

Edward Jenner and the Discovery of Vaccination

ARCHIVED ONLINE EXHIBIT

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Curated by Patrick Scott

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EDWARD JENNER INTRODUCTION

The year 1996 marked the two hundredth anniversary of Edward Jenner's first experimental vaccination--that is, inoculation with the related cow-pox virus to build immunity against the deadly scourge of smallpox.



Edward Jenner (1749-1823), after training in London and a period as an army surgeon, spent his whole career as a country doctor in his native county of Gloucestershire in the West of England. His research was based on careful case-studies and clinical observation more than a hundred years before scientists could explain the viruses themselves. So successful did his innovation prove that by 1840 the British government had banned alternative preventive treatments against smallpox. "Vaccination," the word Jenner invented for his treatment (from the Latin *vacca*, a cow), was adopted by Pasteur for immunization against any disease.

In the eighteenth century, before Jenner, smallpox was a killer disease, as widespread as cancer or heart disease in the twentieth century but with the difference that the majority of its victims were infants and young children. In 1980, as a result of Jenner's discovery, the World Health Assembly officially declared "the world and its peoples" free from endemic smallpox.

EDWARD JENNER AND THE DISCOVERY OF VACCINATION

Mortality from smallpox



AGE	DEATHS
Under 1 year	100
1 to 5 years	10
5 to 10 years	5
10 to 20 years	3
20 to 30 years	2
30 to 40 years	1
40 to 50 years	1
50 to 60 years	1
60 to 70 years	1
70 to 80 years	1
80 to 90 years	1
90 to 100 years	1

This table, from the *Encyclopedia Metropolitana* (London 1844), shows the differing death rates from smallpox on sufferers of different ages. Even after the initial impact of Jenner's discovery, much the greatest impact of the disease was on children under one year old.

Lady Mary Wortley Montagu, 1689-1762

Letters from the Levant, during the Embassy to Constantinople 1716-1718

London: Joseph Rickerby, 1838.



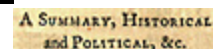
The Turkish practice of inoculation with smallpox itself was, if not first introduced, certainly popularized in high society in Britain by Lady Mary Wortley Montagu, poet, friend of Pope and other writers, and wife of the British Ambassador to the Sublime Porte. Lady Mary had her own child inoculated, and the Hanoverian Royal family (whose ascent to the throne had earlier been facilitated by the smallpox deaths of more immediate heirs) ensured its succession by inoculating two of the Princess of Wales's children, in 1723. The numbers inoculated remained small, however, and medical effort through the eighteenth century was concentrated on reducing the risks and side-effects of the inoculation process.

William Douglass, "M.D.," 1691-1752

"A digression concerning the small-pox," in A summary, historical and political, of the first planting, progressive improvements, and present state of the British settlements in North-America

Boston: printed; London: reprinted for R. Baldwin, 1775 (vol. II, 408). 2 volumes.

Gift of Dr. Robert M. Gibbes to South Carolina College.



Douglass documents from personal experience some of the early experiments in England and in America with the Turkish ("Circassian") method of inoculation against small-pox. Douglass, a Scotsman and probably an Edinburgh graduate, is best known as the first physician to describe scarlet-fever. He settled in Boston in 1718, and during the small-pox epidemic there in 1721 became involved in controversy with "a credulous vain Preacher, Mather Jr.," to whom Douglass had leant the original description of inoculation from the *Philosophical Transactions* and whom he here castigates as trying to steal from Douglass himself "the imaginary honour" for this "new fangled notion." This account dates from 1751.

John Baron, M.D., 1786-1822

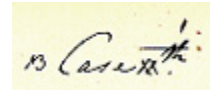
The Life of Edward Jenner, M.D., LL.D., F.R.S.

London: Henry Colburn, 1838. 2 volumes.



While still an apothecary's apprentice in the late 1760s, Jenner had been intrigued by possible relationships between smallpox, cowpox, and swinepox. At the time, he was ridiculed. By 1780, however, he returned to the idea, as evidenced in the conversation recorded here, and in 1789 he experimented by inoculating his own son, then aged one-and-a-half, with the swine pox, followed by conventional smallpox inoculation.

Jenner's handwritten draft of the first vaccination



The original manuscript of Jenner's Inquiry is in the library of the Royal College of Surgeons. Reproduced from W. R. Le Fanu, *A Bio-bibliography of Edward Jenner*, plate IV

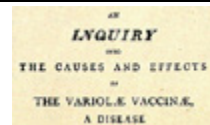
Edward Jenner

Note the background view of Berkeley, in Gloucestershire, where Jenner carried out his original vaccinations, with milkmaid and cow on show. Mezzotint by John Raphael Smith, from his pastel portrait exhibited at the Royal Academy in 1800, reproduced from W. R. Le Fanu, *A bio-bibliography of Edward Jenner 1749-1823*, London: Harvey and Blythe, 1951.

Edward Jenner, M.D., F.R.S.

An inquiry into the causes and effects of the Variolae Vaccinae, a disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the cow-pox

Third edition. London: printed for the author by D. N. Shury, 1801.



Jenner's **Inquiry**, first published in 1798, reported how, over a period of years, he had noticed the immunity provided by cow-pox, and how he decided deliberately to introduce the disease into a patient to see if the effect could be artificially produced. Soon afterwards, he would again inoculate his patients, this time with live smallpox virus ("variolation"), to see if the cow-pox had worked. The "healthy boy" whom Jenner, on May 14 1796, first vaccinated with virus from the dairymaid Sarah Nelmes was James Phipps, who proved Jenner's point by surviving repeated unsuccessful attempts to infect him with smallpox.

ASE XI: WILLIAM STINCHCOMB

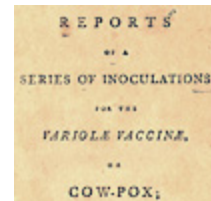
Part of Jenner's argument in the Inquiry was built up from cases like this one, recording Jenner's failure to inoculate or infect with small-pox itself ("variolate") a farmworker who some years before has caught a bad case of the cow-pox.



William Woodville, M.D., 1752-1805

Reports of a series of inoculations for the variolae vaccinae, or cow-pox; with remarks and observations on this disease, considered as a substitute for the small-pox

London: James Philips, 1799.

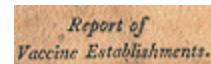


Soon after the publication of Jenner's case-studies, William Woodville carried out much more extensive trials of vaccination among patients in London. Woodville was Director of London Smallpox and Inoculation Hospital, and he kept detailed records on several thousand patients. Woodville, like Jenner himself, had close ties to Sir Joseph Banks, the influential long-time president of the Royal Society, and his support for vaccination was of great importance to its acceptance. As the cases shown here indicate, however, many of Woodville's inoculees developed the characteristic pustules across the body of genuine smallpox, and the "vaccine" used for his trials may in fact have been contaminated.

Samuel L. Mitchill, 1764-1831, ed.

The Medical Repository of original essays and intelligence relative to physic, surgery, chemistry and natural history.

New series, volume 1. New York: John Forbes, 1813.

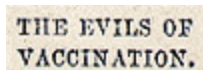


An early American report on the inroads that vaccination rapidly made on disease rates in London, even with poorly-controlled vaccine sources.

Christian Charles Schieferdecker, M.D.

Dr. C. G. G. Nittinger's Evils of Vaccination.

Philadelphia: the editor, 1856.



Because of the lack of clear scientific explanation of its effects, the frequent side-effects, and contaminated vaccines, vaccination itself remained controversial throughout the nineteenth century. It certainly carried risks for the infants being vaccinated, and this volume, playing on parental fears, argued, inter alia, that vaccination was nonsensical, unscientific, criminal, and even sinful. Shown here is a satiric vignette of a protective mother's discussion with the family doctor.