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For World Anatomy Day: How Many Animals are Present in the Frontispiece of *De Humani Corporis Fabrica*? And their Possible Meaning.

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ABSTRACT: The purpose of the present study was to analyze the frontispiece of Andreas Vesalius' De Humani Corporis Fabrica, examining the editions related to this work and counting the number of animal species different from Homo sapiens sapiens, as well as their possible meaning. It was found that the number of animals depicted ranges between 7 and 9, depending on the edition, a figure that differs from what has been reported by other authors over time. The hypothesis regarding the physiological meaning related to Macaca sylvanus (Barbary macaque) is also challenged, since the work is eminently anatomical rather than physiological.

KEY WORDS: Anatomy; History.

INTRODUCTION

Andreas Vesalius (1514–1564) completed his masterpiece, De humani corporis fabrica libri septem, in the summer of 1542, basing it on his anatomical knowledge derived from Galen of Pergamon (129–216) and on the evidence obtained from his numerous dissections, through which he was able to demonstrate that Galen had never dissected a human cadaver. Once the writing was completed and the illustration blocks were nearly ready to be sent from Venice to his printer, Johannes Oporinus (1507–1568) in Basel, Vesalius departed in order to supervise the printing of his masterwork (Moores Ball, 1910; Nutton, 2012).

The first page of this work is adorned with a large and lively woodcut in which, on the frontispiece, a figure dressed in a professor's toga is seen standing before a lectern, pointing to the secrets of the human body, acting simultaneously as professor, demonstrator, and prosector, teaching from the cadaver rather than from the book, thus manifesting the educational reform (Fisch, 1943). The rows of benches surrounding the demonstration table are filled with a variety of characters: some leaning forward, straining to see, and others even climbing the railings, from which they look down with faces showing a striking array of expressions, astonishment, interest, and curiosity (Fly, 1915).

At the General Assembly of the 19th Congress of the International Federation of Associations of Anatomists (IFAA), held in London in 2019, it was decided to declare October 15 of each year as World Anatomy Day. Vesalius' contributions were thus recognized, and the anniversary of his death, October 15, was chosen to ensure that the legacy of this fundamental science continues to be celebrated worldwide through various events (Turamanlar, 2025). In this context, we present this work, which in part safeguards the preservation and transmission of valuable traditions essential for future generations seeking to deepen their understanding of the past and present of this area of human

morphology, as a fundamental responsibility of all researchers and educators in macroscopic anatomy around the world.

The aim of the present work is to analyze the frontispiece of Vesalius' editions of Humani corporis fabrica and to determine the number of animals depicted in it, as well as their possible meaning.

MATERIAL AND METHOD

The frontispieces of Andreas Vesalius' De Humani corporis fabrica in its two editions, as well as a colored version of the Epitome, were evaluated in order to analyze the number of animals depicted in this part of the work and to explore their possible meaning.

RESULTS

The engraver of the frontispiece plate of Vesalius' 1543 work was very likely Jan Stephen van Calcar (1499–ca. 1550), perhaps working under Vesalius' direction. In this engraving, animals are represented: in the lower right corner, a dog, and in the lower left, a chained monkey with its handler (Kusukawa, 2024) (Fig. 1), which various authors consider to be the animals of the frontispiece (Chiarello, 2011).

In another frontispiece of the same work, dated 1555, a goat appears adjacent to the dog (Fig. 2).

Additionally, it should be noted that the coat of arms includes three weasels and two intriguing mythological creatures placed side by side, reminiscent of the chimeras situated on the façade of Notre Dame in Paris (Meneghini & Meneghini, 2020). Above one of these chimeras, in a small panel, the face of a bear is depicted.

DISCUSSION

An impression produced by the frontispiece of De Humani corporis fabrica by Andreas Vesalius (1514–1564) may lead us to an interpretation of its implicit anatomical message:

Fig. 1. Frontispiece of the 1543 edition of Humani corporis fabrica. Green circle: three weasels; red circle: a dog; blue circle: a monkey.

Fig. 2. Frontispiece of the 1555 edition of Humani corporis fabrica. Blue circle: three weasels; red circle: a goat and a dog; green circle: a monkey; black circle: the face of abear; violet circle: two chimeras.

to whom is this work especially addressed? This question arises from the multitude of people, animals, and various objects crowded around a partially dissected female cadaver (McCall, 2023), in which the uterus is prominently displayed (Margócsy *et al*., 2018). Perhaps the Fabrica was not primarily an anatomy manual intended for physicians, but for individuals interested in understanding what their human body is and how it is constituted (Laín Entralgo, 1948), especially in view of the limitations imposed during that period and in preceding centuries (Duque Parra, 2025). This is reinforced by the observation in the frontispiece that some spectators crawl, while others seem to climb the walls in desperation, striving to witness the human dissection.

It has been proposed that the presence of animals relates to Galen and the errors derived from dissecting only non-human species and extrapolating that knowledge to Homo sapiens sapiens (Chiarello, 2011).

This frontispiece was published in 1543 (Chiarello, 2011) (Fig. 1), but several additional frontispieces exist, since the work appeared in two editions. The second edition was published in Basel in 1555, although little is known about Vesalius' activities while implementing hundreds of changes to this edition, most of them stylistic, altering Latin terms while preserving the general anatomical meaning. Changes in plates were also introduced to improve clarity or correct errors by the original engraver. There is little new anatomical mate-

rial, although Vesalius continued reflecting on his earlier discoveries (Nutton, 2012).

Another version, the Epitome with a colored frontispiece (Margócsy *et al*., 2018), reflects the same characteristics as the first edition. It should be noted that in the 21st century it became clear that Vesalius had been preparing a third edition of the Fabrica, although this work was never published (Nutton, 2012). Therefore, essentially three books exist that present a frontispiece (Chiarello, 2011) highly similar to each other, with some associated modifications in the animals depicted. Among these, authors cite: a dog (Canis lupus familiaris) occupying the lowest position, possibly not by chance, and a monkey biting its handler's hand (Meneghini & Meneghini, 2020). However, in the frontispiece of the Epitome (Fig. 3), the monkey no longer appears to be biting the hand. The monkey occupies an intermediate position relative to the human cadaver, not to suggest an evolutionary sequence, but rather a scientific observation: the morphology of the monkey more closely resembles that of the human than the morphology of the dog (Álvarez San Martín & Ramírez de Aguilar, 2024).

Fig. 3. Hand-colored frontispiece of the Epitome (1543), a copy that belonged to Alexander Macalister (1844–1919), second Professor of Anatomy at Cambridge. In this version, the monkey is not biting the hand of its handler, an aspect of uncertain meaning.

For some authors, the monkey, presumably Macaca sylvanus, symbolizes the material of the ancient method of studying anatomy through animal dissection, as Galen did (Chiarello, 2011) using the Barbary macaque (Campohermoso-Rodrigues *et al*., 2023). It has been suggested that this species appears in the lower left portion beneath the cadaver as scientific evidence that its physiology resembles that of the human more closely than that of the dog (Campohermoso-Rodrigues *et al*., 2023). This interpretation is problematic, however, since comparative physiology as a discipline began only with Clifford Ladd Prosser (1907–2002), founder of modern comparative physiology, who articulated the nature and objectives of comparative physiology and biochemistry (Greenberg *et al*., 1975). Moreover, at that time Jean François Fernel (1497–1558) wrote the first systematic treatises on physiology and coined the term itself. For Fernel, Vesalius' teacher, physiology was based on observation and description rather than experimentation. The experimental tradition in physiology began later, with the publication by William Harvey (1578–1657) demonstrating the circulation of blood in 1628, introducing physiology as a mechanism rather than

as mere structural description. Thus, Fernel was more accurately a skilled anatomist (Fye, 1997).

In the 1555 edition, a new animal appears: a goat (Capra hircus) adjacent to the dog. Its meaning remains uncertain, perhaps intended as another species to accentuate anatomical differences with the human being. For this reason, the 1555 edition of the Fabrica is not simply a reprint of the earlier edition but rather an exhaustive reworking of the previous text, notable for its frontispiece, which shows some differences from the earlier version (Margócsy *et al*., 2018), such as the addition of the aforementioned goat.

Beyond these animals, the editions also include, in the coat of arms of Vesalius located at the top of the frontispiece, three weasels (Mustela nivalis). These animals allude to the surname of Vesalius and to the German city of Wesel, in the Duchy of Cleves; the family's original surname was Wittings. The name Wesele or Wessale was adopted and, over time, evolved into Vesale or Vesalius (Life and writings of Vesalius, 1861), from which his ancestors originated. Thus, the original family name of Vesalius is Wesel or Wessel (Álvarez San Martín & Ramírez de Aguilar, 2024), and their Germanic lineage, the Witing of Wesel (Laín Entralgo, 1948), means "weasel" (Álvarez San Martín & Ramírez de Aguilar, 2024).

Vesalius' birth name was Andries van Wesel, later Latinized, as was customary among scientists and scholars of the time (Afshar *et al*., 2019). In the case of Vesalius, over the 511 years since his birth, his work continues to convey powerful messages, especially to modern physicians and anatomists, urging them to challenge rather than blindly follow what is generally accepted by authorities, demonstrating that the most important characteristic of an educational program is its capacity for constant development, enriched by cutting-edge research (Strkalj, 2014) in the field of human morphology.

Finally, the frontispiece includes two mythological animals placed next to each other, reminiscent of the chimeras on the façade of Notre Dame in Paris (Meneghini & Meneghini, 2020). Above one of them appears the face of a bear-like creature resembling Ursus arctus arctus, native to that region of Europe, perhaps another species connected to non-human anatomy, as animals of this kind may have been dissected during Vesalius' time for teaching macroscopic anatomy.

CONCLUSION

There are between 8 and 9 animals, depending on the edition of the book, depicted in the frontispieces of Vesalius' work: a dog, a goat, a monkey, three weasels, two mythological chimeras, and the face of a bear. The number varies because there were two published editions and a third attempted edition that was never completed. This masterpiece set the path for research and deep exploration of the structure and function of the human body as applied to health. The proposed physiological comparison between the monkey and the human does not apply, as Vesalius' works are fundamentally macroscopic anatomy treatises.

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