

post he was able to develop his own ideas, and unconsciously mould the attitudes of young men towards scientific research as we understand it. He sat on many committees and inquiries. With his colleagues, he declared that an alum factory in Wapping village was poisoning drinking water and killing fish with its fumes. As might happen today, the factory bosses declared that people were stirring up trouble for their own ends. He also helped draw up preventive regulations against plague, and was one of the few well-known doctors to remain in London during an epidemic.

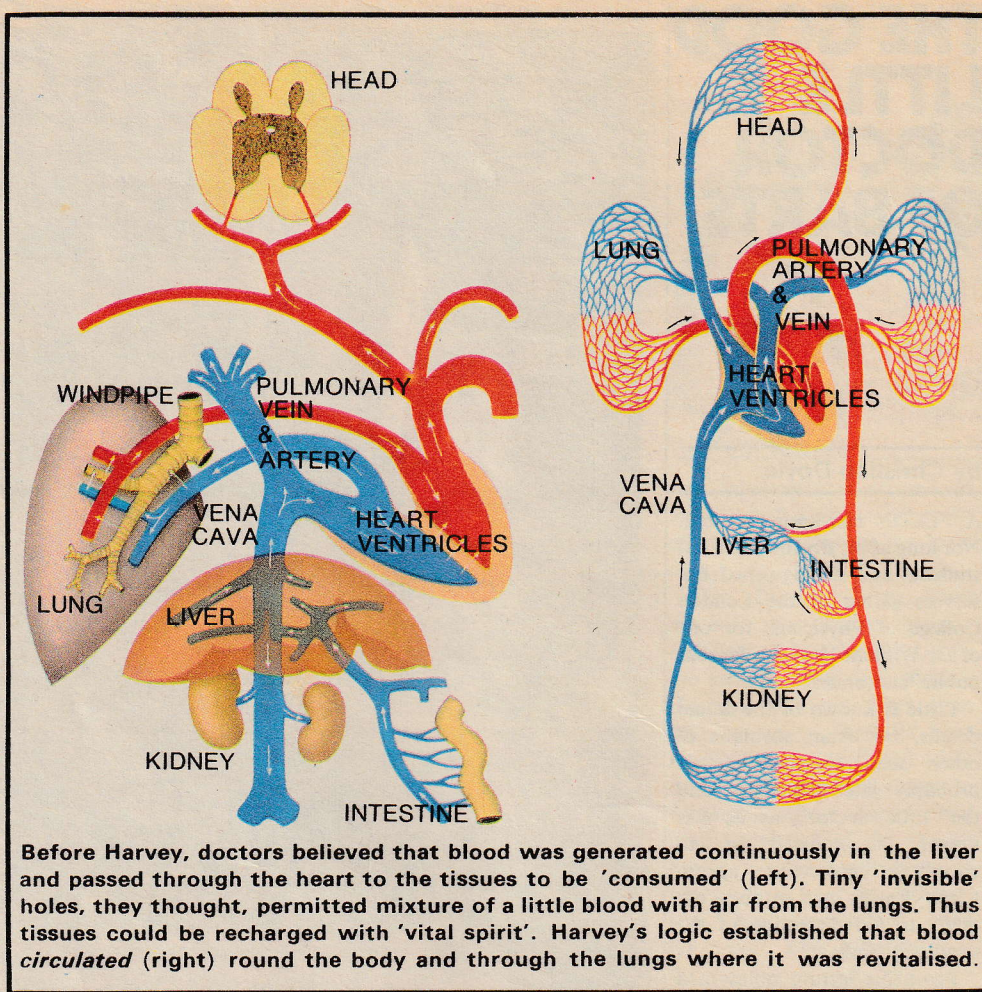
He joined in College tirades against the barber-surgeons and their encroachment on the exclusivity of the physicians. Harvey insisted that they be strictly controlled by the physicians. At this time, surgeons were becoming more scholarly and were severing their links with the cruder 'barbers' and tooth-pullers; and they understandably loathed Harvey's rulings. There were similar battles with the apothecaries. He also tried hard to limit 'over-the-counter' sales of what today would be termed dangerous drugs.

Harvey worked fairly adroitly within the system. And in his calm precise way he often helped to cut through hypocrisy and to replace fear and superstition with common sense. In a famous witchcraft case, he supervised a report which prevented four women from being burnt as witches.

He possibly understood a little of mental illness. One of his patients, a girl, claimed to have lost sensation in parts of her body. He advised her parents that her 'strange Dis-temper' was 'Uterine' to be corrected by 'Hymeneal exercises' and that she should find a husband. This done, she was 'to many Men's wonder' cured.

Despite his many other activities, Harvey was primarily a researcher. Every day he worked in his laboratory in his City home. Sometimes he carried out vivisection. This was how he demonstrated that it is when the heart contracts that blood is pushed round the body, and not that blood pours out of a passive heart. In secrecy, because patients' bodies were not supposed to be 'violated', he probably carried out a few post-mortems in Bart's mortuary.

Despite his reputation, Harvey dreaded the effect his ideas on circulation might produce. In order to stave off accusations of unorthodoxy and possible



Before Harvey, doctors believed that blood was generated continuously in the liver and passed through the heart to the tissues to be 'consumed' (left). Tiny 'invisible' holes, they thought, permitted mixture of a little blood with air from the lungs. Thus tissues could be recharged with 'vital spirit'. Harvey's logic established that blood circulated (right) round the body and through the lungs where it was revitalised.

college fines - he had sometimes stated that the ancients were not exactly wrong, but that perhaps the body had changed since then.

Many of the errors that had persisted about the heart for centuries might have been corrected if the heart had not been considered the source of vitality, the emotions and possibly even intelligence. However, there was some questioning of traditional beliefs and Harvey did not revolutionise medical thinking singlehanded.

Before Harvey, it was be-

lieved that there were two almost separate blood systems. These, it was argued, carried blood to the tissues where somehow it was consumed or evaporated. It was thought that the liver incessantly generated food-enriched blood which passed up and down the body through the great veins. These great veins expanded to form the right-hand side of the heart - which pulsated, so that the lungs, which were large, could receive plenty of blood. Tiny pores or holes in the heart tissue allowed some blood to

pass to the left-hand side of the heart. Here a mysterious fermentation took place with air which had been passed from the lungs through a vein-like artery. Then blood, charged with 'vital force', was driven to all the body tissues where, again, it presumably was consumed or evaporated.

Harvey carried out hundreds of experiments and filled his notebooks with thousands of observations. He had worked on the problem for 15 years, and when he came to write his famous '... de Motu Cordis', first published in 1628, his theory was thoroughly proved and argued down to the smallest detail. Although others had made attempts to describe a lesser lung circulation, none of their work contained the same intellectual force. After his death, detractors tried to ascribe the discovery of the circulation of the blood to others, but most biographers now credit Harvey.

Though he never saw the microscopic capillary channels, he knew there must be links between the arteries and the veins. He tied off veins, and demonstrated how they became swollen away from the heart and that when the ligatures were removed blood drained towards the heart. He cut parallel arteries and veins and thereby could show how the blood from the cut ends



Harvey studied medicine at Padua University, then the greatest medical centre of Europe. Here is the diploma that he received at the end of his three-year course.

flowed in different directions. Harvey was positive that there were no holes or pores between the two sides of the heart. In many cutting and tying experiments, and by blowing air through the lung passages, he demonstrated clearly that all the blood passes through the lungs and returns to the heart. But he clung to the traditional idea that some sort of 'vitalising' took place, despite his mechanistic idea of the heart as a pump.

Although none of Harvey's other work was as magnificent as his ideas on circulation, he is still remembered for his contribution to the early study of embryology. On the clinical side, his remedies were mostly in keeping with the times, but he has also been called the 'father of midwifery'. He rightly disapproved of the midwives' custom of hastening labour by manipulation. This, said Harvey, retarded labour, damaged the tissues, and prevented the after-birth coming cleanly away, so exposing poor women to the 'injuries of the Aire'.

Harvey remained quietly loyal to Charles I during the political upheavals. And on the King's defeat he retired with the court to Oxford for three years. As the Warden of Merton was a Parliamentarian and had left loyalist Oxford, Harvey was appointed in his place. During this period, he worked on his treatise on embryology.

The troubles cost him the honour of Presidency of the College of Physicians, and when it was finally offered to him in 1654, he was too old and refused. His wife had been dead for some time, and he went to live with his brothers. He and John Aubrey used to talk together, capping each other's tales of 'odd births'.

There is evidence that he favoured euthanasia. From a letter, it seems that in 1652 he was in so much pain that he asked for an overdose of laudanum (tincture of opium) from his doctor. But next day, the doctor was amazed to find Harvey thoroughly cleared of 'stone'. He survived, in full possession of his wits, for another five years, and died finally from a stroke in 1657.

Keynes comments that though it is easy for doctors to be dazzled by Harvey's achievement, 'it is certainly impossible to doubt his pre-eminence in his own environment'. Eager for knowledge of Harvey's life, says Keynes, one young medical historian remarked: 'Anything about Harvey sounds like music.'