The third meeting of the Leicester Medical Society took place on Tuesday, 4th December 2018. Twenty members were present to listen to Dr Gareth Williams' talk entitled: 'Edward Jenner: the man who changed the face of the world.' Dr Williams is Emeritus Professor of Medicine and Senior Research Fellow in English, University of Bristol.

Dr Williams reminded us that we have forgotten what smallpox is like: what a deadly and disfiguring disease it is. In 1914, there were still sixty three years and 250 million deaths before the world was declared free of all cases of smallpox infection.

Before vaccination, a person's lifetime risk of contracting smallpox was 1:3 and severe scarring would occur in many of those affected. Risk of death was between 20% and 50%. Lesions which are visible on the skin occur throughout the body including in the major organs: histologically these appear to be the same.

The treatment recommended was emetics, bleeding by leeches and red flannels. By 1970, treatment remained limited to management in an intensive care unit and primitive antivirals. The disease remains untreatable but it is preventable.

Management in Jenner's day, the mid eighteenth century, had progressed to prevention. The strategy for prevention was called Variolation. Pus from an infected person's pustule was spread onto the person's punctured skin or inhaled into the nostrils. A pustule would develop at the site of inoculation and there would be a local lymphadenopathy followed by recovery. From then on, the person was immune to smallpox. However, a person undergoing variolation could cause others to develop full blown smallpox and 1:1,000 died. However, variolation reduced your risk of contracting smallpox when exposed to the virus from 1:3 to 1:50. Variolation had come from the East and was widely practiced in Jenner's day.

Jenner was born in Berkeley, Gloucestershire in May 1749. His parents died young and he was sent to boarding school in Wotton-under-edge when he was eight years old. He had to undergo variolation before he was allowed into the school following six weeks 'preparation' with emetics and blood-letting. At 13 years of age he was apprenticed to a local surgeon at Chipping Sodbury. During this apprenticeship, a local milkmaid told him that she did not require variolation because an infection of cowpox had already rendered her immune. This was a surprise to Jenner and his contemporaries who had not heard of cowpox.

Following his eight year apprenticeship, he travelled to London and became the house pupil of John Hunter who was on the staff at St George's Hospital. Hunter was to become an eminent surgeon who called Jenner his star pupil. He had a bright and enquiring mind. When Jenner returned to Gloucestershire to practice as a local doctor, he continued to correspond with Hunter who encouraged him to 'Trie the trial'.

Several years later, Jenner's opportunity came to test his hypothesis. The milkmaid had caught cowpox. Jenner inoculated the gardener's son with matter from the cowpox. The boy developed a small blister and some local lymphadenopathy. After he recovered, Jenner variolated him with pus from a smallpox victim. The gardener's son did not develop any lesion at the site of inoculation. Jenner repeated the experiment with similar results. His paper on these experiments was rejected

on peer review in London but Jenner decided to publish his work privately in1798 as ‘An enquiry into the Causes and Effects of the Variolae Vaccinae, a disease known by the name of Cowpox’.

News of prevention of smallpox was welcomed by many. King Carlos of Spain sent a boat around the world with live victims of cowpox (recruited and vaccinated at a local orphanage) to inoculate the local population, a few of whom were taken further round the globe to inoculate others.

By the time Jenner died in 1823, some areas of the world were smallpox free.

In 1967, smallpox was still endemic in Brazil, parts of Africa, India and Indonesia. The World Health Organisation appointed Dr DA Henderson the task of eradicating smallpox from the world. He achieved this in eleven years: he taught children as well as their parents to recognise the early signs of smallpox and outbreaks were stamped out by targeted vaccination. The last victim of Variola major died in October 1975 on an island in the mouth of the Ganges. The last victim of Variola minor died in 1977 in the Horn of Africa. In May 1980 the WHO declared the world to be free of smallpox.

Jenner’s work laid the foundation of the development of immunisation against other serious diseases. It is thought that although he had the ideas, it was John Hunter’s persistence and encouragement that ensured that Jenner proved his hypotheses and published his results. Jenner shared his work with no thought of pecuniary gain.

Dr Williams encouraged us to visit the Jenner Museum in Gloucestershire which may be facing closure. Details can be found at www.jennermuseum.com

A vote of thanks was given by Professor H Thurston.