The Smallpox Controversy

As a part of the debate about the importance of smallpox inoculation during the eighteenth century, I will try to comment on Mr. Bradley's remarks on my review of his work in the sequence of those remarks. (LPS 10 page 67)

As a first part of his argument, Bradley reiterates the belief that during the eighteenth century smallpox carried off "a thirteenth or a fourteenth part of every generation" and supports this conclusion by invoking the authority of a Dr. K. Dietz, a medical statistician. It is obvious however that a conclusion of this kind can only be scientifically reached through a detailed examination of all the available evidence. As far as I am aware, the only place where this has been done for England and Wales is in my doctoral thesis, The Role of Smallpox Inoculation in the Growth of Population in Eighteenth Century Britain. The statistics which form the basis of the conclusion quoted by Bradley are almost exclusively derived from the experience of the larger towns (in which only about a fifth of the population lived by the end of the eighteenth century), which as I mentioned in my review are fundamentally suspect. This is a point later raised by Bradley and I will return to it as it is perhaps the key part of this particular debate.

Concerning the degree of importance of the reduction in smallpox mortality in the general growth of population due to inoculation, my position has changed since I wrote the Economic History Review article in 1965. This change was brought about by my work on the reliability of parish registers published in the March, 1972 edition of Population Studies which is also referred to by Bradley. In that article I calculate national death rates for the period 1801–1841 which indicate that there was a sharp fall in mortality during these forty years. As this period was, on my earlier evidence, after the virtual elimination of smallpox as a major disease from this country, there were clearly other factors at work during the Industrial Revolution period other than smallpox inoculation bringing about a growth in population. In a new forthcoming article in Population Studies I argue from a review of all the evidence for this period that the fall in mortality was due to a marked improvement in personal hygiene as measured by an increase in per capita consumption of soap and perhaps more importantly by the dramatic utilisation of cotton goods for clothing (cottons were much more easily washable than traditional woollens). The details of this argument are of no importance in the present debate, but the general conclusion obviously means that I am no longer claiming that pre-inoculation smallpox mortality was of such a high order that its elimination could have accounted for the whole of the population increase during the latter half of the eighteenth and the first half of the nineteenth century. In this respect Mr. Bradley and I are now in agreement.

Where we do still seriously disagree is over the reliability of parish register data as a basis for conclusions about the mortality from particular diseases or in fact about any demographic conclusions whatsoever, without a substantial correction factor. My work on the reliability of Anglican baptism registers suggests that only about two-thirds of all births were registered and this figure could rise to over a half in urban areas like Hackney and Kingston, Bradley believes that there are serious flaws in the method I use for calculating the numbers of unregistered births; the only such flaw that he specifically mentions is my assumption that "baptism has always been performed by the Anglican church in the parish of residence". I concede that this was a mistaken assumption inasmuch as since I completed this work the Cambridge Group have discovered a number of births which took place in Colyton but were registered in the baptism registers of adjoining parishes. However, it is unlikely that this
practice took place on any scale: after 1812 it was required by law to record the parish of residence at the time of baptism and a cursory examination of a number of registers for the post-1812 period suggests that baptism in parishes other than that at birth was very rare. Dr. E.A. Wrigley has counted the number of such discrepancies in the Colyton parish register and according to a personal communication the proportion of such cases during the period 1812–1850 was under three per cent. This is an important area which requires much further research, but the very limited evidence available to date does not suggest that flaws in my assumption about the place of baptism would materially alter the conclusions reached in my Population Studies article.

Whatever the outcome of future research into the reliability of parish registers in general, there can be no doubt that baptism registers for parishes within large urban areas such as London were seriously deficient during the eighteenth and nineteenth centuries. According to my calculations, the Hackney register recorded under thirty per cent of all births in the parish during the last forty years of the eighteenth century; whatever adjustments had to be made to this proportion on account of baptisms outside of the parish of birth, they are bound to be minor in the context of this scale of under-registration. Hackney was a part of the Bills of Mortality area and so its statistics would have formed a part of the basis of the figures used by contemporaries to calculate the mortality from various diseases, including the ones referred to in Bradley’s pamphlet. This scale of under-registration would make the mathematical calculations of Bernoulli and d’Alembert not worth the paper that they were written on.

It is also likely that problems in the accuracy of parish data were not confined to urban areas: I found sharp variations both over time and between different parishes in my work on register reliability. The main reason why so many parish registers were unreliable was probably a function of the system of registration. There was always a delay between the actual performance of a baptism and its registration in the register; also the registers were often kept by semi-literate parish clerks or by clerics who relegated the onerous task of making the entries in the register to moments of “leisure, whenever he had nothing better to do, and perhaps has never entered them at all”.

But there were other sources of error other than the system of registration: there is a limited amount of evidence to suggest for example that smallpox victims were often buried in private burial grounds and not entered in the burial register. Bradley states that I only refer to two examples of this out of a total of about 15,000 parishes; this is in fact not the case, as one of the two examples refers to a general statement by the eminent eighteenth doctor, T. Dimsdale, that often “due care is taken to bury the dead (from smallpox) privately” in the burial grounds attached to pest houses. A specific example of this is presumably an entry to be found in the Maidstone parish register: there were 102 children who died from smallpox in Maidstone during the year 1760 and were buried “out of town” — their burial was not registered in the list of Anglican burials, although their total number was mentioned in passing in the parish register.

The deficiencies in parish registers mean that they should be used with extreme caution by historical demographers and others in order to arrive at reliable conclusions. In the case of pre-inoculation smallpox mortality, I prefer to rely on direct contemporary statistics of case fatality rates than on changes in the number of burials during epidemic years such as those referred to by Bradley. The most important example of such direct statistics is the nation-wide survey of smallpox mortality during the 1720’s conducted by Jurin and others: of the 13,192 cases of people who had caught smallpox in the sample, 2,167 died — a case-fatality rate of
16.5 per cent. As smallpox was a universal disease at this time — everyone sooner or later catching the disease — the level of mortality would have been somewhat lower than the case-fatality rate, some people dying from other causes before catching the disease. In my original work on smallpox inoculation I assumed that smallpox mortality overall would have been higher than that suggested by the evidence on the case-fatality rate — and I assumed this because of a number of possible reasons for under-registration of mortality, such as the existence of fulminating smallpox which is a particularly fatal form of the disease only recently discovered with the aid of sophisticated laboratory techniques. I am now inclined to think that pre-inoculation smallpox mortality was about the same level as the case-fatality rate, i.e. 16.5 per cent. These estimates will have to be carefully re-considered in the light of all the surveys of case-fatality during the eighteenth century when all the demographic work by the Cambridge Group and others has been completed.

Finally, there is the question of the extent of inoculation in different areas of the country at different points of time. This is a topic which L.P.S. readers could certainly make a very useful contribution as very often contemporary sources give very detailed figures of the numbers of people inoculated out of the total who required such a form of protection. Most of this evidence is scattered in parish papers, such as the accounts of the overseers of the poor or of the churchwardens. In the context of the more general argument however, the precise amount of inoculation practised is less important than Bradley appears to believe. Inoculation was supplemented by vaccination by the beginning of the nineteenth century, and although in Great Britain inoculation probably remained the more important of the two until the 1840's, between them they more than protected the population against smallpox (some people were both inoculated and vaccinated). The detailed evidence known to me still suggests that smallpox had been virtually obliterated in most parts of the country, particularly in the countryside. As for Mr. Bradley’s final question, may I be permitted to ask him one myself: has he read my doctoral thesis on the subject?

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Notes


2. For this quote and other similar kinds of evidence see Ibid, p. 141.


4. See my doctoral thesis The Role of Smallpox Inoculation in the Growth of Population in Eighteenth Century Britain (Oxford University), pp. 224–238. The universality of smallpox is indicated by the age-incidence of the disease: even before the introduction of inoculation it was mainly a disease of childhood. It is difficult to see on what grounds Bradley rejects the argument about the absence of extreme mortalities such as that which occurred in the Orkney Islands and Iceland — I repeat, if smallpox had been entirely absent from communities for very long periods of time, the result would have been massive mortalities from very infrequent but highly fatal epidemics.