

# HISTORICAL ASPECTS ON PULMONARY CIRCULATION BASED IN CONTEMPORANEOUS DATA

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## AIM

Aim of this work is to present a history on pulmonary circulation concerned the contemporaneous data by bringing the relative witnesses, with all due respect to the predecessors ancient physicians from China, Egypt, Greece, Arab speaking lands, Latin speaking lands of Middle Ages and wherever other part.

## MATERIAL

Material of this work is a dissertation of late renaissance, medical articles and textbook of medicine.

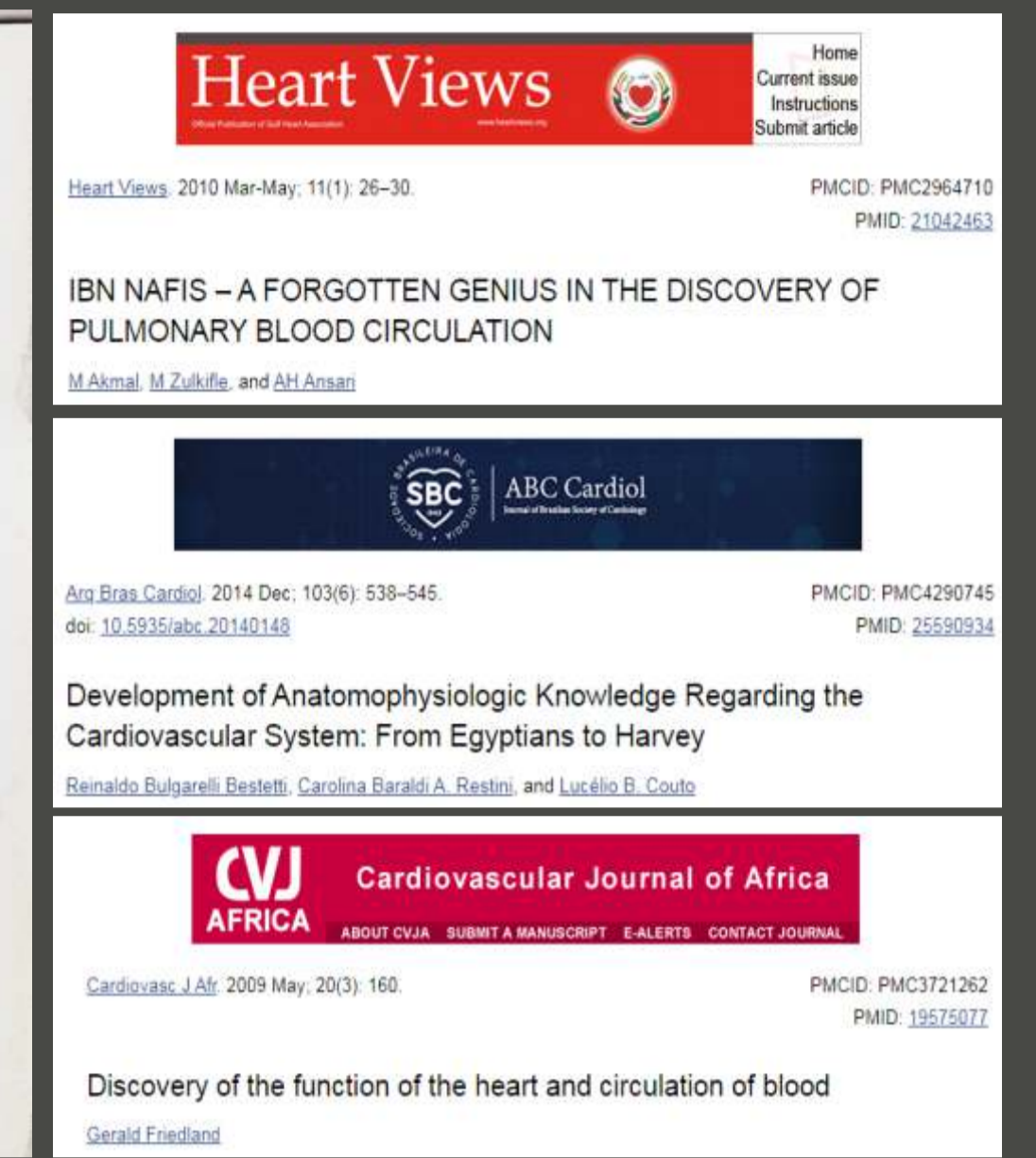
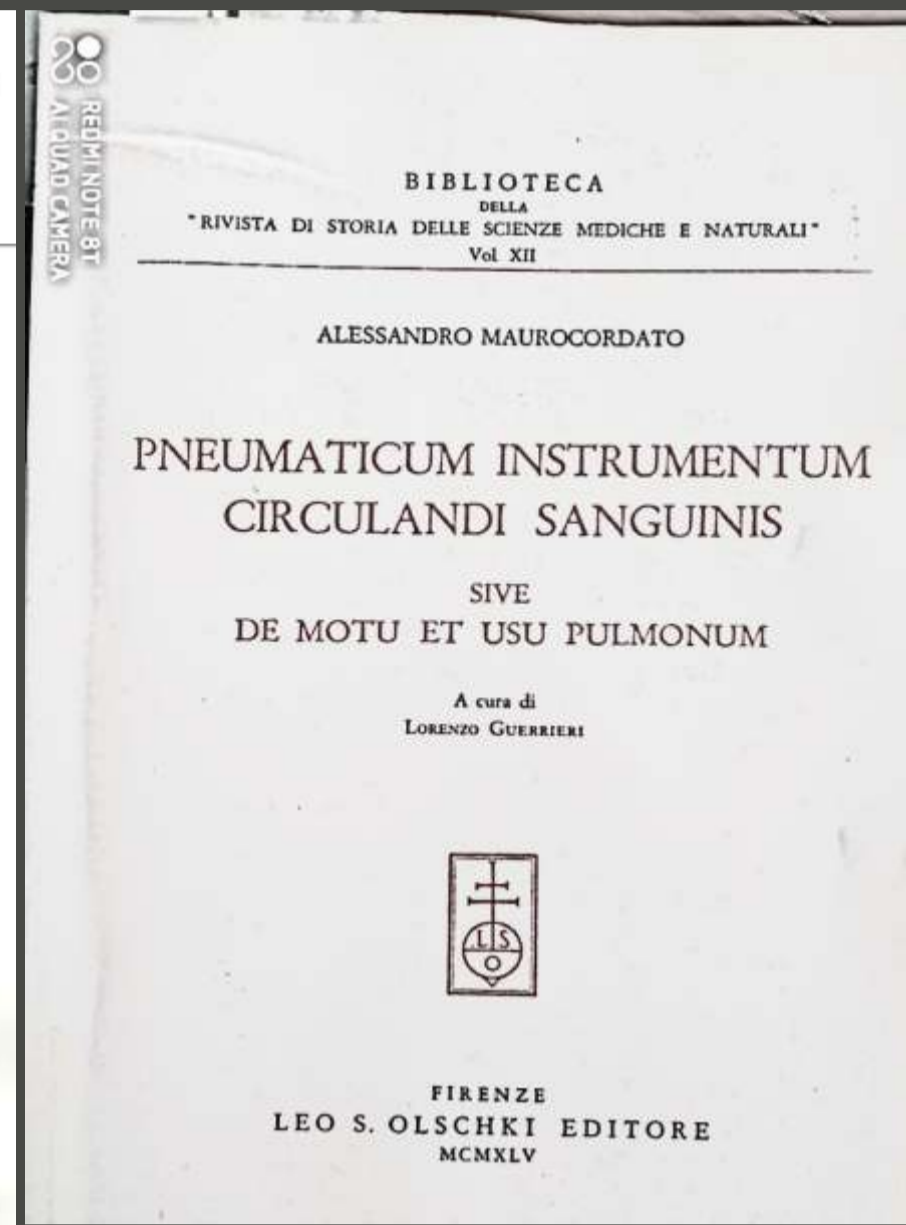
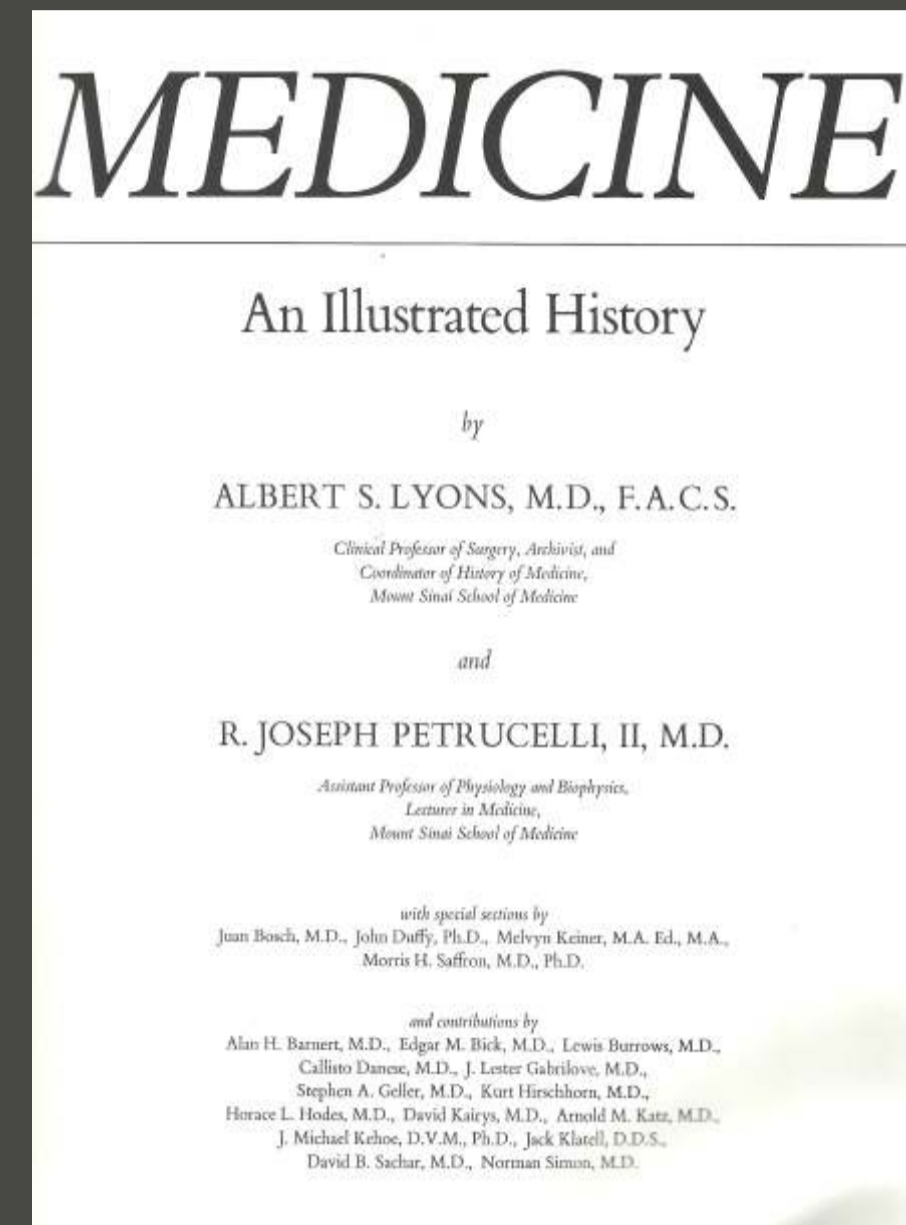
## METHOD

Method is the textual criticism of the accepting to us bibliography.

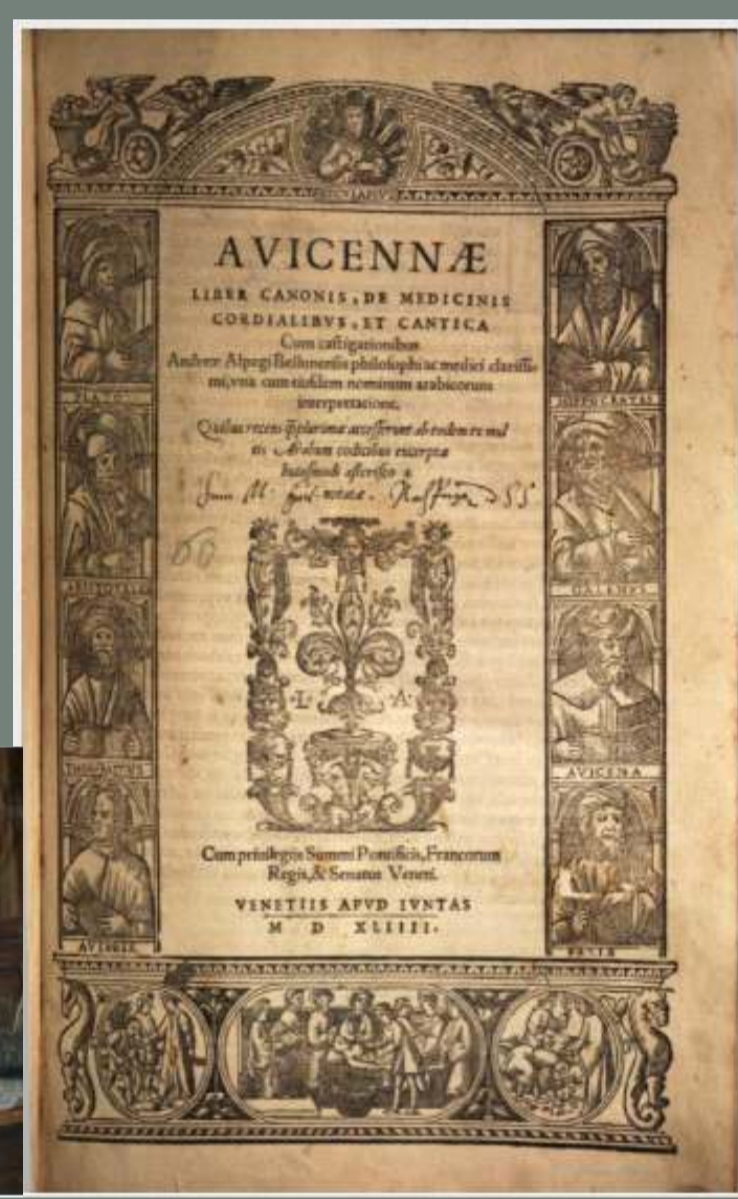
## RESULTS

At first, Ibn Al – Nafis (1215 – 1288 AD), contradicting to Avicenna in his commentary, describes only the right sided pulmonary circulation of the blood, disproving also the existence of pores in the interventricular septum and establishing for first time the term “small circulation”.

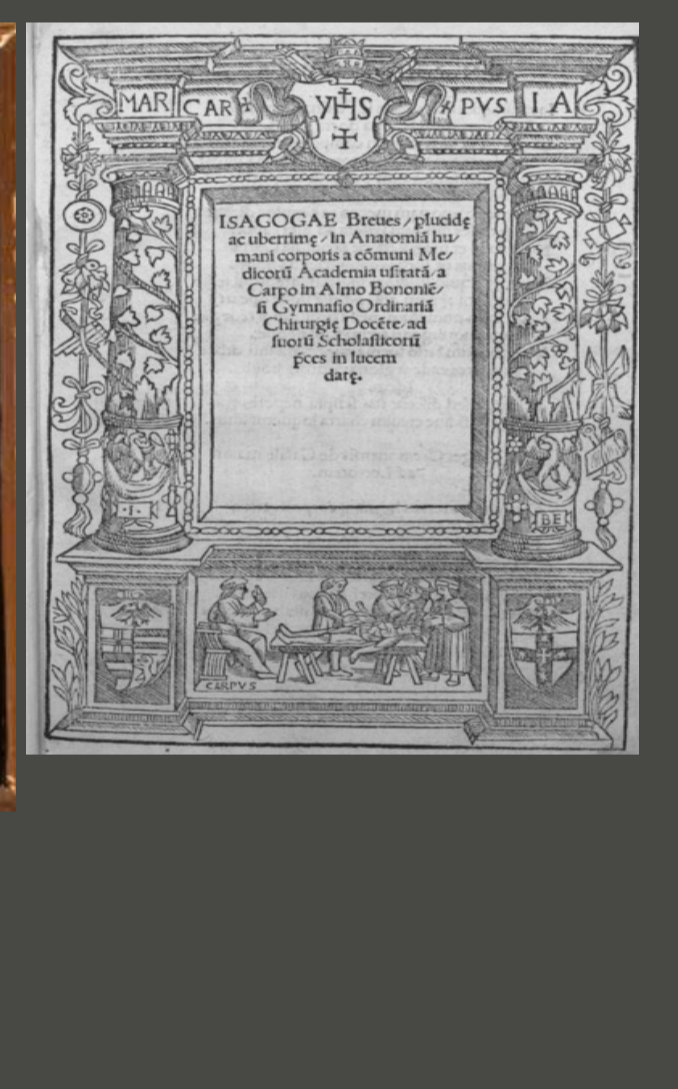
In 1260, Ibn Nafis (1210-1288 AD) commented on Avicenna's works and almost described pulmonary circulation. Although it is probable that Ibn Nafis occasionally performed autopsies on humans<sup>31</sup>, his description seems to be more theoretical rather than practical<sup>32</sup>. Nevertheless, the ethical conviction with which he described the anatomical characteristics of the interventricular septum proves that he really performed anatomical dissections on humans<sup>33</sup>. Therefore, he denied the presence of pores in the interventricular septum in such a way that there was no communication between both ventricles; he also denied the presence of three ventricles<sup>34</sup>. He stressed that blood was transported to the right ventricle; from this cavity, through the pulmonary artery, it reached the lungs; from these organs, through pulmonary veins, it returned to the heart, whence, via the aorta, it was distributed throughout the body. Still under Galen's influence, he believed that the transformation of the vital spirit took place in the left ventricle and was distributed along with blood. In his view, the rest of the body circulation occurred according to Galen's ideas. Ibn Nafis believed that cardiac nutrition was made possible by vessels that permeated the heart body (coronary arteries)<sup>35</sup>.



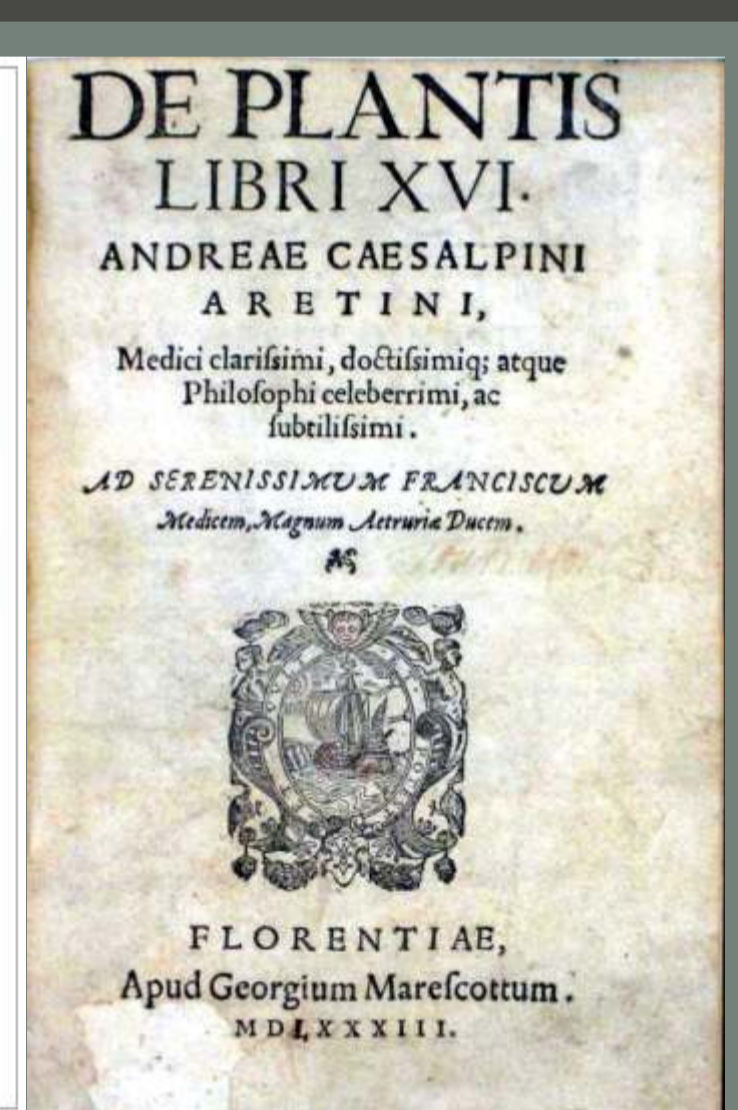
Does not be excluded the translation in latin of Nafis' commentary for pulmonary circulation, by Andrew Alapago and J. Winter v. Andernach' teacher (early 16<sup>th</sup> c. AD), influence the research, due to the idea of modern pulmonary circulation appears in 1546 CE.



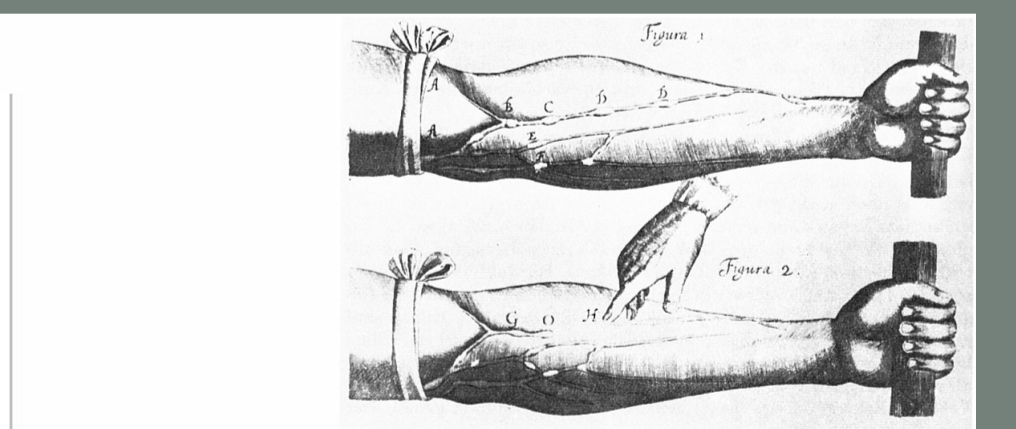
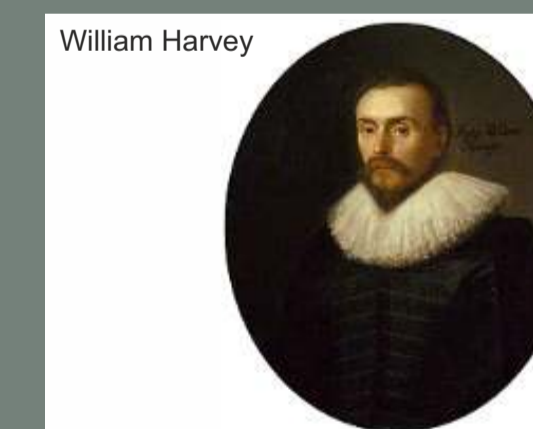
Then, Vesalius (1452 – 1519 CE), excludes pores in the interventricular septum and Jacopo Berengario da Carpi (1470 – 1530 CE) describes the atrioventricular and semilunar valves. Follow, Realdo Colombo di Cremona around 1550 CE who describes the pulmonary circulation;



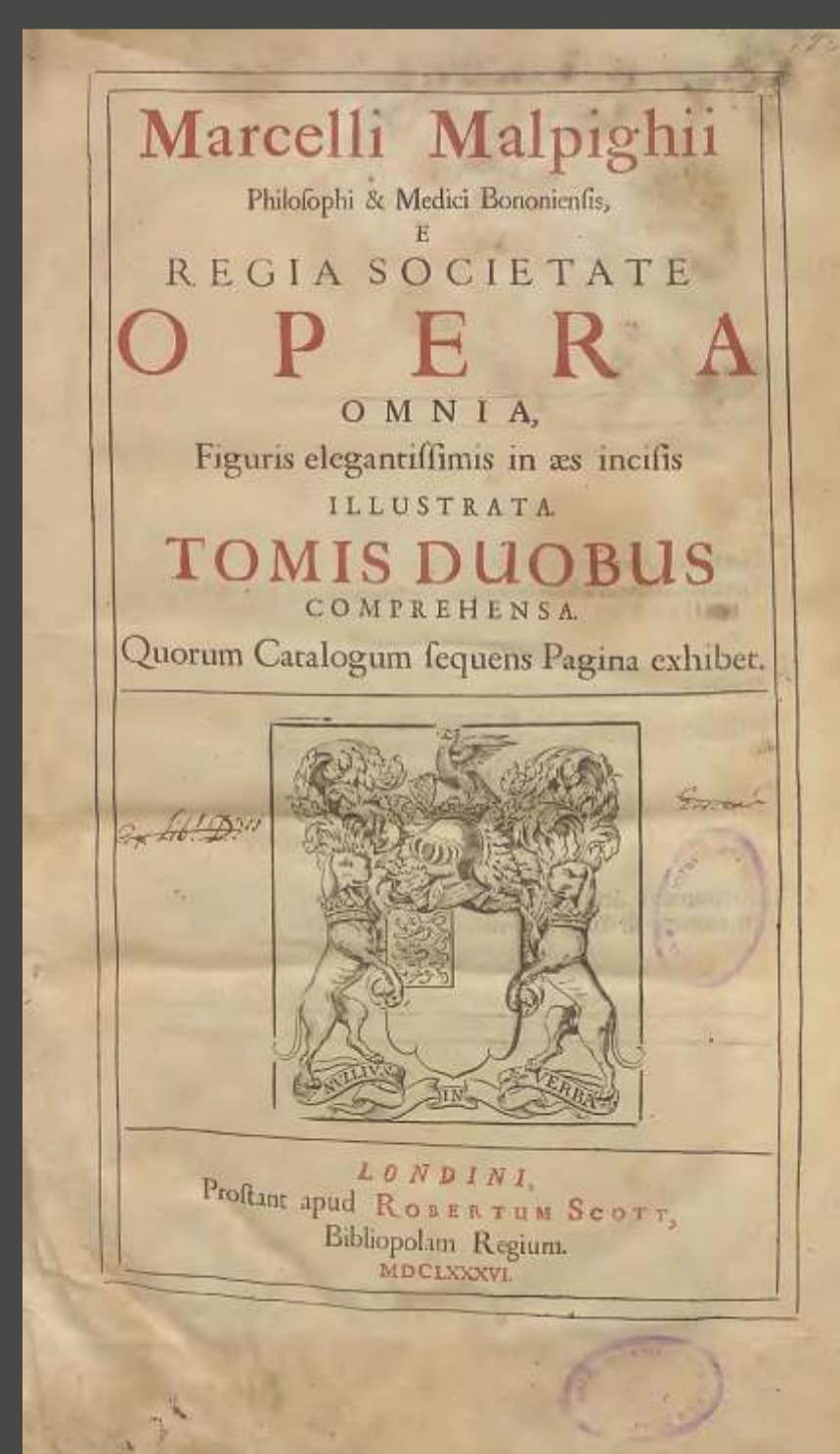
M. Servetus in 1553 CE who denotes the pulmonary circulation; Andrea Cesalpino in 1559 CE describes the pulmonary circulation, using the terms “vena arterialis”, “arteria venalis” and “anastomoses” between them.



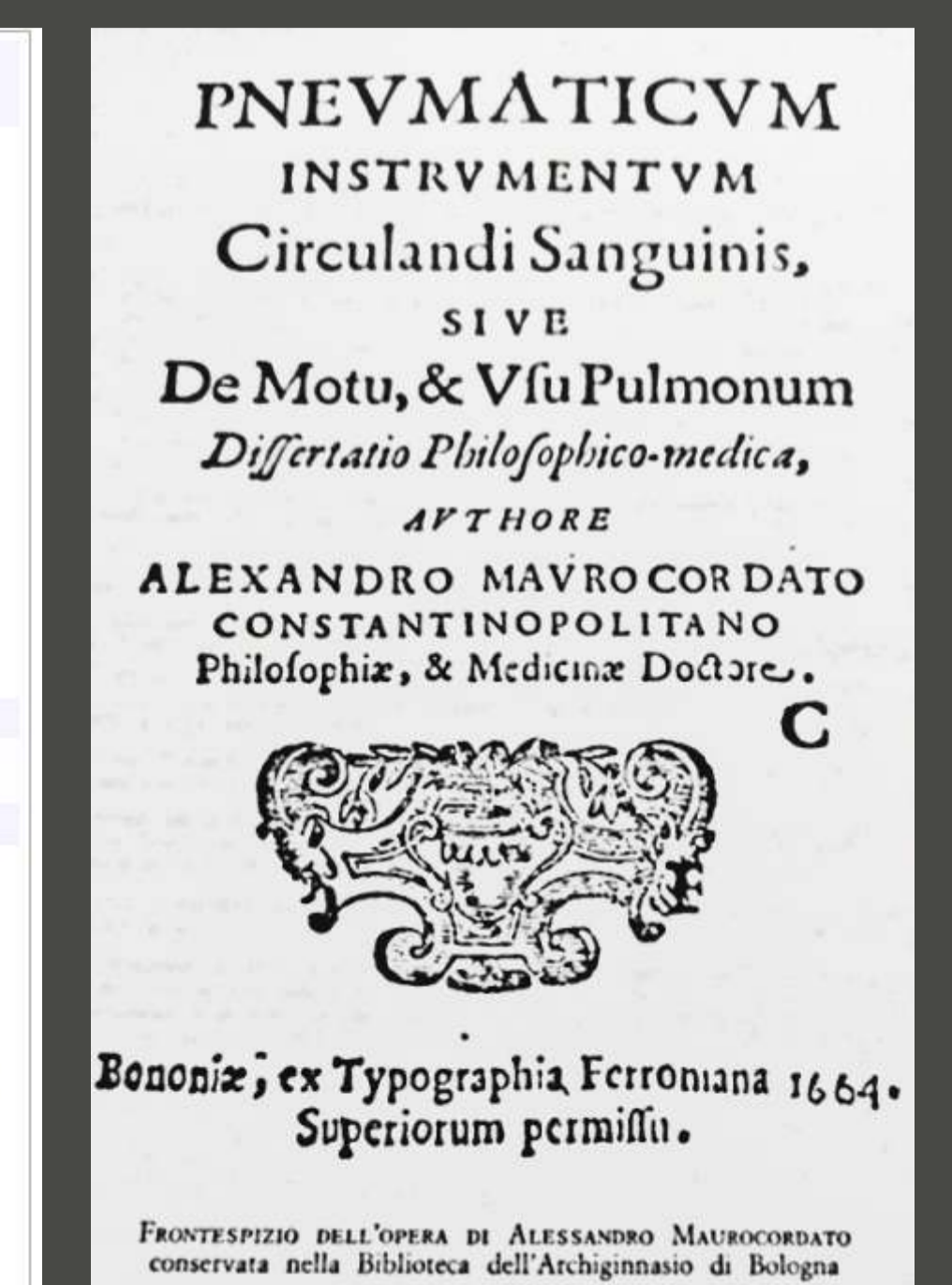
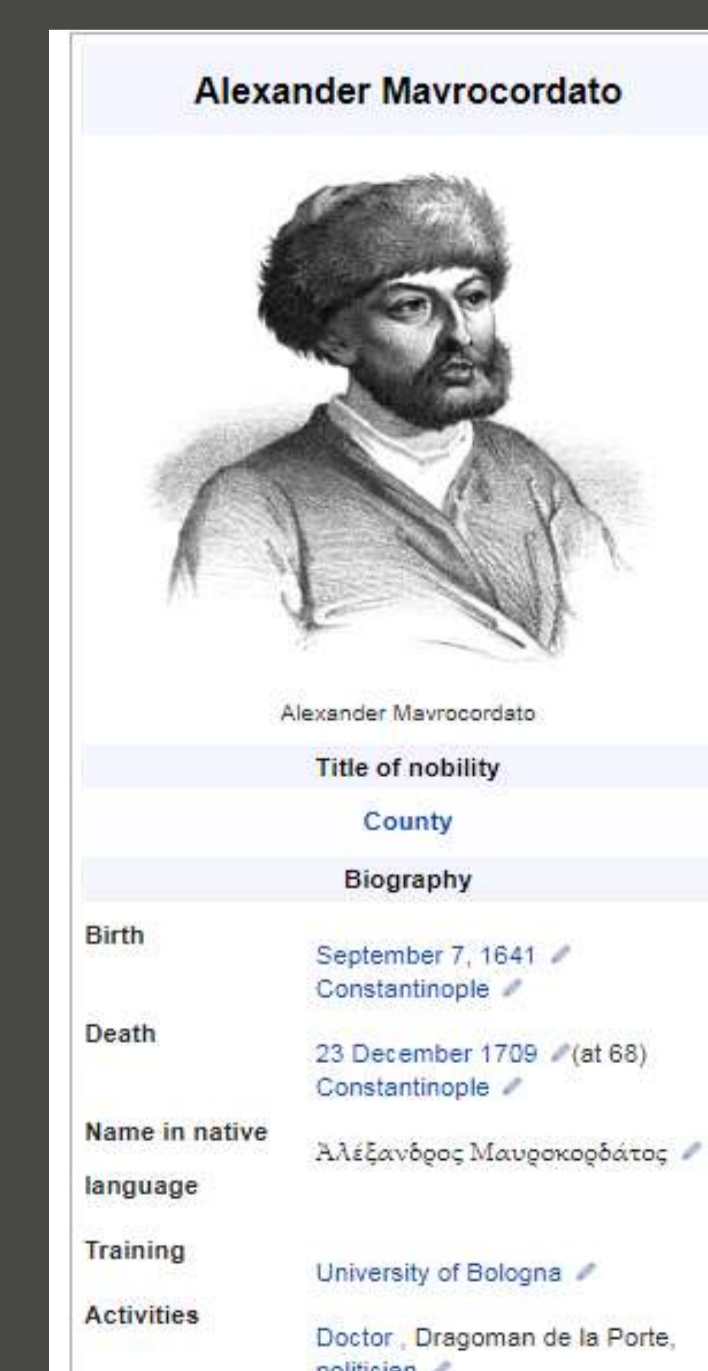
Guilielmi Harvei (William Harvey) in 1628 CE published his work by which proves experimentally the pulmonary circulation using the physics and mathematics for measuring volumes, however imagined an anastomosis between arteries and veins.



In 1661 CE, Marcello Malpighi investigated and discovered the pulmonary vases capillaries by microscope.



Alexander Mavrocordatus in Padua 1664 CE verified the Harvey's aspect on pulmonary circulation by examples and proofs. In 20<sup>th</sup> c. has been clarified the pulmonary circulation and function in cellular and biochemical level by numerous researchers.



## CONCLUSION

Concluding, the study of heart began from prehistory, the study of pulmonary circulation was started in 13<sup>th</sup> c. CE and renaissance always despite the errors and the deficiencies and it is continuing now in laboratory level intending the human health.