Electricity & The Heart - Philatelic Sequelae

Figs. 1, 2: Rene Descartes (1596-1650). France 1927 & 1996 commemorates his 400th Birth anniversary. Rene Descartes, philosopher, mathematician, explained human movements including the heart pump in terms of the complex mechanical interactions of threads, pores, passages and "spirits" (a vision of electricity?) In 1660. It was published after his death, because he feared persecution. Why PQRST and not the ABCDE waves in the ECG? With Descartes analytical geometric labeling order, PQRST of today's ECG were simply the next remaining letters.

Fig. 3: Luigi Galvani (1737-1798), Italy-1934. 3a Maldives millenium 2000. Galvani observed the repeated contraction of the frog's leg muscles with the touch of a scalpel and interpreted them as "animal electricity" similar to that of an electric eel. His name is given to the "galvanometer" which records electricity. This is essentially what an ECG is a sensitive galvanometer.

Figs. 4 & 5: Alessandro Volta (1745-1827), Italy-1927. Volta attempted to disapprove Galvani's "animal electricity" and showed that electric current was generated by the combination of two dissimilar metals (today, we know both were right). The voltaic pile constructed by alternating zinc and copper disks separated by paperboard soaked in saline is shown in Fig. 5.
Fig. 6: Andre Ampere (1775-1836), Monaco-1975. French mathematician, physicist discovered interaction relationship among electrical currents, the basis for electrical transmission.

Fig. 7: Willem Einthoven (1860-1927), Netherlands-1995. Einthoven introduced the term "Electrocardiogram" at a meeting of Dutch medical association in 1893. Later he accepted that Augustus Waller, a British Physiologist, had published the first human electrocardiogram with a capillary electrometer, in 1887. In 1901, Einthoven invented a new galvanometer, using a fine quartz string coated in silver, based on ideas by Arsonval. He published the first electrocardiogram recorded on a string galvanometer, in 1902 and in 1903, discussed commercial production of string galvanometer with Horace Darwin of Cambridge Scientific Instrument Company.

Fig. 8: Einthoven (1860-1927), Mexico 1972. Portrait on the stamp shows part of the painting in the Mexico National Institute of Cardiology, by Diego Rivera. It shows Einthoven operating the ECG machine, F Wilson with ECG film, a part of hands and head of T Lewis and part of the PD White's head.

Fig. 9: Thomas Lewis (1881-1945), Mauritius-1981 Lewis in 1909 brought Einthoven's ECG machine weighing 1/4th ton as already described by Kar et al is well shown on the stamp. Sir Thomas Lewis published a paper in BMJ (1909) detailing his careful clinical and electrocardiographic observations of auricular fibrillation.

Figs. 10 & 11: Europa, Bulgaria-1994 stamp depict cardiac action potentials and electrophysiological studies.

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*Stamps on Galvani, Courtesy: Anuradha Murthy, Surgical Pathologist, Sir HN Hospital, Mumbai.