

Exhumation and anthropological study of the skeletal remains attributed to Liutprand, King of the Longobards (690 ca AD-744 AD)

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A golden coin showing Liutprand's effigy

BACKGROUND. Liutprand was one of the greatest Longobard sovereign and King of Italy from 712 to 744. According to the *Historia Langobardorum* of Paolo Diacono, he was born in the late 80s or early 90s of the 7th century and died at an approximately age of 55 years. His remains suffered from many translations in the centuries, and this is the most problematic issue to recognize the authenticity of the osteological remains. The first grave was in the chapel of Sant'Adriano, in the Longobard cemetery of Santa Maria *ad Perticas*. In the 12th century the remains were translated in the Cathedral of San Pietro in Ciel d'Oro and located in a monumental mausoleum. A new translation took place after the Council of Trento: the bones were placed in a niche in the floor in the right aisle of the Church (fig.1).

Fig.1 - Tombstone on the grave in the right aisle of the Church



MATERIALS AND METHODS. We performed the exhumation and the anthropological study on the skeletal remains attributed to Liutprand in the Church of San Pietro in Ciel d'Oro (Pavia, Italy). We selected bone fragments and two teeth in order to make imaging studies (CT and RX), 14C dating, chemical and molecular analyses.

RESULTS.

1. Anthropological analyses.

Most of the fragmented bones were attributed to a robust adult male (fig.2.1). The occlusal surfaces of the teeth suggested an age of death between 35 and 50 years. The appendicular skeleton was represented by both large and robust humeri, with very strong muscle insertions. Of the forearm only the proximal and distal epiphyses of the right radius without arthrosis remained. The lower limbs were represented by a right femur and several fragments attributable to the left contralateral, medium-large sized and with strong muscular insertions.

Fragments of another femur allowed to identify a second adult male with the same robustness of the first subject.

We detected three left tibiae not certainly attributed to any subject.

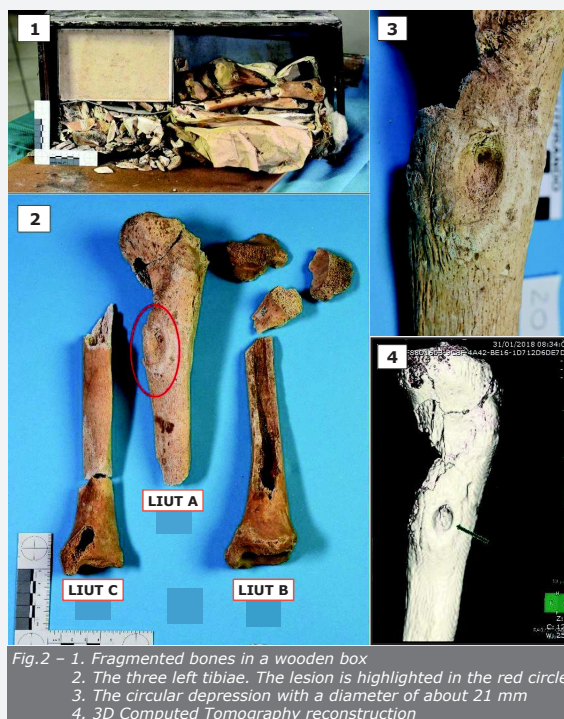
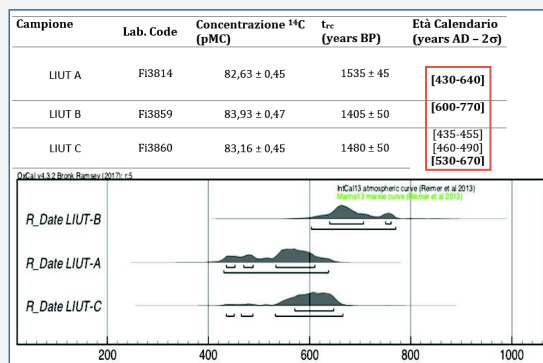


Fig.2 - 1. Fragmented bones in a wooden box
2. The three left tibiae. The lesion is highlighted in the red circle
3. The circular depression with a diameter of about 21 mm
4. 3D Computed Tomography reconstruction

Two of them, represented by segments of diaphysis and distal epiphyses, belonged to two adult males (called **LIUT B** and **LIUT C**), similar in muscle development and stature, while the third tibia (**LIUT A**) showed pathological alterations (fig.2.2). Indeed, the upper third of the diaphysis was completely altered and enlarged by bone thickening due to a severe form of osteomyelitis. The presence of a circular depression with a diameter of 21 mm (fig.2.3) could represent the trace of a pointed object that caused the perforation of the bone and the subsequent infection. Reparative process determined the healing of the lesion before death, which probably occurred about 2 year after the trauma.

3D Computed Tomography reconstruction highlighted the 0.7 mm raised crateriform lesion, centrally depressed, with blunted edges (fig.2.4). The bottom of the lesion showed no fistula or cloaca, thus suggesting a complete healing of the disease.



2. Carbon-14 dating

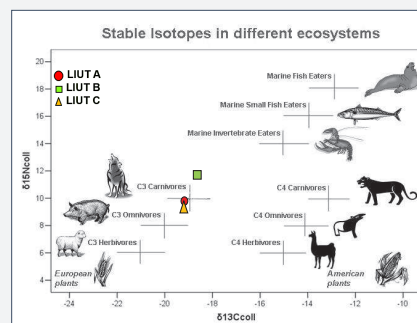
The analyses provided a range between 430 and 770 AD.

LIUT A (pathological bone): 430-640 AD.

LIUT B: 600-770 AD.

LIUT C: 530-670 AD.

Only one individual (**LIUT B**) lived in the era compatible with that of Liutprand.



3. Paleodiet

High nutritional status, with a varied diet rich in meat, occasionally integrated with fish.

Marine contribution to the diet respectively:

LIUT A (pathological bone): 9%

LIUT B: 16%

LIUT C: 9%

DISCUSSION AND CONCLUSIONS. Most of the remains are attributable to a medium-large, robust male with strong muscular insertions, and with an age of death between 35 and 45 years. Other bones belonged to a second individual with slightly lower stature and more advanced age, but with strong muscle insertions too, and a third adult similar to the second in stature.

Currently, it is not possible to define the identity of the three individuals for lack of archaeological data and for the fragmentary nature of the bones. According to the C14, only LIUT B is compatible with the period in which Liutprand lived, since the other two subjects are slightly older. In fact, the pathological tibia (LIUT A) belonged to an individual who lived about 100 years before the king.

The age of the subjects, the robust constitution and the nutritional data suggest a belonging to a middle-high social class, perhaps devoted to war activity.

References

1. Berto LA (1965). Liutprando, re dei longobardi, in Dizionario Biografico degli Italiani - Volume 65, Istituto della Enciclopedia Italiana, Roma.
2. Diacono P. (1992) *Historia Langobardorum*. Mondadori, Milano.
3. Majocchi R (1896). Le ossa di re Liutprando scoperte in San Pietro in Ciel d'Oro di Pavia. Archivio Storico Lombardo: Giornale della società storica lombarda (Serie 3, Vol. 6, Fascicolo 11), Milano.

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