

Vaccination's Forgotten Origins

Patrick J. Pead, MSc, FIBMS, FHA

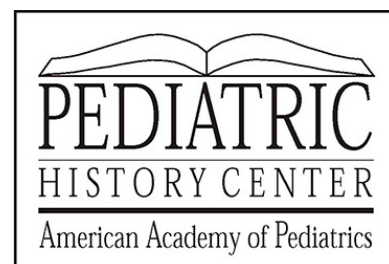
The histories of pediatrics and vaccinology are linked, for most primary attempts at vaccinating against smallpox during the 18th century involved children. Today, of course, vaccinations form a universal and essential part of preventative medicine for the very young. Commonly hailed as a “discovery” or a “medical breakthrough,” the first vaccinations against smallpox with cowpox were really a development from variolation (inoculation with smallpox itself), a technique popularized among the English gentry as “The Inoculation” in the early 1700s by Lady Mary Wortley Montagu. The later introduction of cowpox avoided potential hazards of variolation, which sometimes resulted in death or the transmission of smallpox into areas where it was previously absent.

The story that Dr Edward Jenner was the first to vaccinate in 1796 is one of the best-known medical myths,^{1,2} yet this misinformation is still presented in the media and most popular history books. Jenner was preceded nearly one-quarter of a century before by the Dorset farmer Benjamin Jesty, who vaccinated his wife Elizabeth, along with his 2 sons, Robert (age 3 years) and Benjamin (age 2 years), in the spring of 1774.³⁻⁸ Jesty was born in the village of Yetminster, Dorset, England. He became a dairy farmer and was a member of the Yetminster Vestry. His duties included arranging for health care of the poor. He would have known the local

physicians and apothecaries personally, and he understood the risks of variolation. Jesty had experienced cowpox first-hand as an occupational disease in his youth. He was aware of the folklore of cowpox and discussed its apparent protective effects with his dairymaids, Elizabeth Notley and Mary Reade.⁹ Both women had acquired cowpox during their work and later nursed relatives afflicted with smallpox without contracting the disease themselves.

Faced with a local outbreak of smallpox in 1774, Jesty devised the idea of inoculating his family with cowpox as a safer alternative to the conventional variolation method. To achieve this goal, he took his family to the hamlet of Chetnole (at 3.7 km distant), where he had heard there were cows with symptoms of cowpox. Jesty transferred material from lesions on the cows' teats to the skin of the arms of his 3 subjects by insertion with a stocking needle. This act occurred 22 years before Jenner's vaccination of James Phipps.

The story of Jesty's endeavor emerged when Elizabeth's arm became inflamed at the site of vaccination. Dr Trowbridge and Mr Meech from nearby Cerne Abbas were called, and Jesty was obliged to tell them what he had done. Elizabeth recovered quickly, but the news soon spread among neighboring medical and clerical fraternities. Jesty was reviled by the locals, who subjected him to verbal and sometimes physical



FREE

Department of Molecular Microbiology, School of Medicine, University of Southampton, Southampton, United Kingdom

DOI: 10.1542/peds.2016-2833

Accepted for publication Oct 28, 2016

Address correspondence to Patrick J. Pead, MSc, FIBMS, FHA, 34 Barker Close, Fishbourne, Chichester, West Sussex PO18 8BJ UK. E-mail: pjpead@yahoo.co.uk

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2017 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: Publishing might result in limited sales of the author's recent book.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The author has indicated he has no potential conflicts of interest to disclose.

To cite: Pead PJ. Vaccination's Forgotten Origins. *Pediatrics*. 2017;139(4):e20162833

abuse when he attended markets. Cattle markets were held regularly in Dorset at Sherborne, Blandford, Shaftesbury, and Dorchester; these venues afforded an effective means of transmission of gossip. Correspondence uncovered by the author's archival research indicates that knowledge of Jesty spread over a significant area of the south of England. This extraordinary event was validated and chronicled by sources in Dorset, including letters from William Dolling, the Reverend Hermann Drew, and the noted physician Dr Richard Pulteney.¹⁰ Direct evidence was recorded by the Reverend Andrew Bell,⁹ who interviewed Jesty at Swanage, and again later by the officers of The Original Vaccine Pock Institution¹¹ in London. Jesty permitted his sons to be challenged with smallpox by variolation in 1789 (Robert and Benjamin) and again in 1805 (Robert). They were shown to be unaffected. All 3 recipients of his vaccinations lived into old age and were repeatedly exposed to outbreaks of smallpox without harm. Jesty received some recognition from the Original Vaccine Pock Institution but never from the Jennerian Society or the Royal Society.

Was Jesty really the first vaccinator? Some names mentioned in the historical record before Jesty were associated with descriptions of the protective effects of naturally acquired cowpox and must be excluded.¹²⁻¹⁴ Similarly, claims from other English "cowpoxers" cannot be verified by independent sources.¹⁵ A number of invalid claims were sent to Dr George Pearson during 1802, when a House of Commons Committee debated financial rewards for Jenner.^{16,17} However, there was significant interest in cowpox in the county of Dorset before Jenner, and from examination of archived correspondence, it would seem appropriate to recognize Jesty's priority as the first in the world to

devise and perform the procedure of vaccination in 1774.¹⁸

In reviewing the pre-1796 cowpox activity in Dorset, it is pertinent to consider 2 questions. Did Edward Jenner have medical contacts in that county before he vaccinated Phipps? He did. Second, was he given confidence to proceed with his experiment by knowledge of Jesty after years of hesitation? Although Jenner made no mention of Jesty in his writing,¹⁹ it should be noted that he rarely gave credit to the work of predecessors. These included his friend John Fewster, who had discussed cowpox with Jenner at length. Fewster must have influenced Jenner, rather than the dairymaid fable created by Jenner's biographer John Baron,²⁰ which has now been discounted.²¹ After Jenner's death, much of his correspondence was burned without permission by Sir Everard Home, but recent scrutiny of associated communications with practitioners in Dorset indicates ways that he could have had knowledge of Jesty.¹⁸ In 1807, Jenner had published a sevenfold classification of the human intellect, and it is clear from his "fair summary of the common eighteenth century wisdom on mental attitudes" that, believing himself descended from gentry (Baron Kenelem Jenour), he would never have acknowledged a tenant farmer from the "middling sort" class as having the intelligence to conceive and perform a vaccination procedure.²²

Clearly, Jesty's motivation stemmed from a desire to protect his immediate family. Unlike Jenner, he had no means of formally publishing news of his vaccinations. Jenner experimented on 7 children of other parentage before vaccinating his own son. Informed consent was not a consideration at that time, but in 2007, Davies constructed a hypothetical meeting of a 1795 "Berkeley Local Research Ethics Committee" to consider

an application from Jenner to proceed with his project.²³ Jenner's submission includes the argument that it was more likely that children would not have had smallpox or cowpox previously, factors that would have affected his results. He defends his intention to challenge some of his young subjects with smallpox by stating that he would have offered them variolation anyway in the normal course of his work.

The objective of this author's investigations is not to denigrate Jenner's achievements but to seek increased recognition for Jesty and to challenge misconceptions that persist in the history of the origins of vaccination. When Sir Francis Darwin said during his Galton Lecture that "in science the credit goes to the man who convinces the world, not to whom the idea first occurs," he was voicing an observation, not creating a precedent. The author's opinion is that Jenner is rightly celebrated as the person who brought vaccination to the world, but the intellectual property for this process rests firmly in the ownership of Benjamin Jesty. Whether Edward Jenner had knowledge of Jesty before vaccinating Phipps cannot be confirmed absolutely, but recent investigations suggest his work did not take place in a vacuum.¹⁸ The world will be forever grateful that he took the risk.

Those wishing to probe this topic further are invited to visit www.benjaminjesty.com.

REFERENCES

1. Gross CP, Sepkowitz KA. The myth of the medical breakthrough: smallpox, vaccination, and Jenner reconsidered. *Int J Infect Dis*. 1998;3(1):54-60
2. Horton R. Myths in medicine. Jenner did not discover vaccination. *BMJ*. 1995;310(6971):62
3. Wallace M. *The First Vaccinator*. Wareham and Swanage: Anglebury-Bartlett; 1981

4. McCrae T. Benjamin Jesty: a pre-Jennerian vaccinator. *Johns Hopkins Hosp Bull.* 1900;11:42–44
5. Haviland A. The proto-martyr to vaccination. *Lancet.* 1862;2:291
6. Gould GM. Medical discoveries by the non-medical. *JAMA.* 1903;40:1477
7. Kilpatrick DC. Farmer Jesty and the discovery of vaccination. *J Clin Pathol.* 1993;46(3):287
8. Hammarsten JF, Tattersall W, Hammarsten JE. Who discovered smallpox vaccination? Edward Jenner or Benjamin Jesty? *Trans Am Clin Climatol Assoc.* 1979;90:44–55
9. Southey GC. *The Life of the Rev Andrew Bell.* London, England: John Murray; 1844
10. Jenner GC. *The Evidence at Large, as Laid Before the Committee of the House of Commons, Respecting Dr Jenner's Discovery of Vaccine Inoculation, Together With the Debate: And Some Observations on the Contravening Evidence.* London, England: John Murray; 1805
11. Pearson G, et al. Report of the Original Vaccine Pock Institution. *Edin Med Surg J.* 1805;1(4):513–514
12. Thacher SC, Adams DP, Emerson W. P refer to Salger's 'De lue Vaccarum' (printed 1713). In: *Monthly Anthology and Boston Review.* Boston, MA: TE Watt & Co; 1804
13. Peachey GC. John Fewster, an unpublished chapter in the history of vaccination. *Ann Med Hist.* 1929;1:229–240
14. Bose J. Pestilence of cattle; and on passages in Livy. In: *General Conversations of Göttingen.* May 24, 1769. Part 39; 55
15. Pearson GC. *An Inquiry Concerning the History of the Cow Pox, Principally with a View to Supersede and Extinguish the Small Pox.* London, England: J. Johnston; 1798
16. Creaser T. *Observations on Dr Pearson's Examination of the Report of the Committee of the House of Commons.* 2nd ed. Bath, England: Richard Cruttwell; 1805
17. Crookshank EM. *History and Pathology of Vaccination.* London, England: HK Lewis; 1889
18. Pead PJ. *Benjamin Jesty: Grandfather of Vaccination.* Chichester, England: Timefile Books; 2016
19. Jenner E. *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease. . . . and Known by the Name of the Cow Pox.* London, England: Sampson Low; 1798
20. Baron J. *The Life of Edward Jenner.* London, England: Henry Colbourn; 1827
21. Boylston A. The origins of vaccination: myths and reality. *J R Soc Med.* 2013;106(9):351–354
22. Jenner E. Classes of the human powers of intellect. *The Artist.* 1807;XIX:1–7
23. Davies H. Ethical reflections on Edward Jenner's experimental treatment. *J Med Ethics.* 2007;33(3):174–176

Vaccination's Forgotten Origins

Patrick J. Pead

Pediatrics 2017;139;

DOI: 10.1542/peds.2016-2833 originally published online March 7, 2017;

Updated Information & Services

including high resolution figures, can be found at:
<http://pediatrics.aappublications.org/content/139/4/e20162833>

References

This article cites 12 articles, 2 of which you can access for free at:
<http://pediatrics.aappublications.org/content/139/4/e20162833.full#ref-list-1>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):
Infectious Disease
http://classic.pediatrics.aappublications.org/cgi/collection/infectious_diseases_sub
Vaccine/Immunization
http://classic.pediatrics.aappublications.org/cgi/collection/vaccine:immunization_sub

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<https://shop.aap.org/licensing-permissions/>

Reprints

Information about ordering reprints can be found online:
<http://classic.pediatrics.aappublications.org/content/reprints>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since . Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2017 by the American Academy of Pediatrics. All rights reserved. Print ISSN:

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS[®]

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Vaccination's Forgotten Origins

Patrick J. Pead

Pediatrics 2017;139;

DOI: 10.1542/peds.2016-2833 originally published online March 7, 2017;

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/139/4/e20162833>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since . Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2017 by the American Academy of Pediatrics. All rights reserved. Print ISSN:

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

