# Topic Page: Harvey, William, 1578-1657

Definition: **Harvey, William** from *Philip's Encyclopedia*

English physician and anatomist who discovered the circulation of the blood. His findings, published in *De Motu Cordis et Sanguinis* (1628), were ridiculed at first. He also studied embryology.

Image from: **William Harvey** in *The Cambridge Dictionary of Scientists*

Summary Article: **Harvey, William (1578-1657)**
From *The Hutchinson Dictionary of Scientific Biography*

**Place**: France

**Subject**: biography, biology

English physician who discovered that blood is circulated around the body by pulsations of the heart, a landmark in medical investigations. His work did much to pave the way for modern physiology.

Harvey was born in Folkestone, Kent, on 1 April 1578. He went to the King's School, Canterbury, and then attended Gonville and Caius College at Cambridge in 1593. He graduated with a BA in 1597 and extended his studies under Fabricius ab Aquapendente at the university medical school in Padua, Italy, gaining his medical degree in 1602. He returned to London, built up a successful practice, and in 1609 he was appointed physician to St Bartholomew's Hospital, London, and served as a professor there 1615-43. In 1618 he became Physician Extraordinary to James I, and then Royal Physician, a position he retained until the death of Charles I in 1649. He was elected president of the College of Physicians in 1654 but was too old to accept, and he died three years later in Roehampton on 3 June 1657.

Harvey was deeply involved in medical research and his spare time was devoted to his consuming interest, the investigation of the movement of blood in the body. He had developed this interest while studying in Padua under Fabricius, who had discovered the valves in the veins but had not appreciated their significance. The old idea about blood movement, established by Galen, was that food turned to blood in the liver, ebbed and flowed in vessels and, on reaching the heart, flowed through pores in the dividing wall (septum) from the right to the left side and was sent on its way by heart spasms. Andreas Vesalius, who secretly dissected corpses, failed to find the pores in the heart's dividing wall, and concluded that Galen could never have dissected a human body.

Harvey was not at all convinced by Galen's explanation either. Examining the heart and blood vessels of about 128 mammals, Harvey found that the valve separating the auricle from the ventricle, on each side of the heart, is a one-way structure, as are the valves in the veins discovered by his tutor, Fabricius. For this reason he decided that the blood in the veins must flow only towards the heart. Harvey tied off an artery and found that it bulged with blood on the heart side; he then tied a vein and discovered that it swelled on the side away from the heart. He also calculated the amount of blood that left the heart at each beat. He worked out that in human beings it was about 60 cu cm/3.7 cu in per beat, which meant that the heart pumped out 260 l/57 gal (68 US gal) of blood an hour. This amount would weigh more than 200 kg/440 lb - more than three times the weight of an average man. Clearly that was absurd, and therefore a much smaller quantity of the same blood must be circulating continuously around the body. Harvey demonstrated that no blood seeps through the septum and reasoned that it passes from the

right side of the heart to the left through the lungs (pulmonary circulation).

The publication of these findings aroused the hostility Harvey had predicted, because to refute Galen was almost unthinkable in his time. His practice declined but he continued with his studies and, unlike many early scientists who made an outstanding discovery, he lived to see his work accepted.

The great classic Harvey published in 1628, *De motu cordis et sanguinis in animalibus/On the Motion of the Heart and Blood in Animals* (628), pointed the way for physicians who followed him. He also published *Exercitationes de generatione animalium/Anatomical Exercitations Concerning the Generation of Living Creatures* (1651, translated 1653).

Harvey was one of the first to study the development of a chick in the egg. He also carried out many dissections to find out how mammalian embryos are formed, and many of the animals he dissected were the royal deer put at his disposal by Charles I. Harvey suspected that semen might be involved in the making of an embryo, but did not have the microscopic apparatus, later developed by Anton van Leeuwenhoek, needed to study the tiny spermatozoa.

Harvey's discovery of the circulation of the blood marked the beginning of the end of medicine as taught by Galen, which had been accepted for 1,400 years. From then on, experimental physiology was to sweep away many erroneous ideas and replace them with personal observations made by experiment and careful measurement.




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## APA

Harvey, William (1578-1657). (2018). In Helicon (Ed.), *The Hutchinson dictionary of scientific biography*. Abington, UK: Helicon. Retrieved from https://search.credoreference.com/content/topic/harvey_william_1578_1657

## Chicago

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## MLA

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