History of the Human Heart (Part One)

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Cardiology has been a prime medical specialty throughout the history of modern medicine. Modern cardiology has a deeply rooted history with theories still in use dating back to 1628. Cardiology has been an important theme in medical philately but unfortunately, many of the pioneers in this field are yet to be honoured on stamps.

Cardiology in the ancient world

Thoth, the Moon God is one of the important deities of the Egyptian pantheon. He is often depicted as a man with the head of an ibis. Thoth was often considered to be the heart which, according to the ancient Egyptians, is the seat of intelligence or the mind. The earliest physician, Imhotep, is regarded as the Egyptian god of medicine. He attributed the pulse rate as the resulting action of the heart. But the earliest written information on medicine is recorded on the Egyptian Ebers Papyrus. Jean-François Champollion (1790-1832) French scholar and decipherer of the Egyptian hieroglyphs extracted much information on heart from the Ebers Papyrus.

Early scientific attempts

In 400 B.C, the Greek philosopher Aristotle identified the heart as the most important organ of the body. It was the seat of intelligence, motion, and sensation, a hot, dry organ. Aristotle described it as a three chambered organ that was the center of vitality in the body.

Later at the time of Hippocrates (460-377 BC), the heart was mentioned again in medical terms. He stated that the heart was a strong muscle and went on to describe its structure and functions of heart’s valves. After 500 years Claudius Galen (130-201), studied the heart in detail and laid the foundation of cardiology. Some of Galen’s researches were misinterpretations, but that was inevitable. Miguel Servet (1511-1553), Spanish theologian and scientist pointed out the errors in Galen’s researches. But he was condemned for heresy and was burnt at the stake with his writings. In those days to speak out against Galen was to refute the teachings of the Church.
To **Avicenna** (980–1037), the most famous Persian physician the heart possessed a greater function than being simply a muscular pump. He believed that the heart served as the repository of divine potentias, and was greatly affected by emotions such as pleasure, sorrow, joy, revenge, anxiety and delight. **Ibn al-Nafis** (1213–1275), Arab physician, is the first to describe the pulmonary circulation of the blood. Galen had theorized that the blood reaching the right side of the heart went through invisible pores in the cardiac septum, to the left side of the heart. This was disproved by Ibn al Nafis.

**Muhammad Rhazes (Al Razi)** (865–925) was a Persian physician, philosopher, chemist and scholar. Al-Razi used the term, “sudden death” in Arabic 1000 years ago, when he drew attention to the fact that the heart was responsible for syncope and sudden death. He wrote “Sudden death takes place when the heart contracts but does not relax.”

**Anatomy of heart unveiled**

**Michelangelo** (1475-1564) artistic genius, sculptor and architect—was also an anatomist. He dissected many corpses in the church graveyard and studied in depth the anatomy of the heart. Of all of Leonardo da Vinci’s (1452-1519) discoveries, his discovery of heart disease through a build up of fat could have saved millions of lives. This would have been so if his discoveries were ever taken seriously at the time and published by his peers.

**Andreas Vesalius** (1514–64) Founder of modern anatomy. After five years of intensive investigation and thousands of dissections, he wrote the magnificent book ‘De Humani Corporis Fabrica’. He traced the complex network of the blood vessels and for the first time in history described the heart accurately, noting that blood cannot flow directly from the right to the left ventricle.

**Discovery of blood circulation**

**William Harvey** (1578 –1657) English physician who was the first to describe completely the systemic circulation and properties of blood being pumped to the body by the heart. Harvey described his findings of the mechanisms of human blood circulation in his book ‘De Motus Cordis’ in 1628. The discovery of human blood circulation is one of the greatest discoveries of all time.

But Harvey was unable to correctly establish how the arterial blood enters the venous system in the periphery of the human body.
It was left to Marcelo Malpighi (1628-1694), to put the finishing touches to Harvey’s work when in 1661 he described the network of pulmonary capillaries that connected the small veins to the small arteries. This was achieved by using a simple microscope. In 1664 the Danish anatomist, Niels Stensen (1638-1686) uncovered the nature of muscle contractions, and the muscular nature of the human heart. Then Albrecht von Hailer (1708-1777) explained the contractions of the ventricles and echoed Galen in stating the action of the heart was automatic, beating as it does and pumping 5,000 gallons of blood a day as it re-circulates it around the body - some pump!

Claude Bernaud (1813-1878) father of experimental medicine. In 1857 he discovered the function of vasomotor nerves which are responsible for regulating the blood supply to vital organs including the heart. Ivan Pavlov (1849 – 1936) in 1883 produced his thesis on The Centrifugal Nerves of the Heart, in which he described the nervous innervation of the heart. August Krogh (1874-1949) In 1920 he won the Nobel Prize for the discovery of the capillary motor regulating mechanism.

Anatomy of heart on stamps

The human heart has a mass of between 250 and 350 grams and is about the size of a fist. It is located anterior to the vertebral column and posterior to the sternum. The mainstream of stamps on the theme cardiology depicts the external anatomy of the heart.

Because the heart is composed primarily of cardiac muscle tissue that continuously contracts and relaxes, it must have a constant supply of oxygen and nutrients. The coronary arteries are the network of blood vessels that carry oxygen and nutrient rich blood to the cardiac muscle tissue.

Many stamps show the cut-away section through the heart, showing its physical appearance and labelling its major components and blood vessels.

Physical Examination

Leopold Auenbrugger (1722-1809), Austrian physician who invented percussion as a diagnostic technique. Jean Corvisart (1755 –1821) Corvisat perfected the technique of percussion and championed its use in clinical medicine. Joseph Skoda (1805-1881) contributed much to clinical medicine and in 1839 described his famous eponymous physical sign, ‘Skodaic resonance’.

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