

Smallpox and the Epidemiological Heritage of Modern Japan: Towards a Total History

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This article examines one of the long-term structural forces that contributed to the making of public health in Modern Japan. My overall argument is that the history of public health should be conceived as a total history, encompassing not just political, administrative, and scientific factors but also natural, social, and economic factors. Elsewhere I have discussed two of these factors in some detail, both of which were long-term structural forces resulting from the interactions of different realms: 1) the effect of the topography and the pattern of the use of land; and 2) the effect of the market as a medium for people's behaviour seeking the prevention of the disease.¹ Here I will argue that the Japanese long-term experience of diseases provided another structural force that shaped public health in Japan. The long-term cumulative factor can be called the 'epidemiological heritage' of Japan.

Although the phrase 'epidemiological heritage' is my own coinage, the concept has been articulated and developed most clearly by Peter Baldwin in his *Contagion and the State in Europe 1830–1930* (1990).² Baldwin has shown that mediaeval and early modern experience of plague provided the basis from which nineteenth-century public health in Europe was developed. Repeated visitations of plague prompted European states to establish public-health measures, first in Italian cities and then in states in northern Europe. The anti-plague measures consisted mainly of spatial limits imposed on the movement of people and goods: quarantine, *cordon sanitaire*, confinement of patients in *lazarettos*, and disinfection of goods and letters at borders. These spatial measures entered the vocabulary of public health in the late mediaeval and early modern periods and remained there even after plague disappeared from Europe in the eighteenth century. When cholera hit Europe in the 1820s, European states resuscitated their anti-plague measures to combat cholera: 'most regimes dusted off their files on bubonic plague and put what were by now fairly traditional policing measures into operation: military

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¹ This paper does not discuss these two forces in detail. See Akihito Suzuki and Mika Suzuki,

'Cholera, Consumer, and Citizenship: Modernization of Medicine in Japan', in Hormoz Ebrahimnejad (ed.), *The Development of Modern Medicine in Non-Western Countries: Historical Perspectives* (London: Routledge, 2009), 184–203.

² Peter Baldwin, *Contagion and the State in Europe 1830–1930* (Cambridge: Cambridge University Press, 1999).

cordons sanitaires, quarantine, fumigation, disinfection, isolation.³ This set of time-old anti-plague measures served as a prototype from which anti-cholera measures were developed in Europe in the nineteenth century to become the core of modern public health. Several centuries of visitations of plague thus provided Europe with the crucial part of the epidemiological heritage to develop its modern public health.

Japan, on the other hand, had not experienced plague in the late mediaeval and early modern period. What formed, then, the epidemiological heritage of Japan? Which disease served as the prototypical epidemic disease when cholera struck the country in the nineteenth century? This paper argues that smallpox held the key and the epidemiological profile of the disease moulded and conditioned people's response to epidemic diseases in general. Centuries of smallpox epidemics had formed the basis, from which had developed anti-cholera measures and other public health policies in modern Japan. One should thus examine the long-term context of these smallpox epidemics in Japan from the ancient and mediaeval periods through to the early modern period.

The first recorded smallpox epidemic in Japan was in the eighth century. The smallpox that started in 735 ravaged the country and killed probably about one-third of the entire population. Almost certainly this was a virgin soil epidemic. Later, twenty-eight smallpox epidemics were recorded until 1206. Among these epidemics, there was a clear trend of progressive shortening of the interval between two epidemics: until the year 1000, smallpox visited Japan with the interval of twenty-four years on average, while between 1001 and 1206 the interval became thirteen years.⁴ (Table 1) By the Tokugawa Period or the early modern period in Japan, smallpox was firmly settled as an endemic disease.⁵ Statistics from a village show that the village experienced major outbreaks of smallpox about every ten years. (Figure 1) They also show that about ninety-five per cent of the deaths from smallpox were those who were under ten-years-of-age. (Table 2)

This epidemiological profile of smallpox in early modern Japan had an important societal consequence. Since victims were almost exclusively children, the management of smallpox became the business of each household. Medical advice-books for lay people published during the Edo Period often included how to protect one's child from malignant smallpox. Likewise, suffering and recovering from smallpox became an important part of the ritual celebrating the growth of one's child. The ritual was called *sasayu*, and became an important occasion to throw a family party, inviting friends and relatives.⁶ The management of the smallpox of one's child was integrated into the management of the household during the Tokugawa Period.

³ Richard Evans, 'Epidemics and Revolutions: Cholera in Nineteenth-Century Europe', in Terence Ranger and Paul Slack (eds), *Epidemics and Ideas: Essays on the Historical Perception of Pestilence* (Cambridge: Cambridge University Press, 1992), 149–74: 163.

⁴ Early epidemics of smallpox have been explained in detail in William Wayne Farris, *Population, Disease, and Land in Early Japan, 645–900* (Cambridge, MA: Harvard University Press, 1985).

⁵ Smallpox in early modern Japan has been closely examined in Ann Bowman Jannetta,

Epidemics and Mortality in Early Modern Japan (Princeton, NJ: Princeton University Press, 1987); Ann Jannetta, *The Vaccinators: Smallpox, Medical Knowledge, and the 'Opening' of Japan* (Palo Alto, CA: Stanford University Press, 2007). See also, Ann Bowman Jannetta and Samuel Preston, 'Two Centuries of Mortality Change in Central Japan: The Evidence from a Temple Death Register', *Population Studies*, 45 (1991), 417–36.

⁶ Jannetta, *Epidemics and Mortality*, *ibid.*, 61–107.

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Table 1
Number of years between outbreaks of smallpox in Japan

Outbreak no.	735–1000		Outbreak no.	1001–1206	
	Year	Interval (years)		Year	Interval (years)
1	735	–	13	1001	3
2	763	28	14	1020	19
3	790	27	15	1025	5
4	810	20	16	1036	11
5	853	43	17	1072	36
6	879	26	18	1077	5
7	915	36	19	1085	8
8	925	10	20	1093	8
9	947	22	21	1113	20
10	974	27	22	1126	13
11	993	19	23	1143	17
12	998	5	24	1161	18
			25	1175	14
			26	1177	2
			27	1192	15
			28	1206	14
Average interval		23.9	Average interval		13.0

Source: Fujikawa Yū, *Nihon Shippei shi [History of Diseases in Japan]* (Tokyo: Heibonsha, 1969).

Another profile of the epidemiology of smallpox from the seventeenth century was the spatial fragmentation of the diffusion. While in the ancient period an epidemic of smallpox covered the entire country in a single wave, during the Tokugawa Period the disease lost its nationwide coverage. Smallpox became spatially limited in its diffusion, ceasing to be an event for the state under shogunate or the domain rule by *daimyōs*. Instead it became the affair of local villages. Diffusion maps from the eighteenth and nineteenth centuries show mosaic-like patterns of affected settlements and unaffected settlements in each outbreak.⁷ Under such a situation, there was little reason for the state or the domains to think that controlling smallpox was their business. The changing spatial profile of smallpox thus separated anti-smallpox measures from the worldviews of elites of the state and the domains and integrated them into those of common villagers. People in the village were left free to inscribe their belief onto anti-smallpox measures. Folkloric religions and local customs became backbones of the rituals for smallpox: people made offerings of food to the demons of the disease and danced to music to guide them out of the villages. The fragmentation of the diffusion of smallpox in the Tokugawa Period put the control of the disease out of the power of wide-area administration and

⁷Suda Keizō, *Hida no Tōsō shi [History of Smallpox of Hida]*, (Gifu: Kyōiku Bunka Shuppan Kai, 1992), 32-4.

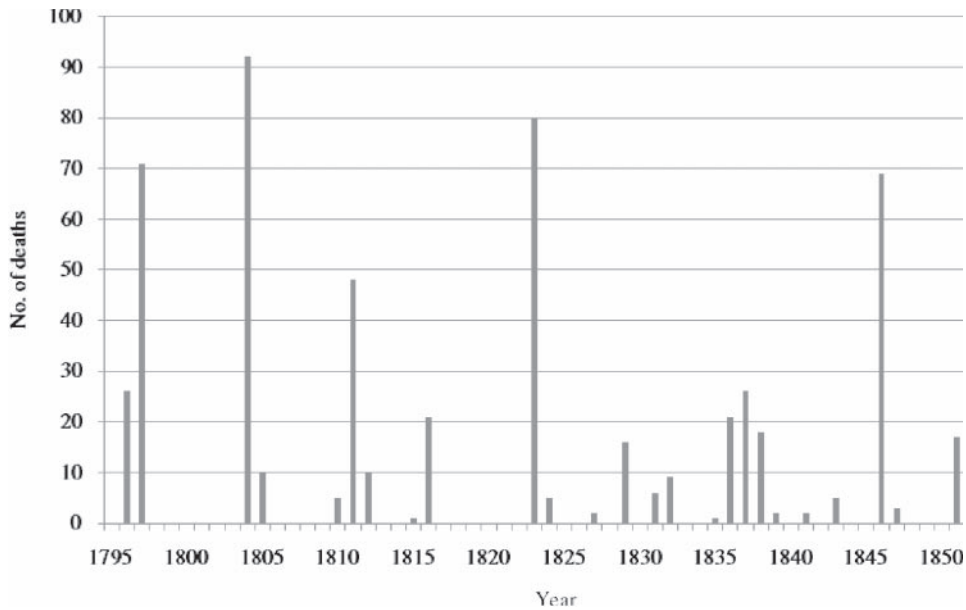


Figure 1: Deaths from smallpox in Hida, 1795–1852

Source: Suda Keizō, *Hida no Tōsō shi [History of Smallpox of Hida]* (Gifu: Kyōiku Bunka Shuppan Kai, 1992).

Table 2

Mortality figures and causes divided up by under/over 10 years of age in Hida, 1795–1852

	Deaths under 10	Deaths over 10	Percentage of under 10
Smallpox	735	38	95.1
Diarrhoea	217	41	84.1
Measles	29	6	82.9
‘Wind’ disease	10	198	4.8
‘Epidemics’	0	19	0
‘Temporal Disease’	5	111	4.3
Subtotal	996	413	70.7
Unknown	967	337	74.2
Other causes	1770	2772	39
Total	3733	3562	51.2

Source: Suda Keizō, *Hida no Tōsō shi [History of Smallpox of Hida]* (Gifu: Kyōiku Bunka Shuppan Kai, 1992).

enlightened rationality, and set it into the realm of the business of village, using magical and religious methods most familiar to them.

The epidemiology of smallpox in early modern Japan thus prompted small-scale units of families and villages to take the responsibility for its control. This epidemiology was buttressed by Tokugawa ideologies: didactic emphasis on Confucian family values encouraged the family's self-help, and the administrative system of the self-government of villages contributed to the making of family- and village-based 'public' health. The large-scale units of the state or the domains, who were actors representing rational, bureaucratic, and systematic values in early modern Japan, were largely absent from the smallpox control.

It is a mistake, however, to regard this family- and village-based public health movement as representing something backward in the context of early modern Japan. On the contrary, this is the point I would like to emphasise: those who practised the management of smallpox in the household and the village believed this was a civilised way of dealing with the disease, if compared with other forms of managing smallpox practised in the peripheral and isolated parts of Japan, such as small islands and regions isolated by steep mountains.⁸ In these remote places, smallpox visited only rarely and retained its virgin soil characteristics. Contemporary observers clearly noticed the contrast between 'central' regions where smallpox was endemic and semi-endemic, and those 'peripheral' regions where smallpox behaved like virgin soil infections. When observing the visitation of the disease in peripheral places, people from central regions were not only stunned at the magnitude of the damage but also struck at the ways in which the residents of the remote regions behaved during the epidemic: unlike the residents in cities or ordinary villages, those in the peripheral regions fled the place or practised spatial quarantine. These behaviours caused emotions ranging from curious bewilderment to moral condemnation from observers from cities, towns and villages, where smallpox had become endemic or semi-endemic. What horrified them most was the discarding of the children and family members suffering from smallpox and fleeing the village, which represented an unthinkable barbarity by the standards of those who had already experienced endemic or semi-endemic smallpox. Note well that different epidemiological profiles moulded different patterns of behaviour or even different moral standards.

The endemicity of early modern smallpox in Japan thus held the key for the family- and village-based public health measures against the disease. Immunity of adults, the restriction of the victims to children, and the fragmentation of the diffusion allowed most of Japanese society to deal with the disease with the small-scale social units of the family and the villages. Where the outbreak retained the violence of virgin-soil epidemic, the smallpox was treated using a different set of strategies: isolation, quarantine, breaking up the family, and fleeing from the place. The epidemiological heritage of experiencing smallpox as an endemic or semi-endemic disease with shorter intervals

⁸ For smallpox epidemics in peripheral parts of Japan, see two excellent papers by Kōzai Toyoko, 'Isetsu no nakano Hachijōjima' ['Hachijō Island in Medical Discourses'], *Shisō*, 1025 (2009), 46–71; *idem*, 'Ainu ha naze 'yamani nigeta' ka' ['Why Did

the Ainu Flee to the Mountain?'], *Shisō*, 1017 (2008), 78–101; see also, Kawamura Jun'ichi, *Bungaku ni miru Tōsō* [*Smallpox in Literature*] (Kyoto: Shibunkaku, 2006), 140–8, 180–2.

provided early modern Japanese society with the public health system centred around the family and the village, with the state and the domains largely absent.

In this article, I have argued that the attitudes toward smallpox in early modern Japan were forged in the ecological balance between humans and microbes. The balance shifted historically, moving from infrequent but destructive visitations to frequent and manageable ones. It also differed geographically, with peripheral regions retaining the savagery of older epidemiological regimes of infrequent epidemics. Japanese ways of managing smallpox through household and villages fitted well to the epidemiological regime of smallpox that existed for the most part of early modern Japan. Perhaps most important in the making of the epidemiological heritage was the absence of plague. While plague prompted European states in the mediaeval and early modern period to assume strong power for its prevention, Japanese society had been, for the most part, allowed to leave its management of epidemics to families and villages. The early modern public-health model in Japan was thus deeply influenced by the ecology of diseases, particularly endemic smallpox and the absence of plague. This is the 'epidemiological heritage' of nineteenth-century Japan faced with the new epidemics of cholera, the new states ambitious to Westernise the nation, and the new model of public health and medicine imported from the West. The establishment of modern public health in Japan, which has been told as a story of importing Western systems by the government, turned out to be a far more complex phenomenon involving many factors, and the most important of them being the epidemiological heritage forged through the long-term process of experiencing smallpox as a child's disease.