

The Rejection of Harvey's Discovery

El rechazo al descubrimiento de Harvey

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Despite the anti-dogmatic and liberal atmosphere of the Renaissance, the publication of "*De motu cordis*" (1628), at the time when **Harvey** was 50 years old, provoked lively controversies. It was not easy that fourteen centuries of Galenic hegemony, despite the partial contributions on circulation due to the studies of **Vesalius**, **Cesalpino**, **Valverde** and **Colombo**, should be overthrown without any opposition. **Harvey** must surely have foreseen this contingency, since twelve years passed from his first manuscripts the "*Lumleian Lectures*" (1616) to the publication of the text.

"*De motu cordis*" had challengers and supporters. Among the latter we must mention his close friend **George Ent** (London, 1604-1689); the famous Dutch physiologist **Franz de le Boë Silvio** (1614-1672); **Francis Glisson** (London, 1597-1677); the Belgian **Vopisius Fortunatus Plemp** (1601-1671), **René Descartes** (Egmond, 1596-1650); **Anton Deusing** (Groningen, 1612-1666); **Werner Rolfink** (Jena, 1599-1673) and **Hermann Conring** (Hellsstadt, 1606-1681).

His most famous critics included **Jacques Primrose** (London, died 1659), **Emilio Parisano** (Rome, 1567-1643), **Gaspar Hoffmann** (Germany, 1572-1648), **Jean Riolo** (Paris, 1580-1657), **Guy Patin** (1602-1672), **Francisco Folli** (Venice, 1624-1685), and **Marco Severino** (Naples, 1580-1656). **Harvey** did not argue with all of them, but only replied to **Hoffmann** and **Riolo**.

The opposition of the Englishman **Jacques Primrose**, a disciple of **Riolo**, was carried out through the text "*Exercitationes animadversiones in librum de Motu Cordis*" (1630), but it does not reveal any scientific quality. It was based on the fact that since ancient times patients had been cured with no need to know the alleged theory of circulation.

Moreover, from Rome, **Emilio Parisano**, with his text "*Nobilium exercitationum*" (1653) held that the existence of venous valves could not justify the movement of blood. On the other hand, this assertion by **Parisano**, in the analysis of the "*De Motu Cordis*", indicates that the teachings **Harvey** had received from his teacher Fabrizio d'Acquapendente with respect to the venous valves was an important contribution to his discovery. This concept was also confirmed by the

English scientist **Robert Boyle** (1627-1691).

In 1636, on his way to Vienna, **Harvey** learned that Gaspar Hoffmann had criticized him with the following words for having assumed, "*that Nature was so clumsy and inefficient an artificer, in suffering the blood to become recrudescant, and making it return again and again to the heart in order to be recon-cocted, to grow enfeebled as often in the general system, thus uselessly spoiling the perfectly-made blood, merely to find her in something to do*". For this reason, he met Hoffmann in Altdorf and had a debate, in which he resorted to reasoning by working on a corpse. Faced with the unperturbed refusal of his interlocutor, exasperated, he stuck his dagger in the table and left immediately. He subsequently sent him a letter inviting him to reread "*De Motu Cordis*".

Guy Patin, Dean of the Faculty of Paris, openly declared himself to be "*anti-circulation*". Thus, he wrote: "*Circulation is paradoxical, useless to medicine, false, impossible, unintelligible, absurd, harmful to the life of man*".

With **Jean Riolo** he had a longer discussion. Professor in Paris, **Riolo** wrote two texts, in 1648 "*Enchiridium anatomicum et pathologicum*" (Paris), and in 1649 "*Opuscula Anatomica Nova*", in which he maintained a Galenist position despite certain concessions. He accepted the major circulation only in the large arteries and veins, but not in the small ones, which would have a nourishing function. "*The blood,*" wrote **Riolo**, "*remains in them for nutrition and does not back flow into the larger vessels*". While he agreed, except for the above caveats, with the systemic circulation, he denied the minor one. In his concept the blood in the pulmonary artery served exclusively for pulmonary nutrition, while the blood flow emptied from the right ventricle into the left ventricle through the pores of the septum.

Harvey replied with two epistles in 1649 published in Rotterdam under the title "*Exercitationes dual anatomicae de circulatione sanguinis ad J. Riolanum, filium*". In the first one he is polite, but in the second one his arguments acquire a virulent tone. In the latter he presents a summary of the circulation. He strictly says: "*The blood which is contained in the veins and which accumulates especially in the part of the vena cava neighboring the base of the heart and*

the right atrium, is heated there by a caloric faculty inherent in it, bubbles into vapor and rises in the manner of fermenting substances, thus filling the atrium. This contracts by its own contractility, immediately expelling the blood into the right ventricle of the heart, which, in turn, once filled, expels by its systole the blood it has received. Faced with the obstacle that the tricuspid valves oppose to blood backflow, the ventricle expels it into the vena arteriosa, which opens its door. Once in the vena arteriosa, the blood is impeded by the sigmoid valves to return backwards. By inspira-

tion and expiration, the lungs are mobilized and with them their vessels, thus offering this blood the way and passage to the venous artery and from this to the left atrium, which has movement, rhythm, purpose and synchronous functions with the right atrium, pouring its blood into the left ventricle. Immediately the left ventricle propels its blood into the opening of the aorta and from it to all its branches”.

Criticisms of the blood circulation, such as the one made by the Portuguese Lima in 1761, were widespread until the 18th century.