosity and marginal lipping of the body plates; degeneration of the intervertebral facets) (Fig.96.25; 96.26); the thoracic vertebrae from T3 to T8 (with similar aspects and sometimes body height reduction, besides sclerosis and osteophytosis of the costo- vertebral joints) (Fig.96.27); the intervertebral facets of the lumbar vertebrae; the right elbow (very visible on ulna and radio (Fig.96.28; 96.29), the humerus end being badly preserved); the carpal (Fig.96.30) and metacarpal bones.

Striking eburnation is diffused to several joints, such as the atlas- dens of the epistropheus (Fig.96.31); the left intervertebral facet between L5 and sacrum (Fig.96.32); the elbow humerus- radius joint (Fig.96.33); a semilunar bone (Fig.96.34) and a fragment of a metacarpal distal epiphysis.

The left tibia presents the articular surface for the astragalus affected by cartilage deterioration which results in deep irregular grooves and cavities excavated into the bone, surrounded by ridge borders of new bone (Fig.96.35).

In the whole, this picture of scattered joint anomalies seems to represent a disease affecting the cartilage, more than the progressive and diffuse arthritic degeneration (DJD) associated to ageing or the localized alterations due to biomechanical stress. Differential diagnosis must be done among various rheumatic diseases (such as rheumatoid arthritis).

A last observation concerns a periostitic area involving the distal ends of the left tibia and fibula, covered with osteophytes (Fig. 96.36), as result of an inflammatory process and perhaps to be correlated to the degenerated articular surface of the tibia, described above.

Other observations. A *torus palatinus* (non-metric trait) is present (Fig. 96.6). Metopism is observable in the anterior part, extended about 2 cm over the frontal-nasal suture (Fig. 96.37). Preauricular sulcus, which is a parturition scar, is absent

Note: Some scattered teeth and bones were found in the filling of the grave. The teeth, not belonging to this individual, are a right upper third molar, a right upper central incisor and an upper premolar. Besides, a hyoid bone and a thyroid ossified cartilage were identified.



Fig: 96.24



Fig: 96.25



Fig: 96.26



Fig: 96.27



Fig: 96.28



Fig: 96.29



Fig: 96.30



Fig: 96.31



Fig: 96.32



Fig: 96.33



Fig: 96.35



Fig: 96.34



Fig: 96.36



Fig: 96.37

Grave 97

Only the maxillary plus zygomatic bones are preserved, bilaterally, and the mandible (Fig.97.1; 97.2).



Fig: 97.1



Fig: 97.2

Sex: female? The diagnosis is based the gonion shape. The uncertainty is due to the young age of the individual.

Age at death: 17-18 years, on the basis of the teeth development. In fact the upper third molars have incomplete root apex (fang) (Fig.97.3), besides they are in eruption phase, just reaching the alveolus roof. (Fig.97.4).



Fig: 97.3



Fig: 97.4



Fig: 97.5

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Mandibula | -- | P | P | P | P | P | P | P | P | P | P | P | P | P | P | -- |

- Malocclusion: crowding, causing an inward dislocation of the upper left second premolar, and an outward dislocation of the lower right first premolar; besides the upper central incisors and the left lateral one are rotated inward with their mesial edge (Fig.97.1; 97.2; 97.5)

- Upper incisors have a slight *shovel shape*.

- Caries is absent.

- Calculus is a thin layer (stage: Slight), but spread onto the whole crown of many teeth.

- Hypoplasia is not detectable, unless a little stria on upper central incisors, because of the calculus cover.

- Dental wear is very low , but markedly higher on anterior teeth

- Incisal edges are slightly chipped, probably because of the pressure in crushing hard materials (Fig.97.5).

Graves 96-99

Mixed bones, mostly incomplete, and fragments, not in anatomical connection. None of them resulted belonging to the individuals Grave 96 or 99.

They were identified and separated by type, in order to determine the minimum number of individuals (NMI).

It resulted in at least 2 individuals, of different dimensions and robusticity. As a skull and a hip bone have female characteristics, we can suppose that the smaller individual is a female. The greater one is presumably a male, on the basis of large dimensions, muscle insertions, large acetabulum.

In particular, after assembling attachable pieces and fragments, there are:

1 female skull, broken in reassemblable pieces, plus many not attributed fragments

1 female maxilla and mandible

2 controlateral scapulae, plus 4 fragments

1 larger clavicle

1 smaller clavicle

2 controlateral larger humeri

2 controlateral smaller humeri

1 larger ulna

2 controlateral smaller ulnae

1 larger radius

1 smaller radius

1 smaller hip bone with female appearance and preauricular sulcus

1 larger hip bone with male appearance, plus fragments not attributed to anyone

1 larger femur

2 controlateral smaller femurs

- 2 controlateral larger tibiae
- 2 controlateral smaller tibiae
- 2 controlateral larger fibulae
- 1 smaller fibula, plus a fragment
- 1 larger astragalus
- 2 controlateral smaller astragali, plus 1 foot navicular bone
- some fragment of ribs and vertebrae

Grave 99



Fig: 99.1



Fig: 99.2

Sex: female

Age at death: young adult

- Very slight dental wear. Maxilla: phase B2; mandible: phase C (Fig.99.1; 99.2).

- All the cranial sutures are open.

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Mandibula | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |

- Malocclusion is absent.
- Diastema is absent.
- Caries is absent
- Calculus is abundant on all the teeth and also overhanging the roots (Degree: Considerable) ((Fig.99.3).



Fig: 99.3

- Periodontitis is advanced, as indicated by

the extension of the calculus, despite of the young age.

- Hypoplasia not detectable because of abundant calculus.

Occupational stress indicators and pathological aspects:

Both the temporal bone pyramids show an alteration of probably chronic infective origin (otitis): a marked swelling of the auditory chanel roof and a cribrous, perforated aspect of the lateral area of the pyramid anterior face (Fig.99.4; 99.5; 99.6).



Fig: 99.4

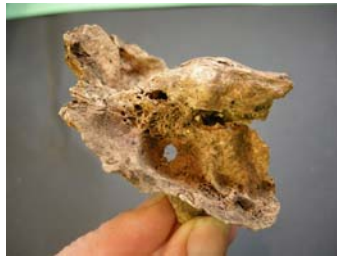


Fig: 99.5



Fig: 99.6

An auditory ossicle (hammer) came out of the right pyramid; it was preserved and could be examined to check eventual anomalies.

The examination of this individual was not concluded.

Grave 83

Sex: male

Age at death: mature adult



Fig: 83.1

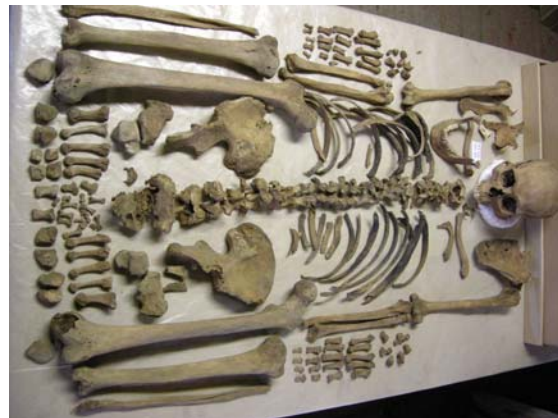


Fig: 83.2

- Dental wear is very low (phase B2) (Fig. 83.3; 83.4).
- Sutures are partly closed: the coronal at the lateral ends, sagittal about half, in different sites, lambdoid.
- Degenerative arthritis can be found on many articular surfaces.
- The thyroid cartilage is ossified.

Stature: cm 178.

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Mandibula | P | P | P | P | P | P | P | P | PM | P | P | P | P | P | P | P |

- Malocclusion: crowding of mandibular anterior teeth, causing an inward dislocation of the left central incisor and an outward dislocation of the right lateral incisor (Fig.83.4).
- Diastema is absent
- The very low dental wear is in marked contrast to the other age indicators, so it could be attributed to habitually assuming soft food, rather than young age.
- Calculus is abundant on all the teeth (Degree: Considerable) (Fig.83.5).
- Caries is absent
- Hypoplasia detecting is prevented by calculus.



Fig: 83.3



Fig: 83.4



Fig: 83.5

Occupational stress indicators and pathological aspects:

Generally bones appear well modelled by muscle insertions, indicating an intense habitual activity, but without excessive effort, infact enthesopathies are not numerous. They can be found on both humeri (pectoralis major and teres major have an erosive form (Fig.83.6; 83.7); deltoid has a productive one (Fig.83.8); radii (biceps and flexor digitorum superficialis have a slight enthesopathy (Fig.83.9), pronator teres is particularly evident (Fig.83.10), femurs (vastus medialis and iliopsoas (Fig. 83 11)). Femurs are platymeric (Index = 79,4).

Arthritis is not severe but diffused on several articulations: for example shoulders (Fig.83.12), sternal end of the clavicles, elbows, wrists (both radio- carpal and radio-ulnar), acetabuli (Fig.83.13), some thoracic and lumbar intervertebral facets, knees, hands, feet.

Os acromiale is absent, bilaterally.

A severe eburnation affects the joint atlas-epistropheus dens (Fig.83.14; 83.15), while the remaining cervical vertebrae are not affected by arthritis.

A severe degenerative, osteophytic area is located between the 5th and 6th thoracic vertebrae, on the right side of the bodies, where we can observe the ankylosis at the costal joint (Fig.83.16; 83.17). It is due probably to a trauma, as the adjacent vertebrae are more or less normal. Unfortunately bodies are lacking and costs have incomplete ends, but it is possible to observe on one of them a porotic and irregular area behind the joint for the transverse process (Fig.83.18).

The first metatarsus and first foot phalanx show bilaterally a dorsal extension of the joint surface (Fig.83.19), like some other individuals of the sample, probably with the same meaning of habitual kneeling position.



Fig: 83.6



Fig: 83.7



Fig: 83.8



Fig: 83.9



Fig: 83.10



Fig: 83.11



Fig: 83.12



Fig: 83.13



Fig: 83.14



Fig: 83.15



Fig: 83.16



Fig: 83.17



Fig: 83.18



Fig: 83.19

Grave 84

Sex: male

Age at death: young adult

- Dental wear is very low (phase B2) (Fig.84.4; 84.5).
- All the vault skull sutures are open.
- The pubic symphysis has the juvenile billowed surface (Phase 2).
- The sternal end of the ribs is slightly concave (Phase 2).



Fig: 84.1



Fig: 84.2



Fig: 84.3

- Traces of the epiphysis fusion line are still visible at the iliac crest, femur head and proximal end of the tibia.

- Not yet completely fused the first sacral vertebra, neither the body nor the intervertebral facets (Fig.84.6) (this indicates that the individual is likely to be younger than 27 years of age).



Fig: 84.4



Fig: 84.5



Fig: 84.6

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | PM | P | P | P | P | P | P | P | P | P |
| Mandibula | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |

- Malocclusion: slight rotation of the upper left lateral incisor (Fig.84.4). Slight crowding of the lower incisors (Fig.84.5).

- Diastema is absent.

- Upper central and lateral incisors show a slight *shovel shape*.

- Caries is absent.
- Calculus on all the teeth, spreading over exposed roots(degree: Considerable)
- Periodontitis: (degree: Medium).

- An abscess with fistula on the buccal side is present in correspondance of the upper right first molar. It is probably due to periodontitis, in fact, while caries is absent, the roots were exposed as the calculus overhanging them demonstrates (Fig 84.7).

- Hypoplasia: 1 thin line, on canines.



Fig: 84.7



Fig: 84.8



Fig: 84.9

Stature: cm 161

Occupational stress indicators and pathological aspects:

The notable characteristic is the picture of severe functional stress loading on the rotator cuff, pectoralis major and teres major, bilaterally but more on the right side. Erosive enthesopathies, of rarely so high degree, are detectable on attachments of infraspinatus, teres minor (Fig.84.8), subscapularis (Fig 84.9) pectoralis major and teres major (Fig.84.9). The deltoid attachment appears well developed on the humeri and even severely enthesopathic on the clavicles (Fig 84.10). Pectoralis major attachment is remarkably developed on clavicle (Fig. 84.11). All the muscle attachments on the forearm are well marked, in a physiological stage except a slight enthesopathy of the biceps on the radius. As the district shoulder- arm is the only one on this skeleton affected by enthesopathy, we could infer a local peculiar working activity effort.

This individual shows bilateral os acromiale (Fig.84.12). A consequence of this feature could be the arthritis signs that are observable on the glenoid and humerus head bilaterally, in an initial stage but meaningful in view of the young age. Nevertheless, localized arthritis can be due to the occupational stress; this last hypothesis is confirmed by the presence of a slight lipping also at the elbow joint (humerus-ulna and radius-ulna).

The right arm is longer than the left one: the difference is, for the humerus 6 mm; for the radius 4 mm. A possible explanation is an habitual load carrying by the right arm extended downward, especially in juvenile age.

An initial marginal lipping is visible on the occipital condyles.

Costo-vertebral arthritis scars (porosity and eburnation; margin extension and deformation) are visible on some costal tubercles, especially one of them (Fig. 84.13).

The second thoracic vertebra shows sclerosis and scalloping of the inferior plate. The thoracic and lumbar segment shows shortening and concavity of the lateral surface of vertebral bodies (Fig. 84.14; 84.15), while intervertebral joint are normal; this picture is coherent with a condition of downward compressive strength on the column.

The fifth lumbar vertebra is affected by bilateral spondylolysis, that is the complete breakage of the vertebral arch at the istmo (region between the upper and lower intervertebral joints), which resolved in pseudarthrosis (Fig. 84.16; 84.17). This disease has a genetic component that is the congenital weakness of the istmo region of the vertebra, and an environmental one, represented by recurrent stresses or traumas as weight lifting in the upright posture or vigorous movements of the lower back.

Femurs are platymeric (Index = 75,1).



Fig: 84.10



Fig: 84.11



Fig: 84.12



Fig: 84.13



Fig: 84.14



Fig: 84.15



Fig: 84.16



Fig: 84.17

Grave 85



Fig: 85.1



Fig: 85.2

Sex: female

Age at death: adult mature/old

- Almost all the teeth are lost *ante mortem* (Fig.85.3; 85.4).
- Severe degenerative arthritis is diffused at many joints.
- The pubic symphysis (phase 6) and the auricular surface (phase 8) are highly degenerated (Fig 85.5; 85.6).
- On the contrary, very limited rarefaction of the spongy bone occurred in the proximal epiphysis of the femur.
- Cranial sutures are rather open: the coronal closed only at the external ends; the sagittal almost completely visible; the lambdoid open.

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM |
| Mandibula | AM | AM | AM | P | P | P | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM |

- Calculus is massive on the 3 extant teeth (degree: Considerable) (Fig.85.7).
- Periodontitis is the probable cause of the almost total loss of teeth (degree: Considerable).

Stature: cm 153.

Occupational stress indicators and pathological aspects:

Generally, bones are well shaped, with evident muscle insertions but without enthesopathies (except iliopsoas and gluteus maximus on the femur (Fig. 85.8), indicating an active but not stressful life style.



Fig: 85.3



Fig: 85.4



Fig: 85.5



Fig: 85.6



Fig: 85.7



Fig: 85.8



Fig: 85.9



Fig: 85.10



Fig: 85.11



Fig: 85.12



Fig: 85.13



Fig: 85.14

The femur is hyperplatymeric (Index = 68,3), the same considerations can be made as for the female individual nr. 87. The preauricular sulcus, pregnancy scar, is present.

The right radius retains traces of a healed Colles fracture at the distal part of the diaphysis (Fig. 85.9; 85.10) which appears well mended, without disalignment, but it was the cause of a secondary severe degeneration of the wrist joint; in fact both the radio-carpal and the radio-ulnar articular surfaces appear enlarged, deformed, porous and sclerotic (Fig.85.11; 85.12). The Fig.85.13 shows the right lunate which is highly deformed because of abundant, irregular and porous newformed bone around the articular surface. The probable consequence of such a degeneration was a reduced mobility and chronic pain, leading even to the impossibility of using the right hand. Some stress scars on the left hand, as the trapezium eburnation (Fig.85.14), can be explained as a secondary compensative overloading on this side.

An advanced arthritis degeneration can be diagnosed on both the sternal-clavicular joints (Fig.85.15) and on the left acromial-clavicular joint (the only preserved); both the glenoid surfaces of the scapulae (Fig.85.16; 85.17), which display sclerosis, gross porosity, ivory-like appearance and marginal lipping; both the humerus proximal joints, which are sclerotic, porous and bordered by a circular prominence (Fig.85.18); the acetabulum (Fig. 85.19); the vertebral column, where sclerosis, gross porosity and lipping can be often observed on the flat parts of the bodies and intervertebral facets (Fig. 85.20; 85.21).

The 3rd lumbar vertebra shows a very peculiar feature: a whitish thin lamina with curved surface embedded into the body (Fig.85.22; 85.23; 85.24), passing through the cylinder in the boundary between the anterior and the left side, from the upper flat part to the lower one. The concavity is facing the right side. The bone displays no broken fragments or cracks and seems therefore hit by a sharp item when still fresh (when the person was alive) but also it had a very little time for a reaction; signs of inflammatory reaction are indeed very little, limited to the high end of the wound (Fig.85.25). So, the injury could have been the cause of the death, occurred however after a while. As this area is very vulnerable because of the passage of the Aorta in front of the vertebral body, it can be asserted that the artery was not touched, which would have caused the immediate death. The radiographic examination of the evidence, together with the microscopic and chemical analysis of the item will be able to explain the event.

The bad condition of preservation prevent to detect the os acromiale presence on the right side, but on the left side a little portion of sclerotic, remodelled surface preserved on the even damaged acromion allows to diagnose the presence of os acromiale (Fig. 85.26).



Fig: 85.15



Fig: 85.16



Fig: 85.17



Fig: 85.18



Fig: 85.19



Fig: 85.20



Fig: 85.21



Fig: 85.22



Fig: 85.23



Fig: 85.24



Fig: 85.25



Fig: 85.26

Grave 88

Sex: male

Age at death: young adult

- Dental wear is low. Maxilla: phase C; mandible: phase D (Fig. 88.2; 88.3).

- Pubic symphysis has a youthful appearance (phase 2).

- Auricular surface has a youthful appearance (phase 3).

- Still visible traces of the closure line at the iliac crest and the upper tibial epiphysis.

- Not yet completely fused the first sacral vertebra (Fig 88.4).



Fig: 88.1



Fig: 88.2



Fig: 88.3



Fig: 88.4

Dental characteristics:

| | Right | | | | | | | | Left | | | | | | | |
|-----------|-------|----|----|----|----|---|----|----|------|----|---|----|----|----|----|----|
| | M3 | M2 | M1 | P2 | P1 | C | I2 | I1 | I1 | I2 | C | P1 | P2 | M1 | M2 | M3 |
| Maxilla | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Mandibula | P | P | P | AM | P | P | P | P | P | P | P | P | P | P | P | P |

- Malocclusion: slight clockwise rotation of the left central lower incisor; slight anticlockwise rotation of the left lateral lower incisor.

- Diastema is absent.

- Upper incisors show shovel shape (the central ones in a slight degree).

- Caries is absent.

- Calculus is present on all the teeth (degree: Slight)

- Periodontitis is diffuse (degree: Medium).

- The right second lower premolar is lost ante mortem, probably because of periodontitis.

Stature: cm 166

Occupational stress indicators and pathological aspects:

The musculature appears generally well developed, but the *linea aspra* and the soleus insertion on the tibia are very slight, perhaps suggesting a limited activity by the lower limbs.

The right humerus shows a well defined and deep pit along the insertion of *teres maior*, whose meaning seems an enthesopathy of traumatic origin (Fig 88.5).

Femurs are platymeric (Index = 75,1).



Fig: 88.5



Fig: 88.6

The presence of *os acromiale* is not detectable on the right scapula, because of its incompleteness; the left side is eroded too and does not allow an undoubtable assessment, but a morphological comparison with Individual nr. 84, who has a certain *os acromiale*, reveals a very similar shape of the acromion edge (Fig 88.6 : on the left N88; on the right N84). The *postmortem* fracture line of N.88 coincides with the pseudoarthrosis of N 84, suggesting the existence of *os acromiale*.

Some anthropometric measurements in mm (code numbers according Martin and Saller):

| | Grave 87 | Grave 96 | Grave 83 | Grave 85 | Grave 84 | Grave 88 |
|--|----------|----------|----------|----------|----------|----------|
| | F | F | M | F | M | M |
| 1- maximum cranial length | 193 | 181 | 201 | 167 | 190 | 194 |
| 8- maximum cranial breadth | 147 | 135 | 141 | 135 | 143,5 | - |
| 17- basion/bregma height | 124 | 130 | - | 118 | 127 | 134 |
| 1- maximum humerus length | 306 | 318 | 363 | 297 | 328 | 332 |
| 2- total humerus length | 299 | 317 | 357 | 294 | 320 | 321,5 |
| 7- minimum hum. circumference | 55 | 64 | 65 | 52 | 63 | 66,5 |
| 1- maximum radius length | 219 | 230 | 261 | - | 232 | 240 |
| 3- minimum radius circumference | 36 | 42 | 43,5 | - | 41,5 | 44 |
| 1- maximum ulna length | 236 | 241 | 283 | - | 250 | 254 |
| 3- minimum ulna circumference | 35 | 38 | 43 | - | 39 | 41 |
| 1- maximum femur length | 415 | 417 | 497 | 397 | 428 | 445 |
| 2- physiological femur length | 410 | 415 | 495 | 395 | 425 | 443 |
| 6- femur sagittal diameter in the middle | 23 | 30 | 29 | 21,5 | 27 | 28,5 |
| 7- femur transv. diameter in the middle | 24 | 26,5 | 31 | 25,5 | 29 | 29 |
| 9- femur superior transv. diameter | 30 | 32,5 | 34 | 30 | 33 | 35 |
| 10- femur superior sagittal diameter | 20 | 25 | 27 | 20,5 | 24,8 | 26,3 |
| 1- total tibia length | 318 | 340 | 397 | | 340 | 339 |
| 8 a – tibia sagittal diameter for nutr | 30 | 32 | 36 | | 36 | 37 |
| 9 a – tibia transv. diameter for nutr | 23 | 24 | 25 | | 24 | 26 |

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