

近現代の日本における医療の構造変化と歴史の重層(代表：鈴木晃仁)

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

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This paper 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, economical factors. Elsewhere I have discussed two such factors in some details, 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 behavior seeking for the prevention of the disease.¹ Today I will argue that the Japanese society's long-term experience of diseases provided another structural force that shaped the 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 medieval 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-plagues measures consisted mainly of spatial limits imposed on

¹ This paper does not discuss these two forces in details. Figure 1 is an incidence map of cholera of Kanda Ward of Tokyo during the epidemic of 1879. The incidence of the disease overlapped with the pattern of residential segregation of samurai (warriors) and chōnin (merchants and artisans) during the Tokugawa period. Those streets designated for chonin's residence were hit much harder by cholera. Figure 2 is taken from an ukiyoe print (1862) which comically depicts the revenge of the certain commodities of food against the demons of the disease (measles) for the slump of sales during the epidemic. The revengeful sushi symbolizes the involvement of market into people's anti-epidemic behavior. 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).

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 medieval 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 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 medieval 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 molded and conditioned people's response to epidemic diseases in general. Centuries of epidemics of smallpox had formed the basis, from which developed anti-cholera measures and other public health policies in modern Japan. One should thus examine the long-term context of the epidemics of smallpox in Japan since the ancient and medieval period through early modern period.

The first recorded epidemic of smallpox 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. Since then, twenty-eight epidemics of smallpox were recorded until 1206. Among these epidemics, there was a clear trend of progressive shortening of the interval between two epidemics: until the year 1,000, smallpox visited Japan with the interval of 24 years on average,

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), 149-174, 163.

while between 1001 and 1206 the interval became 13 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 shows that the village experienced major outbreaks of smallpox in about every ten years. (Table 2) They also shows that about 95% of the deaths from smallpox were those who were below 10 years of age. (Table 3)

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 keep 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 the 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.

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 nation-wide 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. The diffusion maps in 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

⁴ Early epidemics of smallpox have been explained in detail in William Wayne Farris, Population, Disease, and Land in Early Japan, 645-900 (Cambridge, Mass.: Harvard University Press, 1985). Table 1 is compiled from Fujikawa Yū, Nihon Shippei shi [History of diseases in Japan] (Tokyo: Heibonsha, 1969).

⁵ Smallpox in early modern Japan has been closely examined in Ann Bowman Jannetta, Epidemics and Mortality in Early Modern Japan (Princeton: Princeton University Press, 1987); Ann Jannetta, The Vaccinators: Smallpox, Medical Knowledge, and the "Opening" of Japan (Stanford: Stanford University Press, 2007). Tables Two and Three are compiled from Suda Keizō, Hida no Tōsō shi [History of smallpox of Hida] (Gifu: Kyōiku Bunka Shuppan Kai, 1992). 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), 417-436.

⁶ Jannetta, Epidemics and Mortality, pp.61-107.

⁷ Suda, Hida no Tōsō shi, pp.32-4.

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

Epidemiology of smallpox in early modern Japan thus prompted small-scale units of families and villages to take the responsibility of 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 scenes of controlling smallpox.

It is a mistake, however, to regard the family- and village-based public health as representing something backward in the context of early modern Japan. Quite contrary, and this is the point I would like to emphasize. Those who practiced the management of smallpox at the household and the village believed this was a civilized way of dealing with the disease if compared with other forms of managing smallpox practiced in the peripheral and isolated parts of Japan, which were 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

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*, no.1025(2009)46-71; *idem*, "Ainu ha naze 'yamani nigeta' ka" [Why did the Ainu 'flee to the mountain'?), *Shisō*, no.1017, 78-101. See also Kawamura Jun'ichi, *Bungaku ni miru Tōsō* [Smallpox in Literature](Kyoto: Shibunkaku, 2006), pp.140-8, 180-2.

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 practiced spatial quarantine. These behaviors caused emotions ranging from curious bewilderment to moral condemnation to 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 standard of those who had already experienced endemic or semi-endemic smallpox. Note well that different epidemiological profiles molded different patterns of behavior 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 the most of the 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 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 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 paper 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 regime of infrequent epidemics. Japanese ways of managing the smallpox through household and villages fitted well to the epidemiological regime of smallpox which 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 medieval and early modern period to assume strong power for its prevention, the 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 facing with the new epidemics of cholera, the new states ambitious to Westernize 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 system 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 children's disease.

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Table 1

735-1000			1001-1206		
No.	Year	Interval	No.	Year	Interval
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 years		23.9	Average interval years		13.0

1852 30

1853

Table 3

	Deaths under 10	Deaths over 10	Percentage of under 10
Smallpox	735	38	95.1
Diarrhea	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
sub total	996	413	70.7
unknown	967	337	74.2
other causes	1770	2772	39
Total	3733	3562	51.2

Cholera and the Making of Modern Medicine in Japan: Toward a Total History

A paper presented at "Future of Medical History", held in London 15-17 July 2010
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Introduction

- Long-term forces that structured the making of public health policy in Meiji Japan
- Epidemiological, environmental, geographical, and social factors, at least as important as political ideological ones.
- Landscape and its use.
- Market as a medium of medicine and public health
- Epidemiological heritage.
- "Total history" of epidemics and public health.



- "Vendors of fish became very small in number, because fish would turn out to be fatal to those who had eaten it. Fishermen and fishmongers suffered heavy loss of their living. So did restaurants and bistros. Especially sardines were thought to be poisonous, and few people bought them even when they were fresh. On the other hand, prices of eggs and vegetables rose." (Chronicle of Edo, 1858)

Introduction

- Long-term forces that structured the making of public health policy in Meiji Japan
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- Landscape and its use.
- Market as a medium of medicine and public health
- Epidemiological heritage.
- "Total history" of disease, medicine, and public health in modern Japan.

Epidemiological heritage

- Peter Baldwin, Contagion and the State in Europe 1830-1930 (1999)
- Europe combated against cholera in the 19c using the legacies left by plague in the 14c-17c.
- Quarantine, cordons sanitaires, lazarettos, disinfection of goods at borders.

Epidemiological heritage of 19c Japan

- Lack of plague, smallpox provided the key.
- Family and village, instead of the state and the cities, took responsibilities in the management of the epidemic disease.
- Antagonism to the principles inherent in anti-plague measures developed in Europe.
- To understand the Japanese way, one should put it in the context of the epidemics of smallpox.

No.	Jap. year	Year	Interval yrs	No.	Jap. year	Year	Interval yrs
1	天平7	735	-	13	長保3	1001	3
2	天平宝字7	783	28	14	寛仁4	1020	19
3	延暦9	790	27	15	万寿2	1025	5
4	弘仁1	810	20	16	長元9	1036	11
5	仁寿3	853	43	17	延久4	1072	36
6	元慶3	879	26	18	承暦1	1077	5
7	延喜15	915	36	19	応徳2	1085	8
8	延喜3	925	10	20	寛治7	1083	8
9	天曆1	947	22	21	永久1	1113	20
10	天延2	974	27	22	大治1	1128	13
11	正暦4	993	19	23	康治2	1143	17
12	長徳4	998	5	24	应保1	1161	18
			23.8	25	安元1	1175	14
				26	治承1	1177	2
				27	建久3	1182	15
				28	建永1	1208	14
							13.0

Smallpox Epidemics I 735-1000
Average interval: 24 years

Smallpox Epidemics II 1000-1206
Average interval: 13 years

Year	Smallpox deaths	Year	Smallpox deaths	Year	Smallpox deaths	Year	Smallpox deaths
1731		1781		1791	2	1821	
1732		1782		1792		1822	
1733		1783		1793		1823	80
1734	2	1784	1	1794		1824	5
1735		1785	30	1795		1825	
1736		1786	5	1796	26	1826	
1737		1787		1797	71	1827	2
1738	1	1788		1798		1828	
1739	3	1789		1799		1829	16
1740		1790		1800		1830	
1741		1791	19	1801		1831	6
1742		1792	49	1802		1832	9
1743		1793	1	1803		1833	
1744		1794		1804	82	1834	
1745		1795		1805	10	1835	1
1746		1796	4	1806		1836	21
1747	1	1797	1	1807		1837	26
1748		1798	31	1808		1838	18
1749		1799	6	1809		1839	2
1750	6	1780		1810	5	1840	
1751		1781	1	1811	48	1841	2
1752		1782	15	1812	10	1842	
1753	1	1783	3	1813		1843	5
1754	5	1784		1814		1844	
1755		1785	3	1815	1	1845	
1756		1786		1816	21	1846	66
1757		1787		1817		1847	3
1758	2	1788		1818		1848	
1759	4	1789	6	1819		1849	
1760		1790	82	1820		1850	17
						1851	30
						1852	
						1853	

Deaths from smallpox in Miyamura-area in Hida, 1731-1853

	Deaths under 10	Deaths over 10	Percentage of under 10
天然痘 (Smallpox)	735	39	95.1
「痢病」 (Diarrhea)	217	41	84.1
麻疹 (Measles)	29	6	82.9
「風病」 ("Wind" disease)	10	198	4.8
「疫病」 ("Epidemic")	0	19	0.0
「時疫」 ("Temporal Disease")	5	111	4.3
小計 (total)	986	413	70.7
不明 (unknown)	987	337	74.2
疫病以外 (other causes)	1770	2772	38.0
合計 (Total)	3733	3582	51.2

The meanings of shorter intervals

- Shorter intervals meant that smallpox became children's disease.
- The management of smallpox became the business of each household.
- Medical books discussed how to make the smallpox of one's child a "light" one.
- The ritual of sasayu.

	1772	1797	1823	1846	1852	合計
宮	12	4	34	29		79
山梨	1		1	21		23
上村	6	4	8	4		22
中村	3	3	6		4	16
西洞	1		7	4	2	14
反保	1	4	7	2		14
小坊		5	1		3	9
御母衣			4	3	2	9
板屋	1		1	4	1	7
津	4				3	7
引下		5	1			6
船渡		4				4
木越洞			1		3	4
桑原	1					1
横山	1					1
横尾		1				1
大坊					1	1
	31	30	71	67	19	218

Fragmentation of the diffusion of smallpox:
The number of deaths from smallpox in 17 settlements in Miyamura area during the epidemic years .

Fragmentation of the diffusion

- The epidemics of smallpox lost its nation-wide diffusion pattern, became fragmented and mosaic-like.
- Managing the epidemics of smallpox ceased to be an event for the state or the domain, and integrated into the self-government of villages
- Folkloric religions and local customs; welcoming and sending off the smallpox demons; offering food; dancing to the music.

Epidemics in the remote peripheries

- Management of smallpox in the household and village was regarded as a civilized way if compared with the other ways.
- “Other” forms of managing the smallpox in the remote peripheral parts of Japan; Hachijojima, Goto Retto, Amakusa, Ezo; Ontake, Shirakawa, Akiyama.
- Smallpox rarely visited, but when it came, caused a grave damage, infecting not just children but many adults.

The “other” way of managing smallpox

- Residents in remote or isolated peripheries fled the village, leaving the sufferers in the village.
- People reacted to these peripheral ways in curious bewilderment and moral condemnation.



A cordon sanitaire in a peripheral village during the Tokugawa Period:

From Suzuki Bokushi, Akiyama Kiko (文政年間)

Conclusion

- The ecological balance between humans and microbes of smallpox which had been formed through centuries had given a prototype of “public health” for Meiji Japan.