

## **Abstract:**

The aim of this thesis is to show in what way the mechanistic philosophy of René Descartes allowed him to accept William Harvey's discovery of the circulation of the blood, while at the same time prevented him from accepting his explanation of the movement of the heart.

In the introductory section we mention some of the basic notions concerning the state of natural philosophy in the second half of the 16<sup>th</sup> century which are closely related to the themes of the thesis. Both authors we are concerned with are also presented.

The second, historically oriented section focuses on Aristotle's, Galen's and Harvey's opinions on the role and motion of the heart and blood in the human body. The aim is to describe how Harvey's 1628 treatise *De motu cordis* allowed to resolve the proliferating problems faced by the Galenist tradition in the 16<sup>th</sup> and the early 17<sup>th</sup> century.

The third section presents the exposition of the introductory chapters of Descartes' 1633 treatise *Le Monde* in which he introduces the basic notions of his new mechanistic philosophy. Among these are the three types of particles, the plenist conception of the world, the omnipresence of circular motions and the relationship between God, natural laws and motion in the world.

The fourth section is dedicated to Descartes' and Harvey's point of contention: the motion of the heart. Descartes' explanation sees 'the fire without light' located in the heart as the principal cause of all the physiological functions. Whereas Harvey considers the systole to be the active phase of the motion of the heart, Descartes's mechanistic principles lead him to consider the diastole to be the active phase.

In the fifth section, we focus on the titular blood circulation and its reception in Descartes' mechanistic physiology. The acceptance was influenced by the similarity of certain philosophical and methodological motivations of both writers, while at the same time it was enabled by the specific role of circular motion in the world. In contrast to the Galenists who use the image of the heart as a kind of a spring from which the blood flows and its power is spent in the body, Harvey and Descartes perceive the heart and the fire without light respectively as the cause of circular motions of the blood.

In conclusion, we recapitulate our discoveries and present the answer to the main question this thesis poses: what is it about Descartes' mechanistic philosophy that allowed him to accept Harvey's discovery of the blood circulation, while at the same time prevented him from accepting Harvey's conception of the systole as the active phase of the movement of the heart.