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From Tuscany to Vienna: Paolo Mascagni's anatomic models in the Josephinum

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Summary Paolo Mascagni (Pisa 1755–Siena 1815) was one of the major members of the cultural and scientific community in Tuscany in the XIX century. After initial interest in geological investigations, he successfully turned his attention to medical sciences. In 1801, Mascagni was appointed as Professor of Anatomy at the University of Pisa, with additional charge of Lecturer at the Hospital of Santa Maria Nuova in Florence. Within his teaching activity he also designed several anatomic drawings which were employed for wax models of human organs. Such models, which are still visible in the La Specola museum in Florence, were so appreciated for their accuracy, that the curators of the Viennese Josephinum requested copies of them for teaching purposes. The current paper explores the relationship between Mascagni and the Josephinum, and aims to point out the importance of the Italian contribution to the education of the students of the Viennese Medical University.

Keywords Anatomic drawing · Wax model · La Specola · Viennese Medical School · Enlightenment

Von der Toskana nach Wien: Paolo Mascagnis anatomische Modelle im Josephinum

Zusammenfassung Paolo Mascagni (Pisa 1755 – Siena 1815) war eines der wichtigsten Mitglieder der kulturellen und wissenschaftlichen Gemeinschaft in der Toskana im 19. Jahrhundert. Zuerst beschäftigte er sich mit geologischen Untersuchungen, aber bald widmete er sich mit Erfolg der medizinischen Wissenschaft. Im Jahr 1801 bekam er eine Stelle an der Universität Pisa als Professor für Anatomie; gleichzeitig war er als Lehrer am Spital Santa Maria Nuova in Florenz tätig. Innerhalb seiner Aktivität als Lehrer zeichnete er verschiedene anatomische Skizzen, die nachher auch als Beispiele für anatomische Wachsmodelle benutzt wurden. Kopien dieser Modelle, die heutzutage noch im Museum La Specola in Florenz gelagert sind, wurden auch von den Kuratoren des Josephinums in Wien zu Unterrichtszwecken angefordert. Im vorliegenden Artikel wird die Beziehung zwischen Mascagni und den Mitgliedern des Josephinums untersucht; Ziel dessen ist es, auf die Bedeutung des italienischen Beitrags zur Ausbildung der Studenten an der Wiener medizinischen Fakultät hinzuweisen.

Schlüsselwörter Anatomische Zeichnungen · Wachsmodelle · La Specola · Wiener medizinische Schule · Aufklärung

Introduction

The Josephinum is one of the most important examples of neoclassical architecture in Austria. Founded on November 7, 1785, as a medico-surgical military academy, today it is part of the Medical University of Vienna. As one of Emperor Joseph II greatest legacies, its original purpose was to train future doctors and midwives for civil and military service. Today, the Josephinum houses a world-renowned anatomical wax model collection as well as collections of historic medical instruments, pictures and manuscripts from the 15th to 18th centuries.

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From La Specola to the Josephinum

In 1780, Emperor Joseph II of Austria (1741–1790) visited the La Specola museum in Florence in the company of his personal adviser, Giovanni Alessandro Brambilla (1728–1800).

The museum was inaugurated five years earlier, on February 21, 1775, and was the first of its kind to welcome a collection of anatomical wax models open to the public (six rooms exhibiting 137 showcases containing 486 models, together with 200 drawings in colour with numbered lines and 157 explanatory hand-written sheets). Wax models were created in a workshop on the site of the museum, under the responsibility of Abbot Felice Fontana (1730–1805)—the museum's first director—and by a succession of brilliant modellers such as Giuseppe Ferrini (?–1781), Clemente Susini (1754–1814) and Francesco Calenzuoli (1769–1847) until 1893, when, with the death of Egisto Tortori (1829–1893), the workshop ended its production. The Emperor's intent was to instruct trainee surgeons, as they had poor knowledge of internal organs' anatomy.

Having fallen in love with the museum during his trip to Florence, the Emperor of Austria requested such a large number of models that his younger brother Peter Leopold, the Grand Duke of Tuscany, prohibited the order: he was afraid that this could interfere with La Specola's activity. Therefore, the request was then taken on by Fontana himself, who set up a second studio at his home, hiring many workers. He was aided by Clemente Susini as modeller, and by Paolo Mascagni (1755–1815) as supervisor for the project. As for curiosity, not only did Susini participate in the creation of the Viennese wax sculptures, but he also corrected some of the mistakes that Mascagni imposed on models on purpose, in order to differentiate his preparations from the Dutch anatomist Bernard Sigfrid Weiss (1697–1770), most famously known with the Latin name Albinus. From 1784 to the autumn of 1788, 1192 wax models were crafted and transported to Vienna by several journeys through Italy and over the Alps [1]. Most of the models were made from casts already stored at La Specola; a small proportion (about 150 models) were instead made from original casts. Although the Viennese collection looked even more impressive than that of La Specola, the pressure under which the modellers had to work was so high that some models resulted with lower quality than the originals [2]. In addition, the hard climate of Vienna unfortunately ruined many models, which had to be repaired. The models were placed inside the Caesareo-Regia medico-chirurgica Academia Josephina, today known as the Josephinum, inaugurated on November 7, 1785, by Giovanni Alessandro Brambilla, with an opening address entitled "The pre-eminence and use of surgery".

Paolo Mascagni's activity, famous throughout Europe

Paolo Mascagni was born in Pomarance in the province of Pisa, on January 25, 1755. He graduated in philosophy and medicine in Siena in 1775. His initial interests were chemistry, geology, agriculture and botany, but soon, thanks to his mentor Pietro Tabarrani, he turned his attention to medical sciences, in particular anatomical research [3]. He became interested in the human lymphatic system, discovering, among other things, the confluence of the lymphatic vessels into the thoracic duct. In 1801, the King of Etruria appointed him as Professor of Anatomy at the University of Pisa, which also required him to lecture, twice a week, at the Hospital of Santa Maria Nuova in Florence. In Pisa, at Museo di Anatomia Umana "Filippo Civinini" inside the Institute of Anatomy, Galleria Mascagni collects "le Tavole del Mascagni" (Fig. 1). In this masterpiece, Mascagni meticulously described the lymphatic system. The Museum also exhibits a wax anatomical model where the contribution of Paolo Mascagni was remarkable: indeed, internal organs were masterfully shown with details of blood vasculature and innervation (Fig. 2). The lymphatic system was instead reported in numerous wax samples at La Specola in Florence and at the Anatomy and Obstetrics Museum in the Palazzo Poggi in Bologna: the Venerinae ("little Venuses") represent the most famous example where the mesenteric lymphatics were accurately shown: a sensual model of the body of a young pregnant woman that reveals her internal organs, highlighting the nerves and the lymphatic vessels. Mascagni's research in this field resulted of a publication of a book in 1787, entitled *Vasorum lymphaticorum corporis humani historia et ichnographia*, which made him famous throughout Europe.

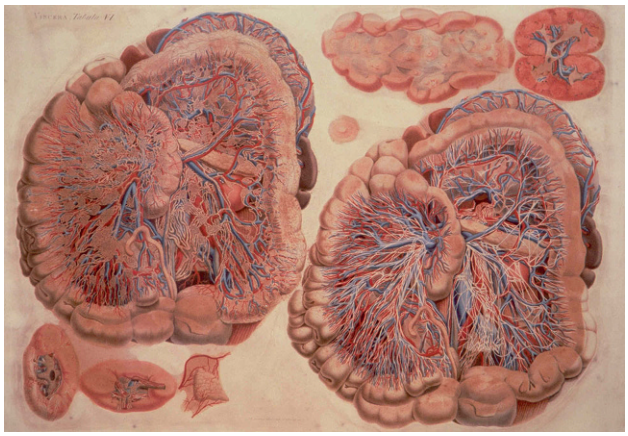

Fig. 1 In Table VI, the blood and lymphatic vasculature of the small intestine, together with its innervation is reported; details of the adrenal gland, the hilus or the sinus of the kidney are also present. Courtesy of Museo di Anatomia Umana "Filippo Civinini", University of Pisa

Fig. 2 The wax anatomical model shows internal organs with details of blood vasculature and innervation of the mediastinal and pelvic cavities. Courtesy of Museo di Anatomia Umana "Filippo Civinini", University of Pisa

Anatomical wax modelling

When Abbot Felice Fontana asked Peter Leopold to found a workshop to produce a large number of anatomical models for teaching purposes in 1771, the Grand Duke was at first quite unreceptive since he was repelled by dissection. However, Fontana persuaded him, suggesting that a complete collection of anatomical models could make cadaveric specimens superfluous. The procedure was complex: the wax model was made from a cadaver, either from plaster moulds of the dissected specimen or from a copy of it executed in rough wax, to which the appropriate mixture of pigments had been added. As to the former case, the inner surface of the mould was covered with translucent wax; then, the plaster cast was removed, leaving the wax model, which was refined by the modellers adding vessels and nerves [4–6]. Most of the models were accompanied by explanatory drawings with indication of the main anatomical structures represented.

The Josephinum today

As to 2019, the Josephinum represents an important interface between medicine, culture and politics. From 2014 to 2018, the museum welcomed six temporary exhibitions and three permanent lecture formats. In 2019, a major interior refurbishment has also begun, with the aim of preserving the museum's historical heritage in a modern and attractive guise. At present, six rooms on the first floor of the museum host the anatomical wax model collection, which includes 365 showcases containing 867 models of which 16 are entire human figures [2, 7]. The renovation contemplates reconstructing the exhibition rooms of the anatomical wax models to resemble the original conditions. Particular attention will be paid to the historical amphitheatre that, in the 1950s, was split into multiple rooms and limited to the first floor. In addition, permanent exhibitions on the history of the Viennese Medical School will also be present. Interestingly, the renovation will provide the digitalization of the collections, displaying the museum's content in new and innovative way [8].

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Conflict of interest C. Scatena and A.G. Naccarato declare that they have no competing interests.

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