



Edward Jenner and Smallpox Vaccination

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EDWARD JENNER, the discoverer of smallpox vaccination was born in this old house in Berkeley, Gloucestershire, England, on May 17, 1749. Jenner grew up to be a country doctor and to practice in his home town. It was a dairy country and the farmers had noticed that, at times, the cows would have a disease known locally as "cowpox". Small blisters would appear on the cow's udder, and in a few days these blisters would suppurate, rupture, and heal. Most of the milking was done by young women and they frequently got these same blisters on the hands where they ran the same course. It was also a tradition in the countryside that the dairymaids who had once contracted cowpox were immune to the dreaded smallpox.

Today, when smallpox is almost unknown, we scarcely realize what a scourge it was in pre-vaccination days. In the middle of the 18th century it was estimated that $\frac{1}{10}$ th of all deaths in Europe were due to smallpox, and many of those who survived were disfigured or blinded by it. Consequently it was particularly feared by young women. Thackeray



The old vicarage, Berkeley, where
Dr. Edward Jenner was born.

speaks of it as having "ravaged the roses off the cheeks of half the world". It spared no age nor condition of life. Louis XV of France and William II of Orange died of smallpox, and Queen Anne of England, and Louis XIV of France had severe cases of the disease. George Washington's face was deeply scarred by it. Bernoulli, the mathematician, estimated that 60 million people died in Europe from smallpox during the 18th century. The parish registers of London during one decade show 4% of all deaths due to it. It is not surprising, therefore, that a man who showed the way to deliver the world from such a pestilence should be regarded as one of our greatest men.

Jenner was impressed by the stories that cowpox conferred immunity to smallpox and began experimentation with the material from the udders of cows and from the hands of the dairymaids. He performed the first real smallpox vaccination on May 14, 1796, when he inoculated an 8 year old boy, James Phipps, from matter taken from a vesicle on the hand of Sarah Nemes, a dairymaid who had contracted cowpox. Repeated exposure of the child to smallpox showed

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him to be immune. In the following year a considerable epidemic of cowpox occurred in the area and Jenner vaccinated 3 other persons with success. In June 1798 he published his results in a small book with the title: *An Inquiry into the Causes and Effects of the Variolae Vaccinae*.

Although no more than a pamphlet it is one of the valuable historic medical documents; a copy of the original edition sells at from \$300 to \$500. The date of its publication should be inscribed on every medical calender. Indeed the date of the first successful vaccination, May 14, 1796 should be celebrated as a sort of medical 4th of July or Bastille Day that gave the world the means of freedom from one of the most destructive killers and destroyers of eyesight of all time.

While its benefits are widely felt, there are still large areas and populations where smallpox vaccination is either not accepted or not available. In one part of western Africa a well informed medical man estimated that 5% of the people were totally or partially blind as the result of smallpox. If this were translated into terms of the population of the United States it would mean about 8 million blind or partially blind in this country. Actually there were less than 100,000 persons in the United States in 1952 that received Social Security benefits for the blind. This is about 1 person in 1600. Without smallpox vaccination the number is about 1 in 20.

Jenner received many honors and rewards during his lifetime. Recognized by the world as one of its greatest benefactors, he was made a member of numerous scientific societies. Medals, portraits, and statues com-

memorated him, and grants of \$50,000 and \$100,000 were made to him by his Government. Considering the relative value of money then and now this would be equivalent to 8 or 10 Nobel prizes. The general esteem in which he was held is shown by the action of Napoleon I to a request from Jenner for the release of an English prisoner. The Emperor immediately approved the request with the remark that he could refuse nothing to such a man. Perhaps the noblest tribute was by another great Frenchman, the naturalist Cuvier, who wrote: "Even if the discovery of vaccination were the only thing that medicine had contributed to the advancement of mankind in the present era, it would be sufficient to immortalize the name of Jenner, give him an eminent place among the principal benefactors of humanity, and make our period in the history of science illustrious forever".

Smallpox vaccination was eagerly accepted in Europe and the Americas, although, of course, there were some doubters and some opposition. Dr. Benjamin Waterhouse of Boston had the distinction of introducing it into the United States and of performing the first vaccination in this country. He published the first account of Jenners discovery in the *Columbia Sentinal* under the title "Something Curious in the Medical Line". Other early American vaccinators were David Hosack, John Redman Coxe, and William Goforth. The latter carried the first vaccine west of the Alleghanies to the settlers in Ohio and Indiana.

There is no doubt but that smallpox as a disease of man would cease to exist if smallpox vaccination were universally used. Ignorance, prejudice,

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various social, and religious objections have prevented the complete adoption of the practice and more than 150 years after Jenner's discovery smallpox still kills, blinds, and disfigures in many parts of the world, yes, even in our own country.

Jenner died on January 26, 1823, following an apoplectic stroke. Burial in Westminster Abbey was offered by the government but was not accepted by his family and he was buried in the churchyard at Berkeley.

There is always justifiable curiosity about a great man's appearance. Jenner was described by a contemporary as of medium size, with blue

eyes and brown hair, with a rather florid complexion. He was very neat in his dress and general care of his person. He commonly wore a blue coat, white waistcoat, white nankeen breeches, and white stockings. He had a pleasant and half joking mode of address to friends and indeed this great man was what we would now call a "kidder" or "spoofer", with a weakness for puns and feeble jokes. He was also a refutation of the idea that a jack of all trades is the master of none; for this master of medicine was also a minor poet; an amateur ornithologist; and played fairly well on the flute and the violin.

About the Author



LOUIS H. RODDIS, M.D. received the Doctor of Medicine degree from the University of Minnesota and was appointed an Assistant Surgeon in the United States Navy from that state. He retired in 1950 as a Captain, Medical Corps after extensive service ashore and afloat. He was 3 times the editor of the *United States Naval Medical Bulletin*, until recently the official medical journal of the Navy. From 1933 to 1937 he was lecturer on medical history at the Navy's postgraduate medical school. He was the executive officer of the naval hospital at Pearl Harbor from 1937 to 1939 and during the capture of Saipan and Tinian was the senior medical officer of the hospital ship *Relief*. He is the author of several books in the field of medical history and biography including *Edward Jenner and the Discovery of Smallpox Vaccination*, *William Withering*, *A Short History of Nautical Medicine*, and *James Lind-Founder of Nautical Medicine*. In 1943 he received the Sir Henry Wellcome Gold Medal and Prize in Military Medicine. His last duty in the Navy was as editor of the official naval medical history of World War II.

He is a Fellow of the American College of Physicians, a member of the Association of Military Surgeons, and certified by the Board of Internal Medicine. His specialty was tropical medicine, and with Cooper in 1927 was a pioneer in finding that man's systolic and diastolic blood pressure was lower in the tropics, and rose when he moved to the temperate zone.

Dr. Roddis is married, has two sons, and now lives at 4420 Braeburn Road, San Diego, California.