William Harvey

William Harvey (1578-1657), an English physician, was born at Folkston in 1578. Graduating from Cambridge, he went to Padua to study anatomy and physiology under Fabricius (1537-1610). Fabricius had described venous valves and undoubtedly influenced Harvey in his further work on physiology of circulation. He was appointed physician to St. Bartholomew’s hospital in 1609. Harvey was court physician to King Charles-I, who had great faith in him. He attended to Charles-I during the English civil war, in which Charles lost his throne and was subsequently beheaded. Fortunately, Harvey did not fall victim to partisan passion and returned safely to London.

Galenic concept of ebb and flow of blood, with closed arterial and venous system, had been generally accepted by philosophers and scientists, without serious challenge for 14 centuries prior to Harvey. Departing from Galenic tradition, Harvey analysed the action of the heart, showing that it expels blood at contraction. By estimating the amount of blood in the body by exsanguinations and by quantitative reasoning, he postulated that in order for the heart to continue to expel the blood at each contraction, it is necessary that blood comes back to it. He correctly interpreted the function of venous valves and clarified the circulation of blood through the lungs, 12 years before his announcement. (This was first described by Ibn-al Nafis in 1268 and later by Servetus in 1553, but was unknown to Harvey). During this period, Harvey had successfully demonstrated the validity of his theory about the circulation of blood, by simple experiments and clear reasoning. The delay of 12 years in the publication of his views shows his intellectual reticence. His great announcement was made in 1628, in a treatise “Du motu cordis” (Anatomical dissertation concerning the motion of heart and blood in animals).

As a fate of many epoch making works like this, it made no great stir initially. However, very soon, it provoked an avalanche of new questions and a storm of controversy. Many critics were unable and unwilling to understand the implications. They found it impossible to give up the old Galenic system, which had provided all encompassing rationalisation of health and disease, diagnosis and therapeutics. It raised many disturbing questions for which Harvey provided no answers. One major gap in his work was his inability to identify the structures in joining the arterial and venous system. He was forced to close this gap with hypothetical pores in the flesh. Later, Marcello Malpighi showed the capillary network completing the circulation by his microscopic findings.

Demonstration of circulation was slowly appreciated during his lifetime and more after his death. Yet, his small book ultimately spelled the end of Galen and Greek medicine. We are so familiar with the circulation of blood today, that it seems impossible that its truth could ever be doubted. Harvey opened a new era, which constituted a major scientific breakthrough, after which, knowledge of living functions advanced steadily and continuously.

In 1656, a year before his death, an annual oration was instituted under the name of the Harveian oration. He died in London on June 3, 1657, struck down by paralysis. Harvey’s wife having died childless some years previously, he bequeathed all his property to Royal College of Physicians. Harvey’s great feat was to apply his contemporary Galileo’s view of science, to physiology and medicine. It is also worthy of comparison to the later revolution launched by Sir Isaac Newton.