

Emanuel Vlček

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# Physical and personality traits of Charles IV, Holy Roman Emperor and King of Bohemia

A medical-anthropological  
investigation



KAROLINUM

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**Emanuel Vlček**

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## Preface

Dear readers,

There are only two institutions founded by the Holy Roman Emperor and King of Bohemia Charles IV, that have survived until today, namely the Prague Archbishopric and Charles University. Our *Alma Mater* holds its founder in high esteem and therefore, on the occasion of the 700<sup>th</sup> anniversary of his birth, it has prepared a number of publications, scientific conferences, exhibitions and other events to commemorate and pay tribute to this outstanding personality. Charles IV has been the focus of research of many historians, philosophers, lawyers, art historians, as well as medical scholars.

On the occasion of the 600<sup>th</sup> anniversary of the death of Charles IV in 1978, Professor Emanuel Vlček, MD, DSc conducted research of the skeletal remains of the *Pater patriae*, which brought a number of surprising findings, important to a whole range of scientific disciplines at our University, and cast light on significant events in Charles' life as well as on the cause of his death. The research has presented this prominent ruler as a human being, an ordinary mortal, suffering from many injuries and chronic diseases with which he was coping with indefatigable will, keeping in mind his commitments to God and Kingdom of Bohemia. It may be that all the pain and suffering also influenced his spirituality and his efforts to find salvation by attempting to realize his concept of the supreme being (*Imitatio Christi*).

The results of the research by Professor Vlček have been repeatedly published, but until now we have had no representative publication in English. The forthcoming celebrations of the 700<sup>th</sup> anniversary of Charles' birth offer an opportunity to fill this gap.

Tomáš Zima  
Rector of Charles University



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**Physical and personality traits of Charles IV,  
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The last inspection and examination of the remains of Charles IV (14 May 1316 – 29 November 1378) was undertaken in 1978, on the occasion of 600<sup>th</sup> anniversary of his death. On 6 December 1976, the staff of the specialized department of the National Museum, in cooperation with the Department for the Care of Historic Monuments of the Office of the President of the former Czechoslovakia, removed the coffin, containing the monarch's remains, from the sarcophagus in the royal crypt. On 13 December 1976, the remains were inspected by an expert commission and made available to Emanuel Vlček for further conservation and medical-anthropological investigation.

Following their conservation, the remains were documented and clinically examined. The bone tissue was examined serologically for group characteristics of the ABO blood group system in the Institute of Forensic Medicine and Toxicology, 1<sup>st</sup> Faculty of Medicine, Charles University and General Teaching Hospital in Prague (Professor J. Tesař, MD). Facilities for radiological examination of the skeletal remains were provided by the Department of Radiology of the General Teaching Hospital, Prague (Professor A. Sehr, MD), the Department of Neurology of the General Teaching Hospital, Prague (Professor J. Jirout, MD) and the Department of Paediatric Stomatology of the Faculty of Paediatric Medicine, Charles University, Prague (Professor J. Komínek, MD). The research was supplemented with radiographic cephalometric analysis of the Emperor's maxillofacial skeleton at the Department of Plastic Surgery of 3<sup>rd</sup> Faculty of Medicine, Charles University, Prague (Assoc. Professor Z. Šmahel, RND).

In order to obtain an objective picture of Charles' physical characteristics, his appearance, state of health and the cause of his death, the pathological findings identified on his skeleton, including evidence of trauma, were presented to a panel of leading Czech experts – see Appendix 1.

Fragmentary information about the physical appearance of the ruler was supplemented and amplified by matching the findings and results of the investigation with evidence from contemporary chronicles and other historical accounts and sources. The skeleton of Charles IV was found to be wrapped in colourful fabric, with a design of doves on it, and in a white silk shroud. The skeleton, which was very well-preserved, had been laid out roughly in the anatomical position, with a 324 × 180 × 57 mm sponge (*Euspongia officinalis* L. [V. Pflégl, National Museum, Prague]) on the tibiae.

The bone tissue was of light ochre colour with dark ochre spots. The bones were almost intact. Certain bones were missing as a result of the previous exhumations. In addition, to a well-preserved skeleton, the remains included slightly damaged ossified cartilage of the larynx, namely the thyroid and cricoid cartilages and the hyoid bone. All bones were examined in terms of both comparative anatomy and the presence of any pathological changes.

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## Demographic data

According to the available chronological data of the King (1316–1378) we know that he died at the age of 62 years. A well-preserved and complete skeleton proves clearly the male sex, classified into the “Mature and Senile” age group (60–70 years) at the time of his death. Therefore, it was not necessary to use the Gustafson’s histological method, modified by Kilian, to estimate the age and the original teeth were spared the grinding that would otherwise have been required. The age around 60 years was confirmed also by the degree of ossification on the thyroid cartilage.

### HEREDITARY SIGNS ON THE SKELETON

The skull, cervical spine and the sacrum show distinct genetic traits, linking Charles IV and his father, John of Luxembourg, with other members of the dynasty, including:

1. frontal flattening of the alveolar wall of the maxilla above the upper incisors, delimited by the upper canines;
2. a marked discrepancy in the size of transverse foramina of 6<sup>th</sup> cervical vertebra (C 6). The left foramen is by 70% smaller than the right one (Fig. 1);
3. a split of 1<sup>st</sup> sacral vertebra (S 1). In Charles IV the split can be seen as a narrow gap;
4. incomplete closure of the posterior elements of the spinal canal between S3 and S5, so-called spina bifida occulta.

Identical development of these anatomical variants, even of the same laterality and degree, was found in the Charles’ father, John of Luxembourg, his son Wenceslas IV, nephew Procopius of Luxembourg and even in the 5<sup>th</sup> generation of this dynasty, namely in King Ladislav the Posthumous. Only in John of Luxembourg was it impossible to identify the first-mentioned trait due to this part of his facial skeleton being missing.

### THE APPEARANCE OF CHARLES IV

The excellent condition of the skull allowed a reliable reconstruction of the basic shape of the facial profile and its comparison with the available iconography. In addition, the skull was superimposed over Charles’ best profile portrait in the wall

painting in the Church of Our Lady at Karlštejn Castle. Superimposition proved full anatomical consistency between the skull and the portrait and, consequently, the authenticity of the skull also from this viewpoint.

### **BLOOD GROUP SEROLOGY TESTS**

Serological blood group characteristics of the ABO system were determined in Charles IV, using bone tissue from the ribs, and were classified as group 00. Apparently he inherited his blood group from his mother Elizabeth of the Bohemian Přemyslid dynasty (Elizabeth of Bohemia). His father, John of Luxembourg, had the group A0, similarly to Charles' sister Elizabeth of Luxembourg.

Blood group characteristics of the royal couple and the examined children were as follows: John of Luxembourg A0, Elizabeth of Bohemia 00, son Charles IV 00 and daughter Elizabeth of Luxembourg A0.

It may be concluded that nothing has been found that would question authenticity of the skeletal remains of Charles IV.

### **EMBALMING OF THE BODY OF CHARLES IV**

The skeletal remains of Charles IV were extremely well preserved, no doubt, at least in part, because of skilled embalming of the body and its respectful treatment in the royal crypt at all times. The body of Charles IV was embalmed immediately after his death. Evidence of embalming:

1. Traces of opening the chest along the midline, as evidenced by the split sternum. The autopsy incision was made from the left sternoclavicular joint, along the left margin of the manubrium sterni, over the left third of the body of the sternum as far as its articulation with the xiphoid process, which was missing. This incision was made with great force and with a sharp instrument. The sternum showed no signs of re-closure of the thorax after removal of thoracic organs. Hence, we may conclude that the chest was closed simply by suturing the subcutaneous tissues and the skin. We have no information how deep the autopsy incision was made into the abdominal cavity.

2. The finding of a large sponge that was originally inserted into the body cavities and could absorb up to three litres of embalming oil.

3. Descriptions of the mummy of Charles IV, its good condition and gradual decay, as mentioned above. These findings and reports provide sufficient information about the procedure used to mummify the cadaver. The skull had not been opened and the brain not removed.

The viscera were removed from the thoracic and abdominal cavities through a longitudinal autopsy incision starting at the level of the sternoclavicular joint. The sternum was split lengthwise in the manner customary in medieval times for "removing the heart". The body cavities were packed with herbal fillings and