Edward Jenner, the man who discovered the smallpox vaccine; the very first vaccine in the history of mankind, was born on May 17, 1749 in the small town of Gloucestershire, Berkeley, England. When he was 5, his parents died, thus giving the responsibility to his eldest brother to look after him. At the age of 14, he started medical education in a local school near Bristol for 7 years. In 1770, he became a student of John Hunter; a great surgeon and anatomist. Jenner was inspired by Hunter's abilities that considered him his role-model and established a close friendship. Besides studying medicine, Jenner was a curious naturalist enjoying observation of nature, collecting data of birds’ migration, hibernation of specific species and the biological cycle of eels.

In 1772, Edward Jenner decided to practice medicine in a farm community to be a country doctor at Berkeley, disregarding a suggestion to practice in London. Jenner was not only a successful physician, but also a vigorous countryman with an active social life. He had many hobbies like singing, playing musical instruments and writing poetry. In 1792, Jenner earned his MD degree from the University of St Andrews. He also presented papers on cardiological aspects, such as mitral stenosis and coronary artery diseases. He helped to establish many local medical societies and was a fellow of the Linnaean Society.

In the 18th century, smallpox was a catastrophic disease that was greatly feared by everyone and a major killer of humans. Smallpox was perceived as a universal curse before Jenner’s discovery. To discover the smallpox vaccine, he used a perceptive combination of scientific logic and common sense to make use of his own observations on cowpox cases. He used his theoretical concepts and observations to piece together a scientific development that created a remarkable lifesaving path to mankind.

In 1768, he observed that all milkmaids were infected with cowpox, a non-fatal disease to humans, and remained free of smallpox, although they were exposed to the smallpox infection from household cases. Edward Jenner hypothesized that getting cowpox was a safe way to protect people from smallpox, establishing for the first time, a link of cross-protection between the two diseases. With continuous studying of more people previously infected with cowpox and who failed to respond to inoculation with smallpox or to catch the disease, he concluded that pus taken from a cowpox-infected person, at the peak of the disease, would provide protection against smallpox. Jenner’s idea was met with widespread skepticism. In fact, he was threatened to be expelled from medicine if he brought up the subject again. His observations and conclusions were not welcomed in the medical society and gained very little response. A manuscript, describing his findings and theories, was denied from publication by the Royal Society and he was obliged to publish his ‘Inquiry’ privately. The highly discouraging reception of Jenner’s discovery among medical professionals was significantly mitigated. However, some progress had been made when a surgeon of St. Thomas’s Hospital who used the treatment with success. The recognition of Jenner’s ideas and discovery had gradually gained momentum reaching a peak in 1806 when the British parliament nominated him with 20,000 pounds in recognition of his valuable services and sacrifices. As early as 1807, smallpox vaccination was made compulsory in Bavaria; and since then, most European governments have either encouraged or compelled vaccination to the people. The most magnificent aspect of Jenner’s discovery of a smallpox vaccine was eradicated before people knew that viruses existed, or the immune system of humans had much been characterized.

At the age of 74 in 1823, Edward Jenner’s life ended due to a stroke. More than 150 years passed after his death, before smallpox was finally eradicated by the Universal

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Campaign of Vaccination, reported by World Health Organization in the 1970s. By his death, humanity lost one of the greatest scientists in medical history, a true benefactor of mankind. However, Edward Jenner is still remembered as a role model of how he used God’s given intelligence, curiosity, and simple logic to pursue a scientific path that aimed to help others. His discovery of the smallpox vaccine gave hope to humanity, and he showed that with dedication and perseverance, diseases can be defeated.

Edward Jenner led the path to discoveries and ingenuities for future generation. His spirit, curiosity, perseverance, and his way of thinking continue to advance in the field of vaccinology for many decades after his death. The 20th century has witnessed greatest successes in developing vaccines that protect against once commonly fatal infections such as pertussis, diphtheria, tetanus, polio, measles, rubella, and several other communicable diseases. With success, there are also setbacks and missed opportunities in medicine as many hard to eradicate or to treat diseases are presently active. Malaria, dengue and tuberculosis continue to defy a vaccine solution despite all scientific efforts that are being spent on their development and research. Nevertheless, Jenner continues to be a mentor to the future medical community; thus there are still significant gaps in our understanding of these pathogens; however, there is hope and certainly, challenging scientists are working hard in developing vaccines that will eradicate diseases for the future of humanity.

References