

Michelangelo's art on the Sistine Chapel ceiling: sacred representation or anatomy lessons?

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Abstract

The Renaissance was a period of extensive scientific and cultural production, which occurred between the fourteenth and sixteenth centuries. One of the exponents of this artistic period was the poet, architect, sculptor and painter Michelangelo Buonarroti, who was born and lived in Italy between 1475 and 1564. Among his best known artworks are the frescoes painted on the Sistine Chapel ceiling. Currently, there is discussion if the paintings are only representations made from the sacred guidance of the church at the time, or if there are other meanings hidden in the images. From this context, we analyzed studies that associated the frescoes painted on the Sistine Chapel ceiling with anatomical structures hidden in the images, taking into account their significance, importance, and if these structures are not simply an imaginative interpretation of the researchers. This study was performed aiming to complement the work published by Ellwanger, Mohr and Campos (2012) in this journal.

Keywords: Michelangelo, anatomy, medicine, art.

1 Introduction

Renaissance in Europe was a period of extensive scientific and cultural production, which occurred between the fourteenth and sixteenth centuries. At that time, resurfaced the studies of anatomy from the dissection of corpses, which for more than 1000 years since death of Galen, were no longer performed, largely due to religious aspects. The reasons that allowed the return of the dissections were the need for investigations into the causes of death suspicious, and the aggregation of new human values that have emerged in the period that fostered a greater interest in human body. Thus, from the humanist thought, who wished to represent the human figure, whether in sculpture or painting, should know about human anatomy (GONZÁLEZ, 1998).

One of the exponents of this artistic period was the poet, architect, sculptor and painter Michelangelo Buonarroti, who was born and lived in Italy between 1475 and 1564 (STRAUSS and MARZO-ORTEGA, 2002). Michelangelo was artistically influenced by sculptors, painters and physicians, participated of several dissecting sessions and became a broad knowledge of human anatomy (WOLFFLIN, 1990). This knowledge is demonstrated by the skill which the human figure is represented in his work, showing postures in which the human body represented “is not far from observer” and gain “life” (SCHIDER, 1947).

Among the most famous Buonarroti's artworks, in which you can see the detail size used in the representation of the human figure, are the sculptures “*David*” and “*Moses*”, and the frescoes painted in the Sistine Chapel ceiling (MELO, 1989; MESHBERGER, 1990). These were commissioned by Pope Julius II and painted by Michelangelo between the

years 1508 and 1512. Currently, there is discussion if the paintings are only representations made from the sacred guidance of the church at the time, or if there are other meanings hidden in the images (MESHBERGER, 1990).

This fact arouses the attention of many scholars and researchers from many areas dedicated to the study of the human body, promoting great discussion about the meaning of each work, in historical, religious and scientific aspects (STRAUSS and MARZO-ORTEGA, 2002). This study was performed aiming to complement the work published by Ellwanger, Mohr and Campos (2012) in this journal. Thus, we analyzed studies that associated the frescoes painted on the Sistine Chapel ceiling with anatomical structures hidden in the images, taking into account their significance, importance, and if these structures are not simply an imaginative interpretation of the researchers.

2 Material and methods

In the same way as in study published by Ellwanger, Mohr and Campos (2012), the discussion of this work based principally on a book published in Brazil by Barreto and Oliveira (2004) who addressed the issue extensively, as well as the work performed by Kickhöfel (2004) who criticized the book, available in *SciELO* database (<http://www.scielo.org/php/index.php>). The other articles were accessed from a basic search in *PubMed* (<http://www.ncbi.nlm.nih.gov/pubmed/>) and *Scopus* (<http://www.scopus.com/home.url>) databases using terms like “Michelangelo”, “anatomy” and “medicine”.

3 Results and discussion

The first work found in our research that relates the Michelangelo's artworks with anatomical structures was published in 1990 by Frank Lynn Meshberger in *Journal of the American Medical Association* (MESHBERGER, 1990). In this study the author correlated elements from “*The Creation of Adam*” with structures of the central nervous system. In 2000, the article *Michelangelo: art, anatomy, and the kidney* was published in *Kidney International*, in which the nephrologist Garabed Eknoyan associated the “*The Separation of Water and Land*” with representation of anatomical structures of the renal system (EKNOYAN, 2000).

In 2004, the physician Gilson Barreto and the chemical Marcelo Ganzarolli de Oliveira published in Brazil the book “*A Arte Secreta de Michelangelo – Uma Lição de Anatomia no Teto da Capela Sistina*”. In this book, from the two articles cited above, the authors analyzed 32 scenes in the Sistine Chapel ceiling and correlated some elements of the frescoes with anatomical structures. According to these authors, besides the representation of anatomical structure camouflaged, Michelangelo also provides “clues” about the element in question, building a kind of “game” in which something is hidden and the evidence leads the investigators

to solve the riddle. The following are some of the associations made by Barreto and Oliveira in their book:

3.1 “*The Prophet Daniel*”

In the paint “*The Prophet Daniel*” (Figure 1, frame 1) Michelangelo had intended to represent the patella (Figure 1, frames 2 and 3, a), the upper third of the tibia (Figure 1, frames 2 and 3, b) and tibial tuberosity (Figure 1, frames 2 and 3, c), in the conformation of the mantle on the region of the right Daniel's knee. The painter would also provide clues about its intention to represent these anatomical structures: the left hand, lying on the book, points to the left knee; the left knee of the cherub holding up the book presents bright light; and the figures in the upper part of the work bend sharply the knees.

3.2 “*Asa, Josaphat, Jehoram*”

Shoulder joint would be represented in the work “*Asa, Josaphat, Jehoram*” (Figure 2, frame 1), in which the mantle on the leg of the figure would refer to the scapula (Figure 2, frames 2 and 3, a) and the white bag in which is seated the figure would be the humerus (Figure 2, frames 2 and 3, c). The clues were on the shoulder protruding from the main figure, highlighted with light effect, besides the slaves with his arms behind his shoulders pointing.



Figure 1. (1) “*The Prophet Daniel*”. (2) Detail of the Daniel's knee. (3) Elements of the knee articulation: patella (a), upper third of the tibia (b) and tibial tuberosity (c). Adapted from Barreto and Oliveira (2004).

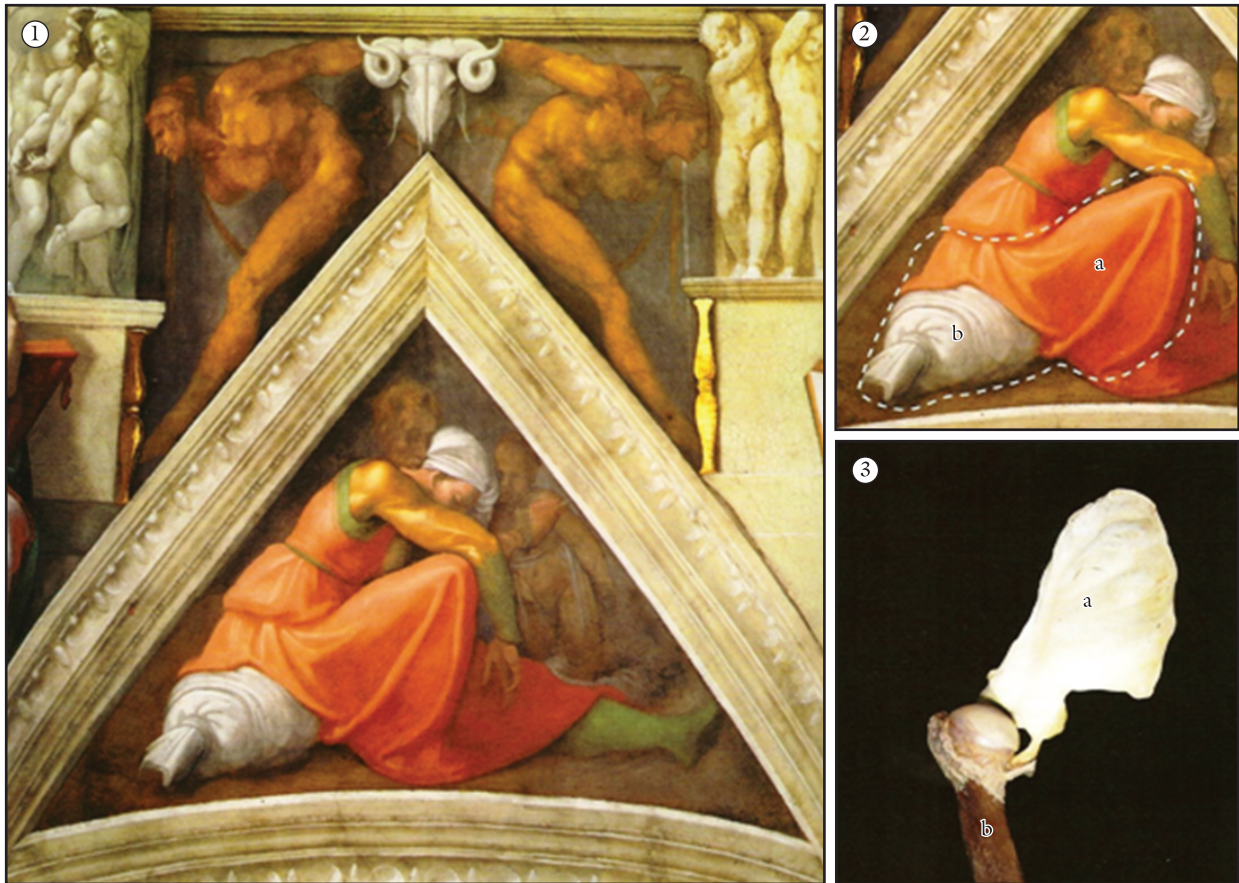


Figure 2. (1) “Asa, Josaphat, Jehoram”. (2) Detail of the “camouflaged” anatomical structure. (3) Shoulder joint: (a) scapula and (b) humerus. Adapted from Barreto and Oliveira (2004).

3.3 “The Cumaean Sibyl”

In the artwork “The Cumaean Sibyl” (Figure 3, frame 1) there are two representations of the heart. In the first, the bag hanging below the book would make reference to the heart, with the superior vena cava (Figure 3, frames 2 and 3, a), aorta (Figure 3, frames 2 and 3, b), and diaphragm (Figure 3, frames 2 and 3, c) inserted into the pericardium. In the second image, there would be a representation of the right (Figure 3, frames 4 and 5, d) and left (Figure 3, frames 4 and 5, e) heart branches of the coronary artery. Moreover, the cherubim could be considered a clue to the artist’s intention: the cherub rests his hand back close to the pre-cordial cherub ahead.

3.4 “Uzziah, Jotham, Abaz”

Michelangelo would have alluded to the kidney in the artwork “Uzziah, Jotham, Abaz” (Figure 4, frame 1). The child’s arm in the center of the figure correspond to the renal hilum (Figure 4, frames 2 and 3, a), the shoulder of the female image to the adrenal (Figure 4, frames 2 and 3, b), and their left hand to the ureter (Figure 4, frames 2 and 3, c). As clues, Barreto and Oliveira (2004) infer the male figure in the background that exposes the back side, the child placing his hand as if to examine the female figure to the right and the slaves on the top like that put their hands on the flanks, and ornamental branches across the region. The bread in the

hand of the female figure could be also a representation of a kidney stone in the excretory pathway.

3.5 “The Original Sin”

In “The Original Sin” (Figure 5, frame 1) Barreto and Oliveira (2004) refer to the figure of a trunk giving off branches in its upper portion, near the Eve’s back, as the representation of the aortic arch with the brachiocephalic trunk in right, common carotid artery and internal and external carotid arteries (Figure 5, frames 2 and 3, a). The rootlets represent the base of the trunk of the coronary arteries. The main tree would be an artistic representation of the neck, showing the jugular vein (Figure 5, frames 2 and 4, b), the carotid artery and its bifurcation (Figure 5, frames 2 and 4, c) and the hypoglossal nerve (Figure 5, frames 2 and 4, d).

According to Eknoyan (2000) in *Michelangelo: art, anatomy, and the kidney* the renal anatomy would be present in another painting by Michelangelo, the “The Separation of Land and Water”, depicted in this painting the kidney, the renal pelvis and ureter. The author associated the Michelangelo’s interest by the kidney image with the development of recurrent urolithiasis in the painter, supporting the association with passages of letters describing the painter’s condition. However, none of the letters is correspondence or predates the period in which Michelangelo made his work on the Sistine Chapel (between 1508 and 1512).

Ellwanger, Mohr and Campos (2012) presented the association that other authors made among the Michelangelo's artworks and some disease. Paluzzi, Belli, Bain et al. (2007) inferred the presence of the representation of a breast carcinoma in the sculpture "The Night", which was also discussed in the study performed by Stark and Nelson (2000). Bondeson and Bondeson (2003) suggested

that the figure of the Creator, represented in the work "The Separation of Light and Darkness" has a multinodular goiter. Others researches (SUK and TAMARGO, 2010), associated the same image with the representation of the brainstem. The exophthalmos would be also represented in one of the human figures painted above the Sistine Chapel altar (POZZILLI, 2003).

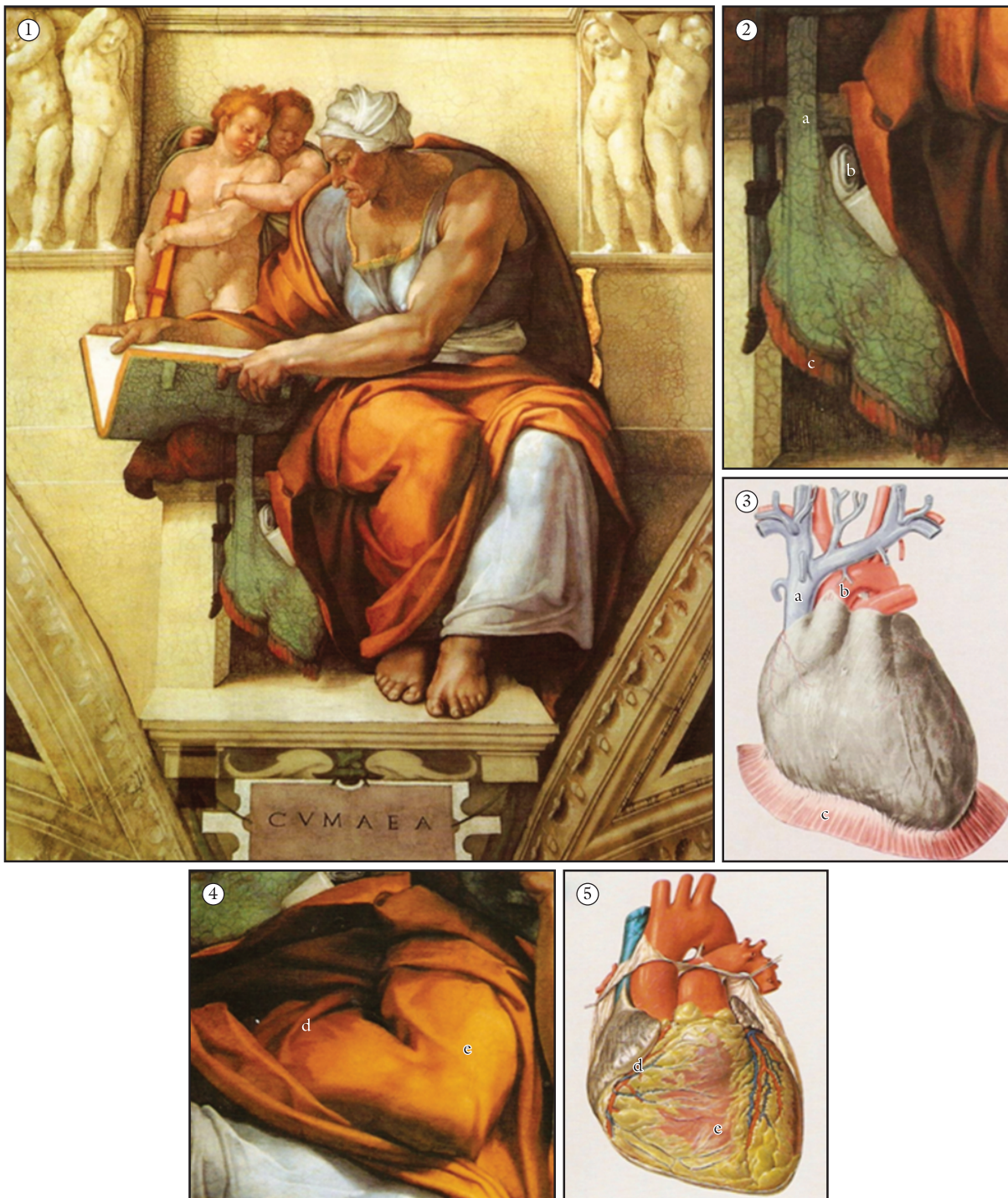


Figure 3. (1) "The Cumaean Sibyl". (2) Detail of the bag hanging below the book. (3) Representation of the pericardium: (a) superior vena cava, (b) aorta and (c) the diaphragm. (4) Details of the mantle on the right thigh of the Sybil. (5) Representation of the heart with the right (d) and left (e) coronaries. Adapted from Barreto and Oliveira (2004).

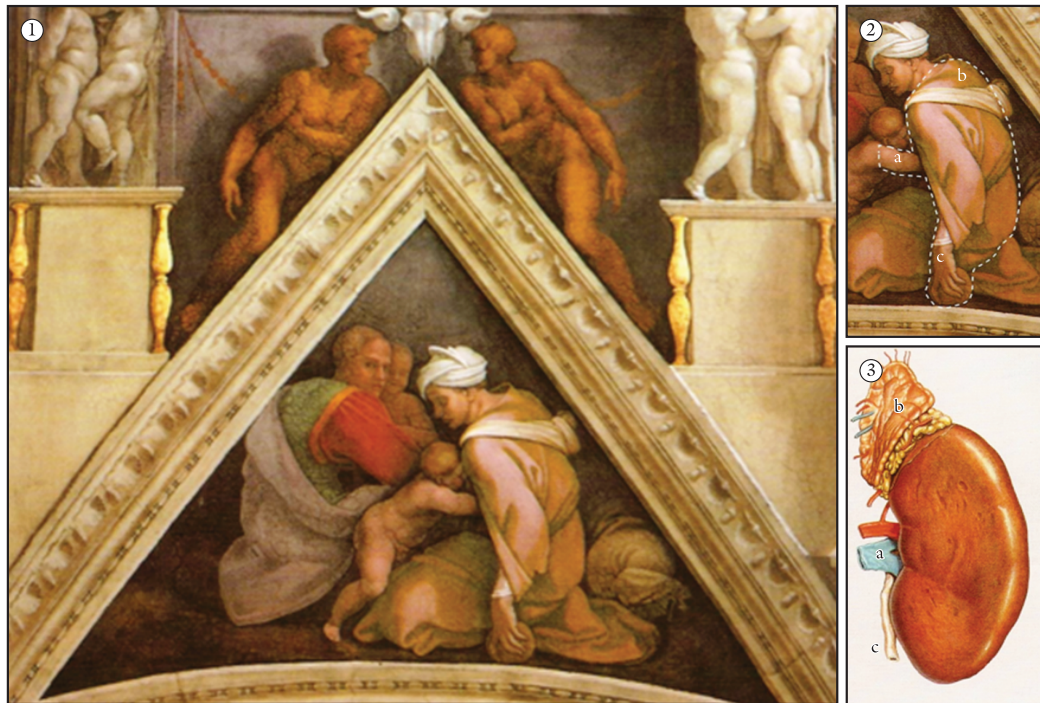


Figure 4. (1) “Uzziah, Jotham, Abaz”. (2) Detail with reference to the left kidney. (3) Left kidney: (a) renal hilum, (b) adrenal and (c) ureter. Adapted from Barreto and Oliveira (2004).

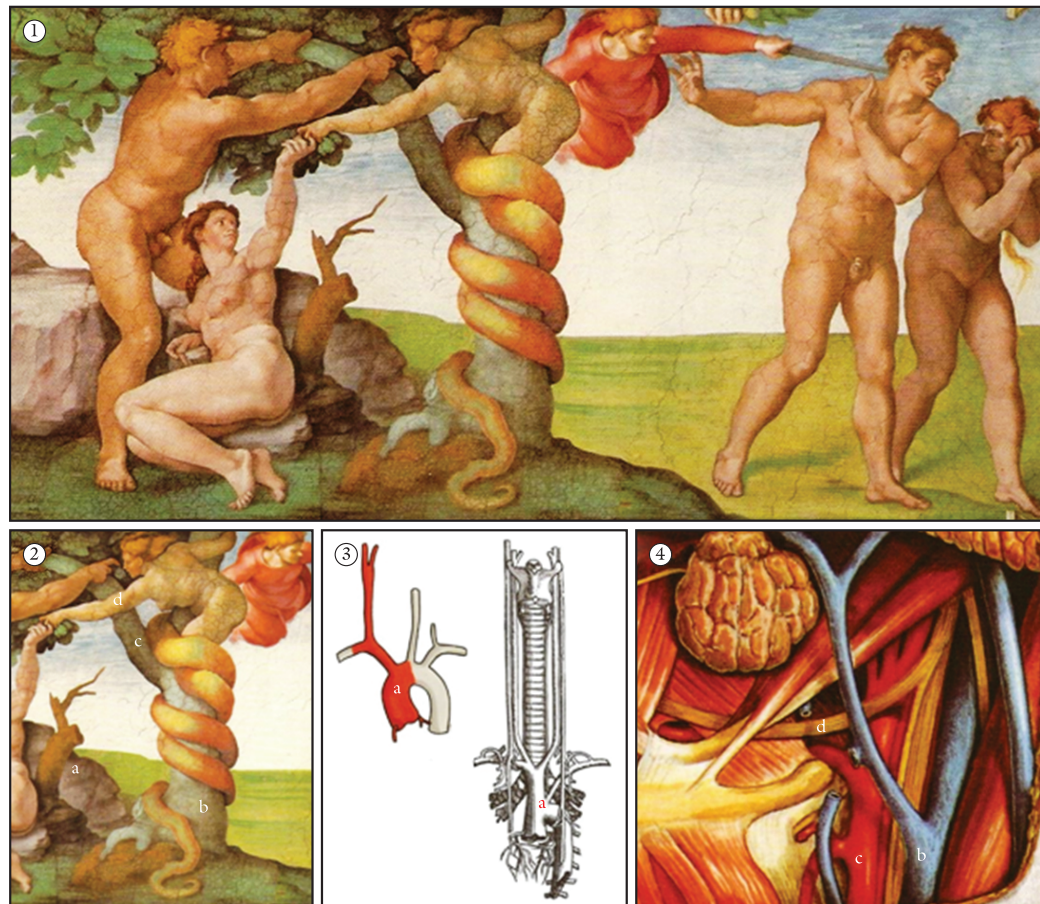


Figure 5. (1) “The Original Sin”. (2) Detail of the main tree. (3) Drawing of the aortic arch: (a) aortic arch with the coronary arteries emerging from the base. (4) Drawing of the cervical region: (b) jugular vein, (c) carotid artery with its bifurcation and (d) hypoglossal nerve. Adapted from Barreto and Oliveira (2004).

By contrast to the associations that Barreto and Oliveira (2004) described about the Michelangelo's artwork and the anatomy, Eduardo Kikhöfel published in 2004 the review "*Uma falsa lição de anatomia ou de um simples caso de impregnação teórica dos fatos*". In the study, Kikhöfel criticizes the book arguing that the authors do not have the academic background necessary to analyze the Michelangelo's paintings, using a lot of theoretical arguments in an attempt to demonstrate the lack of preparation and even naivety that Barreto and Oliveira made the evaluation of the artworks.

Kikhöfel (2004), regarding the code that Barreto and Oliveira (2004) mentioned have deciphered in their book, considers the interpretations arbitrary and unfounded, therefore, taking into consideration the documents available at the time, it do not know any code to allow the artists to paint frescoes in the way as suggested by the authors of the book. It further states that

[...] being the three-dimensional anatomical forms, many, according to the angle of which are seen, both to serve as the interpretations of the authors as many other, according to the good will and creativity of the viewer [...] (KICKHÖFEL, 2004, p. 430).

Regarding the discussion that surrounds the Michelangelo's artworks on the Sistine Chapel ceiling, on one hand we have Barreto and Oliveira (2004), and other authors that associated anatomical structures with Michelangelo's frescoes, on the other hand we have authors like Kikhöfel (2004), who fiercely criticizes how these associations are made.

Barreto and Oliveira (2004), through some excerpts of letters and some historical facts, try to find the reason which led Michelangelo to obscure anatomical pictures through a code in his paintings. Other authors discussed in the present article performed similar associations, seeking the same way, their basis in historical facts and excerpts from letters at the time that Buonarroti lived. Kikhöfel (2004), with a different interpretation from that other authors about the historical facts ends by concluding that the interpretations made by Barreto and Oliveira (2004) depend only on the power of imagination of those who see the images.

From the analysis of exposures in the book of Barreto and Oliveira (2004), for us, researchers of human anatomy, it is difficult do not associate the figures painted on the Sistine Chapel ceiling with anatomical structures. We consider the fact that the tips expressed, not only in some, but in all 32 scenes in which associations were made by the authors. Another important fact to consider is that other authors, also Barreto and Oliveira, as Garabed Eknayan and Frank Lynn Meshberger, also linked to the study of the human body perform similar associations, showing it is not only the imagination of one person or few people about the subject.

The Kikhöfel's argument, that Barreto and Oliveira have no artistic training necessary for the interpretation of the Michelangelo's artworks, may be used to refute his own argument because Kikhöfel has training in philosophy and, not having studied anatomy in the same way that the other authors, thereby it is difficult to have the "same vision" than the other authors mentioned about the paintings.

Finally, regardless of the discussion about the representation or not of the anatomical structures in the paintings of Buonarroti, it is not possible be questioned the beauty and artistic heritage by the artist; even centuries later still raising questions about his work. Moreover, it is also undeniable the perfection that the human figures are portrayed by the painter, showing his great knowledge in human anatomy.

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