

「日本の近代化と健康転換」(学術振興会 科学研究費研究 2007-2009)

Working Paper 001

Cholera, Consumer, and Citizenship: Modernizations of Medicine in Japan

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注記：このワーキングペーパーは、Hormoz Ebrahimnejad ed., Medical Modernization in the International Perspective (London: Routledge, 2008 forthcoming)に掲載予定の、同じタイトルの論文の原型です。書籍の刊行後までは、論文などで引用することはお控えください。刊行後は、参照・引用などは書籍から行ってください。

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Introduction

Medical modernization in Japan had its foundational moment. The dawn of modernity came upon Nagayo Sensai (1838-1902), who visited USA and eleven countries in Europe for two years from 1871 as one of the team of government officials led by Lord Iwakura Tomomi.¹ The team had a mission to learn Western civilization and state policies in order to modernize Japan, which had just gone through the Meiji Restoration. The Tokugawa Shogunate, after ruling the country for 250 years, was brought down and the Emperor was restored as a powerful monarch who would lead Japan into a modernized power. The revolutionary activists, many of whom were lower samurai or members of the ruler-warrior class, quickly transformed themselves into politicians and bureaucrats of the central government.² Nagayo was typical of the revolutionary-turned-bureaucrat: he was born into a medical family who served the small Ōmura Domain in the South-Western part of Japan and from this relatively obscure background, he eventually became the Director of the Sanitary Bureau of the Home Ministry and laid the foundation of modern Japanese medical policies.

While this future "father of public health in Japan" was immersing himself in Western medical policies, Nagayo had a moment of epiphany. He wrote that he had often heard English and German words such as "sanitary", "health" or "Gesundheitplaege" but had not examined their meanings carefully. He started to suspect, however, that these words were far from simple and that he had missed their deeper implications. Eventually, he recognized that in Western countries the state was responsible for the protection of the health of the people; there was a state administrative office which planned and executed various medical policies based on science; Japan needed such an office in order to become a modernized state.³ Nagayo "discovered" the basic principle which helped him to conceptualize the relationship between the state, the individual, and the society. Nagayo implied that in Europe he encountered and discovered the principle of the Western medical

policy and public health; he introduced the concept to Japan as the Director of the Sanitary Bureau, and he modernized medical polity of Meiji Japan.

In his story, his experience in Western countries provided a key to the state-initiated sharp break "before" and "after" the Meiji Restoration. Nagayo's tale thus symbolized the trinity of modernization, the state, and the Western medicine. It has been retold many times since, now occupying an almost legendary status in modern medical history of Japan.⁴

It should be noted, however, that, like all myths and legends, Nagayo's tale hides as much as it reveals. Nagayo certainly exaggerated the discontinuities before and after the Meiji Restoration. In many key areas, such as medical education and vaccination, introduction of Western medicine was well under way from the late eighteenth century and the early nineteenth century.⁵ Most importantly, Nagayo laid one-sided emphasis on the role of the state in medical modernization of Japan. According to Nagayo's view, Japanese society and its people were something to be moulded into modernity through the action of the Meiji government; active and innovative roles were monopolized by the government and the elite. The society and the plebs, on the other hand, were assigned passive roles: at best they were cooperative, at worst they clung to tradition and resisted modernization. This Director of the Sanitary Bureau related a classic history "from above". It is, however, somewhat surprising to find many historians have implicitly agreed to Nagayo's view. Countless works of various historiographical or ideological convictions have concurred upon that the Meiji government and its medical officials, many of whom studied medicine in the West, started a new programme and led Japanese society into modernity. Whiggish histories hailed this process as the triumph of rational and scientific policy; Marxist historians exposed the militaristic and imperialistic motives of medical and public health policies of modern Japan; more recent Foucault-inspired historians condemn the entire process of modernization as an extension of disciplinary power over people's everyday life.⁶ All of them, however, agree in several basic points: the Meiji Restoration represented a sharp break, and medical modernization was the product of the initiative of the state, which acted upon inert society. In other words, they lack the social-historical perspectives of the dynamics of the behaviour of common people.

The dichotomy between the elite/modernization and the

plebs/tradition has truth in it, as I will briefly mention below. Closer examination of the situation, however, suggests that the policy of the elite and the common people's health-seeking behaviour had considerable overlaps. The boundary between the modern and the traditional was also much fuzzier. One needs much more sensitive and nuanced framework than the present historiographies suggest.

This paper will argue that the significant locus of the merging of the traditional and the modern in the Japanese context was the marketplace, in which both the plebs and the elite participated. This marketplace of health, so to speak, was the social space where continuity rather than discontinuity was obvious and the presence of both the elite and the plebs was evident. The present paper thus attempts to contextualize the elite-led modernization of medicine under the state into the social history of the "health for sale", conceived by the late Roy Porter.⁷

To do so, this paper will focus on one topic: the response of common people to the epidemic of cholera during the nineteenth century. This is a particularly rich field to observe the modernization of Japanese medicine, because the Meiji government forged its modern state medicine and public health policies largely through its response to cholera from the 1870s and to the 1890s. Epidemics of cholera, like in many other countries, were a crucible of modernization of medicine in general and public health in particular.

The first section below will provide a summary of the Meiji government's policies against cholera and people's reaction against them. The second section will discuss continuity between traditional Japanese-Chinese medicine and Western medicine over the etiology of and regimen for cholera. This culture of regimen was also practiced across diverse social classes. The third section will show that people practiced the regimen for cholera through the marketplace or choice of food to purchase, and explore its implications.

The State Measures against Cholera: Policies, Resistance and Acceptance

Cholera first visited Japan in 1822, during its first pandemic which started in Bengal in 1817.⁸ This early visitation is hardly surprising: Japan was one of the nodes of the flourishing trading sphere which included

India, Southeast Asia and China, with increasingly larger role being played by the United Kingdom and other European powers in the nineteenth century. Although Japan at that time strictly regulated foreign trade, its link with the trading zone of China, Korea and the Eastern half of the Indian Ocean was nevertheless strong enough.⁹ Naturally, the disease entered the country from either Tsushima or Nagasaki, both officially approved ports for foreign trade. The outbreak was relatively small and geographically limited to the South-Western part of Japan. Although Osaka, the second largest city in Japan at that time, was hit, Edo, the capital and the largest city with the population about one million was spared from the visitation of the disease.

The second visit of cholera to Japan was in 1858, the year when the Tokugawa bakufu signed a humiliating unequal treaty with U.S. and subsequently with four European powers.¹⁰ In July, U.S. Navy's Mississippi brought the disease from the coastal cities of China to Nagasaki. In the port city, more than 800 people perished. Cholera quickly moved eastward along the major highway. The disease was rampant in Osaka in September and October, reputedly occasioning more than 10,000 deaths. Edo was ravaged around the same time, resulting in around 30,000 deaths in about two months. The disease waned in Edo in late October, only to be rekindled in the next year in several cities. Although people reacted with horror, there were no signs of mass flight from Edo and other cities, which represents a sharp contrast with the mass flight observed in European and American cities hit by epidemics during the early modern period.¹¹

The two epidemics of cholera in the Tokugawa period were characterized by limited involvement of the Shogunate or the feudal lordships of domains, apart from distributing medicines or issuing pamphlets on the cure and prevention of the disease. Local studies reveal that each village was left to devise their own ways to fight against the epidemic: village officials often collected information and traveled widely in search of effective magical-religious talismans.¹²

The cholera returned to Japan for the third time in 1877, when the new Meiji government faced Seinan Sensō, the largest rebellion in the South Western corner of the country. For the next couple of decades, cholera was almost semi-endemic in Japan, with large numbers of deaths in 1879 and 1886, each exceeding 100,000 deaths.¹³ The new Meiji state played much more

extensive role in fighting these epidemics than the bakufu of the Tokugawa era: medicine and public health fell in the realm of the responsibility of the state, as is evinced by the quote from Nagayo mentioned at the beginning of this paper. Nagayo was thus quite right in claiming a radical break from the ways in which epidemics were fought in Tokugawa era.

In 1877, the Home Ministry (where the Sanitary Bureau belonged) drafted a set of rules, Guides to the Prevention of Cholera, the first national law on the prevention of cholera. Facing the fierce epidemic in 1879, the Ministry established Provisional Rules for the Prevention of Cholera. Next year, this was enlarged into Rules for the Prevention of Infectious Diseases, which stated fairly detailed rules to fight against cholera and other five infectious diseases (typhoid, dysentery, diphtheria, typhus, and smallpox). Subsequently, numerous amendments and additions were made to the practical rules for the enforcement of the Rules of 1880. Finally in 1897, the Law for the Prevention of Infectious Diseases codified public health measures against infectious diseases.¹⁴ During the two decades between 1877 and 1897, cholera repeatedly ravaged the country, and the new Meiji government struggled to create a framework of public health measures and to establish the national and local organizations for that purpose.¹⁵

In their attempts to create an effective public health framework, the government was eager to learn from the West how to combat this disease, quickly incorporating the measures based upon Western medical science.¹⁶ In the 1870s and early 80s, the Sanitary Bureau utilized the service of foreign doctors who were employed by the government, as well as Japanese doctors who had a smattering of Western medicine. Erwin von Baeltz, who had studied under Wunderlich and became a professor of medicine at University of Tokyo, was among the most prominent of the former. Their advice was largely in line with the miasmatic theory, and strong emphasis was laid on cleaning smelly dirt. At the same time, quarantine and the isolation of patients were vigorously pursued. In 1888, the government sent Ishiguro Tadanori, the surgeon-general of the army, to see Robert Koch in Berlin and asked the bacteriologist how to combat cholera in Japan.¹⁷ Later, those who had studied medicine under Koch and other prominent German professors were actively engaged in public health measures. Kitasato Shibasaburō was the most eminent of those coterie of German-trained doctors who became

the leading figures in public health in Japan. Those German-trained Japanese medical scientists quickly trained younger students in Japan, both at University of Tokyo and the Institute for the Research of Contagious Diseases established by Kitasato in Tokyo in 1892.¹⁸ By the late 1890s, the bacteriological research in Japan was sophisticated enough to produce its own vaccine and to discover different strains of cholera bacillus. Both the vaccine and the strains generated huge and fierce controversies. Despite those controversies, the core part of the policy at the level of the central government proceeded relatively smoothly: basic principles such as disinfection, cleanliness, quarantine and isolation had not changed from the first establishment of state policies in 1877.

Devising policies was one thing, and implementing them was quite another, however. At the practical and local level, the policy of the central government met considerable difficulty and resistance.¹⁹ Especially difficult was the enforcement of the isolation of patients in hospitals. The core problem was in sending patients away from home, the traditional locus of cure, care, and death. Moreover, hospitals were alien to the majority of Japanese people. For reasons which are unclear, Japanese society in early modern period had not developed hospitals, although in the medieval period there was extensive provisions of cure and care at hospitals run by Buddhist temples and monasteries.²⁰ At the beginning of the modern period, people were still unaccustomed to sending the sick to hospitals away from the home. The high death-rate of the patients sent there and the wretched conditions of the cheap and makeshift buildings further increased people's distrust. The new government's unpopular measures such as the Conscription Law (1873) and the introduction of police force in the early 1870s acted as predisposing causes of the people's distrust of hospitals enforced by the government. Consequently, isolation hospitals were feared and hated, with rumors running that doctors disemboweled the patients alive and sold the livers as medicine. Particularly during the epidemic of cholera in 1879, there were about fifty reported incidences of popular riots against governments' measures, many of which were centred around the resistance to isolation hospitals. In 1879 in Niigata, about 1,000 peasants gathered in the manner of traditional peasants' uprising and demanded the closure of isolation hospitals. When their demand was not heard, they resorted to violence, killing several officials of local

government and looted rich merchants' houses.²¹ In Chiba in the same year, a doctor who worked for the local isolation hospital was pursued by the angry people, beaten and killed. He had been extremely unpopular because of his practice of digging up a corpse for the purpose of anatomical study.²²

These social historical studies of people's response to cholera, conceived mainly in the New Left historiography of popular culture, have concentrated their attention on incidences of resistance against the measures introduced by the government. In so doing, they have framed popular attitudes to cholera in the dual dichotomy of modernity vs. tradition and the state vs. the populace. In this dual dichotomy, the social elite associated with the state is understood as having pursued Western-modeled public health measures and the populace is conceived as having clung to traditional ways of coping with epidemics. The so-called cholera riots are conceptualized as the crash between the modern and the traditional, between the culture of the elite and that of plebs, and between the isolation hospital and the religious ritual against the demon of cholera.

Although those studies have thrown invaluable light on the incidence of resistance to the medical modernization in the context of the response to cholera, particularly on the schism between the elite and the plebs, they are somewhat misleading in their one-sided emphasis on the resistance of the plebs. There were numerous signs of compromise and adaptation on both the government and the populace. Central and local governments took pains to soften stern measures.²³ Isolating patients at their own home instead of hospitals were soon admitted. Doctors were given considerable autonomy and jurisdiction over whether to send the patients to hospitals or to admit isolation at home. The practice of domestic quarantine was soon found too cumbersome and of little use, and its enforcement considerably diminished. On the side of the populace, many actively supported the governments' policies against cholera. Donation of money and disinfectant medicine to local offices was widely practiced. Brothel houses voluntarily proposed to build their own isolation hospitals, largely because they would rather pay the cost than suffer the closure. Donation of money from prostitutes was routinely reported in the press.²⁴ Likewise, theatres were quick to disinfect and clean their premises.²⁵ Stories were told of the members of local elite who chose to enter the isolation hospital in order to become an example for the plebs.²⁶ In the light of those pieces of evidence

mentioned above, it is better to characterize the Japanese government's policies as a mixture of enforcement and adaptation, and the Japanese people's response to the policies as a mixture of acceptance and resistance. The situation was much more fluid than have been depicted by the historians who have studied popular riots against governments' measures.²⁷

Cholera and Kakuran: Caring for One's Stomach

If the policies of isolation of patients suffering from cholera in hospitals represented a clean break with the past, dietary regimen for the prevention of the disease showed remarkable continuity between the Tokugawa Period and the Meiji Period. It was also practiced across diverse social classes. The reasons for this continuity and social inclusiveness will be discussed below.

During the two epidemics of cholera in Tokugawa Period, Japanese doctors found that curing the disease was largely out of their reach. They mostly agreed, however, about the nature and diagnosis of the disease. The way in which doctors in Japan settled on the diagnosis of cholera reveals the smooth mixing of the indigenous medicine and Western medicine at that time.²⁸ Japanese doctors were quick to learn from Dutch sources that the disease which hit them was called "Asiatic cholera" by Western doctors. Since Japanese practitioners learned that cholera originated from India about which they knew very little, they were ready to follow the western diagnosis. On the other hand, Japanese doctors were far from blind followers of the Dutch medicine. They found that Chinese medicine was also helpful in understanding the disease. They readily identified the clinical picture of the disease called Asiatic cholera by the Dutch with one of the disease discussed in classic texts of Chinese medicine. The disease was kakuran, which had long been a well-established disease category within Chinese medical classics.²⁹ Several doctors independently reached the identification of cholera with kakuran, or at least many observed that cholera was very similar to kakuran. Typical symptoms of cholera -- the violent diarrhea and vomiting, the coldness of the extremities, the cramps of the legs, the agony of the patient, and the rapid succession of death -- all pointed toward the identification of kakuran and cholera. The season in which cholera hit Japan in 1858 also collaborated the

identification, for kakuran was the disease that took place towards the end of the summer season. The two disease names, "cholera" and "kakuran" thus coexisted in a single description of the disease in a very facile manner.

This identification profoundly influenced the subsequent medical discourse and people's response to cholera in Japan. Both the learned discourse about cholera and popular measures against the disease was formulated with the etiology of kakuran in mind. Kakuran in Chinese medicine had long been regarded as caused by the combination of two factors affecting one's stomach: immoderate eating and cooling one's stomach. Likewise, Japanese medicine in early modern period formulated the disease of kakuran into one of indigestion. When the food taken stayed too long in one's stomach and turned putrid, the putrid matter would become poisonous and harm one's stomach and cause violent diarrhea or vomiting. The process was called shokushō, or alimentary harm.³⁰ There were many reasons for food's staying too long in the stomach: most typical were taking too much food and eating particular kinds of food which were hard to digest. All these factors cause the stagnation and putrefaction of food in the stomach. Eating food which was already becoming putrid had similar effect. When one's stomach was deficient in the vital heat, it lacked the power to digest food and stagnation and shokushō would follow. Kakuran's etiology was framed around the stagnation of food in the stomach.

During the epidemic of cholera in 1858, the Japanese understanding of the disease was put squarely into the model of kakuran: in order to prevent cholera, one should avoid the stagnation of food in the stomach and follow a special dietary regimen. Interestingly, this idea with clear resonance with Chinese or indigenous medicine was most clearly formulated by Pompe van Meerdervoort, a Dutch military surgeon who was in Nakagaski during the epidemic to teach medicine to Japanese students.³¹ Pompe (so he was called in Japan) asked his Japanese students and learned that the disease, or one with very similar symptoms, was called kakuran in Chinese and Japanese medicine. Although Pompe thought cholera was more contagious than kakuran, his subsequent rules for prevention of cholera for the city of Nagasaki clearly had kakuran in mind. The Dutch doctor notified the municipal governor that one should avoid cucumber, watermelon, apricot and unripe plum and that one should not spend the night in a naked state. Later, the governor added sardines, mackerels, tuna, octopus and others on the list

of foods to be avoided. Focusing on digestion by way of the selection of food and of the heat of the stomach, the rules fitted very well with the etiology and prophylaxis of kakuran. It should also be noted that Pompe found these precepts made sense in the Western medical system. The cucumber and the melon, which had long been regarded as "cold" and possibly harmful food in the Galenic system of dietary regimen, were regularly invoked as one of the causes of cholera in nineteenth-century Europe and North America.³² It is very hard to know exactly to what extent Pompe's rules of regimen owed to Western medicine or to Chinese-Japanese medicine. In any case, a Western doctor formulated one of the first rules for prevention of cholera in Japan after the pathological model of kakuran and shokushō. Tokugawa Nariaki, a prominent daimyo (feudal lord) in the early nineteenth century, recorded in his medical notebook that freeing one's stomach from the stagnant food was key to the prevention of cholera: Nariaki added peaches and persimmons to Pompe's list of harmful fruits.³³

The dietary regimen for the prophylaxis of cholera based on kakuran continued well into the Meiji period: indeed, it was preached with intensified ardour. In the epidemics of cholera in the 1870s and 80s, the dietary regimen continued to play a large part in the precepts issued by the government, along with cleanliness, isolation and disinfection. Home Ministry's Korera Yobō Yukai [Instructions for the Prevention of Cholera] (1876) put cleanliness at the top of the list of rules, and on the second of the list was dietary regimen, which advised not to eat bad fish, shellfish, oysters, and prawns, as well as unripe or overripe fruits.³⁴ The seventh of the list told that one should put on a belly-warmer when asleep and should not sleep naked. Doctors trained in Western medicine regularly included those rules of regimen for the prevention of cholera which had unmistakable resonance with the etiology of kakuran and shokushō. Even elite doctors who studied medicine in Germany were keen to preach the harm of food stagnation: Mori Ōgai, one of the leading German-educated intellectuals at that time who later became the surgeon-general of the army, wrote about the harms done by unripe fruit and food that contains too much fat. Although Mori thought he was extending the theory of cholera by Pettenkofer, under whom he studied, his use of a particular Chinese character suggests he had shokushō in mind.³⁵



[Plate 1: Korerabyo Fusegi no Zukai [Illustrated Prophylaxis of Cholera], 1877, Naitō Museum of Drugs.]

When one goes down to the more popular advice manuals, the emphasis on diet, foods to be avoided, and keeping one's stomach warm is even more prominent. A broadsheet entitled "[An] illustrated guide to the prevention of cholera" issued in 1877 for the populace told its readers not to expose one's stomach to cold air, and to avoid indigestible food, as well as preaching cleanliness, temperance, and suitable rest. [Plate 1] The broadsheet issued in 1886 listed foods to eat and not to eat in the style of sumo league table. The champion of "good" foods was hirame, or flounders. The list shows that soft-boiled eggs, soles, brines, and eels were good. On the other hand, octopus was the champion of bad foods, with tunas, crabs, soba noodles, and cucumbers following in the list. [Plate 2] In order to help common people memorize the rule, two verses were composed, printed, and distributed in 1879. They are about food, regimen, and the stomach, as well as about cleanliness and miasma:

- Eat and drink moderately
- Avoid things that are smelly
- Don't catch cold at stuffy night

Keep away from any crowded site
Put on clothes that are clean
These are the rules for your hygiene

Greasy food, sea food, green fruit, and sushi
Noodles, and dumplings do you harm, you see?³⁶



Plate 2: Korera-yobō Nichiyō Shokumotū Kokoro-e [Guide to Everyday Food for the Prevention of Cholera], 1886, Naitō Museum of Drugs.

Newspapers reported ad nauseam incidences of cholera allegedly caught by eating particular food items. As late as in 1900, Yomiuri Shinbun reported that a woman caught cholera because she ate melon, corn and shellfish.³⁷

The dietary regimen for the prevention of cholera and the theory of dietary pathogenesis showed remarkable tenacity in the late nineteenth and early twentieth century, both in the learned and popular discourse on cholera. It also straddled over the indigenous/traditional and the Western/modern, as mentioned above. Perhaps because of this structure, it was supported both by the progressive and the conservative, the elite and the plebs. Most importantly, the dietary regimen was hailed as an important key by progressive-minded Westernizers. Yomiuri Shinbun, for example, embraced Western medicine and preached preventive measures against cholera based on western medical science. It also showed unrestrained contempt for practitioners of Chinese medicine, maintaining that their medicine of roots and barks were ineffectual and outmoded remedies. The newspaper's hostility to "superstitious" healing methods such as amulets and religious rituals was particularly strong. The paper was, nonetheless, adamant in maintaining that dietary regime was the most important. The newspaper even launched an attack on the emphasis on germs, isolation, and disinfection. Not that the newspaper was out of touch with the latest development of bacteriology. On the contrary, it closely followed the discoveries of French and German medical scientists. In particular, it extensively covered Robert Koch's discovery of cholera bacillus in Calcutta, his triumphant return to Berlin and his receiving an honour from the German emperor. Nonetheless, this enlightened newspaper insisted that eating improper food resulting in in the disturbance of the stomach was the chief cause of cholera. In an editorial which ran for two days, the paper made an foray into the contested terrain of the etiology of cholera.³⁸ Although it sounded somewhat apologetic in not respecting some expert opinions, the editorial adopted the familiar "seed and soil" model in the etiology of the disease and laid very strong emphasis on the soil, namely the health of the stomach.³⁹ Devising its own metaphor of oil and fire, it insisted that without the accumulation of combustible material, a spark should not cause fire: the cholera bacillus identified by Koch was compared to a spark, and the food what became putrid due to inactive stomach was the combustible material. On the basis of this metaphor, the editorial maintained that the

stagnation of putrid matter in the stomach was a necessary cause of cholera. Thus the "seed and soil" model was an important theoretical apparatus which secured continuity with the indigenous preventive measures of dietary regimen.

Dietary regimen persisted well into the age of triumphant bacteriology.⁴⁰ In 1906, a book of popular hygiene listed "regimen" as one of four principles for the prevention of cholera, the other three being isolation, disinfection, and cleanliness, combining bacteriology and yōjō in the same book.⁴¹ Sophisticated epidemiological research based on bacteriological principles in the 1900s did not so much reject as reframe the rules of dietary regimen, or at least certain parts of them. Since bacteriological experiments confirmed that water was necessary for cholera bacillus to survive, water and things related with water became the focus of bacteriological detective work. People working close to water, such as boatmen, fishermen, and dockworkers became major suspects in the transmission of cholera.⁴² When cholera broke out in a city, close epidemiological vigilance was cast over the city's wells, canals, and rivers, which provided the dwellers with water for drinking, cooking, washing, and other everyday activities. In a similar vein, certain foods associated with water and water-borne transportation were routinely invoked as responsible for transmitting cholera. This bacteriological reinterpretation of dangerous food concurred considerably with the old rules of yōjō. As fishermen were often carriers of cholera bacillus, fishes from Tokyo Bay were suspects; a small outbreak of cholera in Kyoto in 1909 was traced to sushi bought in Osaka which had cholera outbreaks at that time; an explosive outbreak in a village near Kyoto in 1910 was attributed to eating mackerels imported from Korea where cholera was epidemic at that time.⁴³ Takano Rokurō's Cholera in Japan, a work published in 1926 as an epitome of Japanese research in cholera, listed dozens of works done on the survival of cholera vibrio in tuna, devil-fish, oyster, shellfish, and others.⁴⁴ In the caution against aquatic products, the old rules of yōjō survived with the help of bacteriological reinterpretation.

Regimen, Consumerism and Citizenship

Most importantly in the context of the argument of this paper, dietary

regimen was about which food to buy, at least for residents of large cities of Tokugawa Japan. With the development of water-borne transportation and the establishment of Edo as a huge centre of consumption, the diversity of food consumed by common people in Edo is bewildering. Sushi and tempura, now the two most internationally famous of the Japanese cuisine, were vended on the street of Edo for artisans and labourers in the eighteenth- and nineteenth centuries.⁴⁵ Since food became something over which people could exercise choice as a consumer, shokuyōjō or dietary regimen was closely linked with the consumer culture of food in early modern Japan.

Dietary regimen for cholera persisted well into the age of bacteriology, partly because of the strength of the tradition of dietary regimen in traditional Japanese medicine in the Tokugawa period. During the Tokugawa period, more than one hundred titles of books on general regimen (yōjō) were published, among which Yōjō-kun (1713) by Kaibara Ekken (1630-1714) was the most famous. These works on regimen were widely read, popularized through circulating libraries.⁴⁶

Dietary regimen was a major part of the preventive measure against epidemics of cholera and other infectious diseases such as smallpox and measles. The regimen during an epidemic was often simplified into the avoidance or recommendation of specific food items. Dietary regimen was regarded as effective to diseases which are not gastro-intestinal as well: for smallpox, there developed an elaborate system of dietary regimen according to the progress of the disease; during the epidemic of measles in 1862, a lot of published broadsheets told the populace in an easy-to-read format which food should be avoided and which food should be consumed to prevent measles.⁴⁷ One humorous print depicted the vendors of forbidden foods such as fish, sushi, soba and others were taken revenge on the disease of measles. [Plate 3]



Plate 3: Tosei Zatsugo Ryūkō Mashin Kassenki [Contemporary Miscellany on the Battle of Measles Epidemic] (part), c.1860) Naitō Museum of Drugs.

These instructions were not just preached, but at least some of them were actually followed. Earlier records of epidemics often contained which particular food was avoided or sought after. When certain items were alleged harmful and others beneficial, and when a large number of people followed the advice, the prices of those food items were affected. From around the late seventeenth century, chronicles recorded the fluctuations of prices of particular food during an epidemic almost as a matter of routine. A Chronicle of Edo noted large fluctuations of the prices of various food items during the cholera epidemic of 1858:

Vendors of fish became very small in number, because fish would turn out to be fatal when eaten. Accordingly, fishermen and fishmongers suffered heavy loss. So did restaurants and bistros. Sardines were

thought to be especially poisonous, and few people bought them even when they were fresh. On the other hand, prices of eggs and vegetables rose.⁴⁸

During the cholera epidemics of the 1870s and 80s, similar phenomenon of the ups and downs of food prices according to the rules of dietary regimen was abundantly observed. Sudden shifts in demand and prices of particular food were regularly reported in the press. In Kyoto in 1878, matsutake mushroom, a delicacy usually much loved by the Japanese, was reputed to have caused cases of cholera. Its price suffered a heavy slump immediately. The next year, fishmongers of Kyoto were at a loss what to do to their octopus, which nobody ate lest they should catch cholera.⁴⁹ In Tokyo in 1879, the prices of Chinese melons suffered heavy downfall. Also in Tokyo in 1882, stalls which sold ice lollies diminished from 108 to 79 due to the cholera epidemic in the summer. Soba-noodle bars and tempura bars also decreased considerably.⁵⁰ On the other hand, eels and loaches were reputed to be good and their prices soared in 1884, although some cases were attributed to eating those kinds of fish.⁵¹ In the outbreak of 1886, Yomiuri Shinbun conducted a survey of the prices of various food items in Tokyo. In June the newspaper found that the sales of fishmongers slumped and sushi bars and soba-noodle bars suffered heavy losses. On the 26th of June the newspaper published an article which listed the ups and downs of the sales and prices of various food items. Items which recorded good sales and high prices were eggs, poultry, beef, dried bonito, grilled eels, vegetables, pickled raddish, milk, starch gruel, dry confectionaries, and choice sakes. The food items whose sales slumped included: raw fish, salted fish, tempura, sushi, shellfish (which suffered the heaviest slump), nattō, and tōfu.⁵² In Yokohama in the same year, stalls selling iced waters, fishmongers, tempura-bars, soba-noodle bars and fruit shops had no customers, while poultry, eggs, eels and Western food were on high demand.⁵³ In 1886, farmers in Chiba who brought peaches for sale to Edo found that the price had gone down so much that they could not pay the cost of transportation. Likewise, farmers of agricultural hinterland of Tokyo found that bringing and selling Chinese melon to cholera-struck Tokyo did not pay.⁵⁴ Other instances of the ups and downs of food prices during the economy of epidemics were numerous.

The connection between the epidemic and the buying trend was such that some merchants would exploit it. A producer of pickles in Odawara reputedly made a fortune during the cholera epidemic in 1858. Learning this, a merchant speculated on pickles and prepared a huge stock, but, alas, pickles diet this time did not become fashionable and he suffered a heavy loss.⁵⁵ Such a practice could be traced much earlier period. In Edo in 1699, the city was hit by an epidemic of an unidentified disease called korori. During the epidemic, the prices of pickled plum and fruit of nandin soared, due to the reputed preventive qualities of these foods. It was, however, later found that a grocer invented the theory. He had had a large stock of pickled plum imported from Osaka and he found that the supply of plums would be short this year. Intending to exploit this situation, he tried to beguile people into buying the food. In the end, however, his unethical business was found out and he was severely punished.⁵⁶

These instances amply show that people changed their diet in response to epidemics and rules of dietary regimen. The dietary regimen was often called "private" preventive measures which lay outside the direct activities of public authorities and civil society and left to individuals, while isolation, hospitalization, quarantine and disinfection were "public" measures. The dietary regimen was, however, far from purely individualistic. Indeed, it was repeatedly claimed to be one of the cores of public duty of an individual in the time of epidemics. The dietary regimen straddled over individual well-being and public welfare. The dual nature was put in a sharp relief during the epidemics of cholera, because of the highly contagious nature of cholera and the "seed and soil" theory in which it was conceptualized. Indulgence in one's desire to eat and drink would bring cholera to the individual, who would then infect his or her family members, neighbours, fellow villagers and citizens. Gluttony of an individual would cause stagnation of undigested food in his or her stomach, cause cholera in him or her, and then spread the disease. The editorial of Yomiuri Shinbun was outraged at selfish indulgence of a handful of people: "despite their knowledge that certain foods were harmful, they ate thirty peaches, drank six glasses of iced water, and devoured tuna."⁵⁷ Bad food items were often delicacies eaten for pleasure rather than for subsistence - sushi, tempura, soba noodles were (and still are) pleasure food, so to speak. The pleasure of cooling one's body in stuffy and humid summer nights

were also frowned upon, since it deprived the stomach of the heat necessary for the digestion. Ogata Masanori, the professor of hygiene at the University of Tokyo succinctly summed up in his popular lecture on cholera: "those who indulge in immoderate eating and drinking are manufacturers of cholera".⁵⁸ Giving up those temporary pleasures of the body and the senses was to protect the health of both the individual in question and the community he or she belonged.

People's behaviour in terms of the choice and consumption of food was thus an integral part of their citizenship in the hygienic community of modern society, so to speak. The market of food acted as a social space that created conditions for hygienic citizenship.⁵⁹ Although we have ample reasons to believe that dietary regimen was practiced by many people across diverse social sectors, not all of them followed the rules. In other words, the sphere of food consumption driven by the rules of dietary regimen was not comprehensive: significant minority stayed outside this culture of health-oriented food consumption.

To begin with, choice of foods, which underpinned the dietary regimen discussed above, was little doubt limited to those who lived in cities, while residents of rural areas subsisted on relatively monotonous foods. In their 1877 instruction about regimen to avoid fish, the Sanitary Bureau acknowledged that avoiding fish altogether must be difficult for those who lived near sea. Instead, it advised the residents of fishing villages not to change their usual diet, as well as issuing the familiar litany of moderate eating and drinking.⁶⁰ This concern of the Bureau reveals that in many rural parts of Japan, there was little choice of food and epidemics could not much change the situation. All the accounts of price changes mentioned above came from large cities.

More importantly, a significant minority of city dwellers did not participate in the dietary regimen mediated by food market. Many urban poor stayed outside the culture of preventing cholera through changing their food. Some consumers have tried to exploit the low prices of food that was redeemed harmful: Yomiuri Shinbun noted with glee that a man who ate many Chinese melons when their prices went down due to its reputed pathogenic quality died from cholera: he was, in the view of the newspaper, duly punished for his greed and indulgence.⁶¹

Urban slums presented more serious problems. In large cities in

early Meiji Japan mushroomed urban slums, whose residents suffered from chronic destitution. In mid-1890s, journalists and social investigators started to visit those slums and publish what they saw in lurid and sensationalistic language. Works of journalists such as Matsubara Iwagorō and Yokoyama Gennosuke depicted almost subhuman horrid conditions of those who lived in urban squalors.⁶² One of those works, Suzuki Umeshiro's report on Nago-cho, Osaka's most destitute slum, included detailed and fascinating observations of people's attitude to cholera, since the reporter stayed there just when cholera broke in Osaka.⁶³ The reporter found that residents of Nago-cho had absolutely no qualms about eating food that were deemed harmful. Fishmongers sold awful fish - bony scraps or half-rotten fish discarded by other fishmongers as unsuitable for respectable customers. Observing people eating such horrible food, the reporter wrote: "every items sold in the shop was a powerful cholera-causing material in its own right." Expressing the theory of dietary pathogenesis of cholera, the reporter also claimed that the rapid diffusion of cholera in this area was primarily due to their eating horribly and half-rotten food.⁶⁴

From the viewpoint of the slum dwellers, eating proper food was far beyond their means: their income was not enough for buying just rice, and they collected half-rotten discarded food to survive. They could not afford proper food: their poverty forced them to eat half-rotten food and to become a spreader of cholera. One of Nago-cho's informants protested against the charge of their dietary habit propagating cholera: "Rich people blame us for eating improper food and thus diffusing cholera to society. When we try to buy proper food, we find that we cannot make ends meet unless we engage ourselves with illegal activities."⁶⁵ Although there is some doubt over the authenticity of the informant's words, Suzuki pointed out the crux of the problem: if eating properly was a requisite of hygienic citizenship, the urban poor, who could not buy proper food, faced a hard choice of being a criminal or being a cholera spreader. The vision of hygienic citizenship through the regimen under the marketplace excluded the poor sector of society.

Conclusion

This paper examines medical modernization of Japan from the viewpoint

of social history of health-seeking behaviour in the context of cholera. Although Japan was one of the first and arguably most successful non-Western countries which modernized and Westernized its medical and public health provisions, its paths was far from a story of the even progress of modernization and Westernization. The pattern of modernization was markedly different from one social sphere to another, and this paper highlighted the stark difference between the sphere of the policy of the state and other public authorities on the one hand and the sphere of individual consumption of food in the marketplace. Japan's modernization of the state's public health machinery represented a sharp break around the Meiji Restoration, while the commercialization of health-seeking behaviour that had developed much earlier in Edo and other large cities showed remarkable continuity. Commodification of health was flexible, or even protean, absorbing traditional *yōjō*, Western medicine, elite discourse and popular culture.

In his sophisticated account of medical modernization in Qarjar Iran in the nineteenth century, Hormoz Ebrahimnejad excluded discussion of the practice of common people such as faith healing, magic, and folk or household medicine, "primarily because they were not involved in the nineteenth-century process of modernization". I should like to argue that at least one aspect of medical modernization in Japan was markedly different from Ebrahimnejad's Iranian model, in which the merging of the traditional and the modern took place within an institutional setting, centred on the hospital.⁶⁶ As an alternative or complementary perspective to works such as Ebrahimnejad's one that examines the modernisation process within the state institutions, I propose to study the role of the marketplace as the meeting point of modern and tradition. Fernand Braudel wrote "[the] clamour of the market-place has no difficulty in reaching our ears".⁶⁷ Perhaps it is time for medical historians to listen to the clamour of the marketplace, in order to grasp the complex set of modernizations of medicine.

The economic and commercial aspect of medical modernization is emphasized partly because it is a relatively new historiography, which one hopes will yield fresh insights into the medical history of modernization, which has been told using the framework of science, the development of state apparatus, or imperialism. It will also help us to contextualize the present situation of post-modern medicine, in which medical knowledge is

increasingly becoming a commodity chosen by individuals as consumers in free market.⁶⁸

1 Ban Tadayasu, Tekijuku to Nagayo Sensai (Osaka: Sōgensha, 1987); Nagayo Sensai, "Shōkō Shishi" [Autobiography], in Ogawa Teizō and Shizu Sakai eds., Matsumoto Jun Jiden, Nagayo Sensai Jiden [Autobiographies of Matsumoto Jun and Nagayo Sensai] (Tokyo: Heibonsha, 1980).

2 See, for instance, Andrew Gordon, A Modern History of Japan: From Tokugawa Times to the Present (Oxford: Oxford University Press, 2003), pp.9-137.

3 Ban, Tekijuku to Nagayo Sensai, pp.133-4.

4 The episode is placed at the beginning of the official history of Japanese health policy. See Ministry of Health, Isei Hyakunenshi [One Hundred Years of Medical Polity] (Tokyo: Gyōsei, 1976), pp.11-2.

5 See James Bartholomew, Formation of Science in Japan (New Haven: Yale University Press, 1989); William Johnston, The Modern Epidemic: a History of Tuberculosis in Japan (Cambridge, Mass.: Harvard University Press, 1995),

6 Major works include: Ministry of Health, Isei Hyakunenshi; Ono Yoshirō, Seiketsu no Kindai [Cleanliness and Modernity] (Tokyo: Seikyūsha, 1997); Susan Burns, "Constructing the National Body: Public Health and the Nation in Nineteenth-Century Japan", in Nation Work: Asian Elites and National Identities, ed. Timothy Brook and André Schmid (Ann Arbor: University of Michigan Press, 2000), 17-50.

7 Works of Roy Porter on the subject of commercialization of health are vast. See, e.g., Roy Porter, Health for Sale: Quackery in England 1660-1850 (Manchester: Manchester University Press, 1989).

8 Yamamoto Shun'ichi, Nihon Korera-shi [The History of Cholera in Japan] (Tokyo: University of Tokyo Press, 1982), pp.3-13.

9 Wakimura Kōhei, Kikin, Ekibyō, and Shokuminchi Tōchi [Famine, Diseases, and Colonial Government in British India] (Nagoya: Nagoya University Press, 2002).

10 Yamamoto, Nihon Korera-shi, pp.14-26.

11 The problem of epidemic flight in Europe and the USA is discussed in many works. See, for example, Paul Slack, The Impact of Plague in Tudor and Stuart England (Oxford: Clarendon Press, 1985); Charles E. Rosenberg, The Cholera Years: The United States in 1832, 1849 and 1866 (Chicago: University of Chicago Press, 1962).

12 Takahashi, Satoshi, Bakumatsu Kyōran: Korera ga Yattekitā! [Orgy at the end of the Tokugawa Era] (Tokyo: Asahi Shinbunsha, 2005).

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- 13 Yamamoto, Nihon Korera-shi, pp.27-66. One Professor of Medicine at Tokyo University wrote that cholera was semi-endemic in Japan during the decade. Ōsawa Kenji, "Nihon no Korera" [Cholera in Japan], Tokyo Igakukai Zasshi, No.6(1887), 287-295, No.7(1887), 11-12, No.8(1887), 1-19, No.9(1887), 28-31.
- 14 Yamamoto, Nihon Korera-shi, pp.249-328.
- 15 For works on local public health reforms, see , e.g., Kasahara Hidehiko, Nihon no Iryō Gyōsei: Sono Rekishi to Kadai (Tokyo: Keio University Press, 1999); Baba Yoshihiro, "Sanshinpōki no Toshigyōsei" [Urban Administration of the Era of Three New Local Legislations", Historia, no.141(1993), 48-66; Ozaki Kōji, "1879 Nen Korera to Chihō Eisei-seisaku no Tenkan" [Cholera of 1879 and the Transformation of Local Hygienic Administration", Nihonshi Kenkyū, no.418(1997), 23-50.
- 16 Yamamoto, Nihon Korera-shi, pp.745-857.
- 17 Yamamoto, Nihon Korera-shi, pp.600-607.
- 18 Odaka Takeshi, Densenbyō Kenkyūjo [Institute of the Research into Contagious Disease: a History] (Tokyo: Gakkai Shuppan Centre, 1992).
- 19 Local studies of cholera riot are now vast. See, among others, Obinata Sumio, "Korera Sōjō wo Meguru Minshū to Kokka" [People and the State over Cholera Riots", in Minshūshi Kenkyūkai ed. Minshūshi no Kadai to Hōkō [Problems and Directions of Popular History] (Tokyo: San-ichi Shobō, 1978); Sugiyama Hiroshi, "Oboegaki: Bunmei Kaikaki no Hayariyamai to Minshūishiki" [Notes on Epidemics and Popular Consciousness], Machidashi Jiyūminken Shiryōkan, no.2(1988), 19-59.
- 20 For the development of hospitals in Japan, see Sakai Shizu, Nihon no Iryōshi [History of Medicine in Japan] (Tokyo: Tokyo Shoseki, 1982).
- 21 Obinata, "Korera Sōjō wo Meguru Minshū to Kokka".
- 22 Numano Genshō, Korera-i Genshō [Gensho: a Cholera Doctor] (Tokyo: Kyōei Shobō, 1978).
- 23 For changes in these measures, see Yamamoto, Nihon Korera-shi, pp.407-584.
- 24 For hygienic cooperation of brothel houses and prostitutes, see Yomiuri Shinbun [Yomiuri News, hereafter YN] 1879/7/27; 1879/8/16; 1886/8/7; 1886/8/17; 1886/8/19; 1886/9/21; 1886/9/25; 1886/9/29.
- 25 YN 1879/8/9; 1886/8/12.
- 26 YN 1879/8/28.
- 27 Also there were considerable local difference in people's response: generally speaking, resistance in the form of riot was more prominent in

rural areas in North-Eastern parts of Japan, while fewer instances of riots took place in the economically advanced South-Western parts of the country.
28 The overwhelming majority of Japanese medical practitioners at that time were trained in medicine that originated in China -- the medical census of the 1870s counted that about 15 % of the entire medical practitioners identified themselves as practitioners of Western (Dutch) medicine, the rest being various "schools" of Chinese medicine.

29 Ōtsuki Moshichi, "Bunsei Jingo Tenkō Banki Kon Kakuran Ryōranbyo Zakki", Chugai Iji Sinpō, no.1131(1928), 45-49, no.1132(1928), 106-107, no.1133(1928), 162-164, no.1134(1928), 216-218.

30 For a perceptive discussion of alimentary harm in early modern Japan, see Daidōji Keiko, "Edo no Shokushō" [Alimentary Harm in the Edo Period], in Akihito Suzuki and Ishizuka Hisao eds., Shokuji no Gihō (Tokyo: Keio University Press, 2005), , 147-167.

31 For the life of Pompe van Meerderwoort, see Miyanaga Takashi, Pompe: Nihon Kindai Igaku no Chichi [Pompe: the Father of Modern Japanese Medicine] (Tokyo: Chikuma Shobō, 1985).

32 During the epidemic of cholera in England in 1832, an article in Edinburgh Medical and Surgical Journal wrote that "repletion and indigestion should be guarded against; all raw vegetables, acescent, unwholesome food and drink avoided" and an article of Foreign Review said to avoid "exposure to cold, to chills, to the night dew, to wet and moisture; the use of cold fluids, and of cold, flatulent and unripe fruit". R.J. Morris, Cholera 1832 (New York: Holmes & Meier Publisher, 1976), p.175. For a similar advice, see Charles E. Rosenberg, The Cholera Years (Chicago: University of Chicago Press, 1987), p.30. For Galenic regimen, see Ken Albala, Eating Right in the Renaissance (Berkeley: University of California Press, 2002).

33 Ishijima Isao "Mito Rekkō no Isei to Kōsei-Undō" [Medical Polity and Health Movement of Mito Rekkō], Kōshū-Eisei, 58(1940), 691-698.

34 Home Ministry, Korera Yobō Yukai [Instructions for the Prevention of Cholera] (Tokyo: Shajikyoku, 1877).

35 Mori, Ōgai, "Korera Hō", [Legislation on Cholera], Collected Works of Mori Ōgai, vol.26 (Tokyo: Iwanami Shoten, 1971), 532-536.

36 YN 1879/9/13

37 YN 1900/8/30; 1900/11/1

38 YN 1885/9/2; 1885/9/4.

39 Many works have examined the social implications of seed and soil theory. See e.g., Michael Worboys, Spreading Germs: Disease Theories and Medical

Practice in Britain, 1865-1900 (Cambridge: Cambridge University Press, 2000).

40 The stark contrast often alleged between hygiene and regimen (or *yōjō* in Japanese), the former based on Western medical science and enforced by the modernizing state and the latter embodying traditional people's view of their body, is not tenable in this respect. For a similar continuity between traditional Japanese medicine and Western one, see Johnston, Modern Epidemic.

41 Tsuzoku Densenbyōgaku Eiseigaku Kōgi [Popular Lectures on Bacteriology and Hygiene] (Tokyo: Chūō Eiseisho Shuppan, 1906), pp.17-23.

42 See, for example, anon., "Chiba-ken no Korera Denpan no Keiro" [The route of transmission of cholera in Chiba], Dainihon Shiritsu Eiseikai Zasshi, No.153(1896), 114-118; Yamagata Kitarō "Meiji Yonjūichinen Chiba-ken ni okeru Eisei-jimu no Gaikyō" [Summary of Hygienic Works in Chiba Prefecture in the 41st Year of Meiji], Chūgai Iji Tsūshin, 27(1908), 65-67.

43 Anon., "Kyoto no Korera" [Cholera in Kyoto], Kyoto Igaku Eisei Zasshi, no.199(1910), 12-14; Izutumi Juichi, "Meiji Yonjūninen Kyotofuka ni Ryūkōseshi Korerabyō ni tsuite" [On Cholera in the 42nd year of Meiji in Kyoto Prefecture], Saikingaku Zasshi, no.180(1910), 855-871.

44 Takano, Rokuō, Otsubo Itsuya, and Inouye Zenjūrō, Studies of Cholera in Japan (Geneva: League of Nations, 1926), pp.68-70.

45 Mitamura Engyo, Goraku no Edo Edo no Shokuseikatsu [Entertainment and Food Life of Edo], ed. by Asakura Haruhiko (Tokyo: Chūkō Bunko, 1997), pp.215-343.

46 Takizawa Toshiyuki, Kenkō Bunkaron [Health and Culture] (Tokyo: Taishūkan, 1998), pp.18-42.

47 For dietary regimen for smallpox and measles, see Kawamura Jun'ichi, Bungaku ni Miru Tōsō [Smallpox in Literature] (Kyoto: Shibunkaku, 2006); Naito Museum of Drugs, Hayariuamai no Nishiki-e [Color Prints of Epidemics] (Kawashimacho: Naito Museum of Drugs, 2001), pp.32-93.

48 Kanei Kengo ed., Bukō Nenpyō [A Chronicle of Edo], 3 vols (Tokyo: Chikuma Gakugei Bunko, 2003-4), vol.3, pp.103-4.

49 YN 1879/6/12.

50 YN 1879/7/22; 1882/7/18; 1882/7/23.

51 YN 1884/8/28.

52 YN 1886/6/23; 1886/6/26.

53 YN 1886/7/6.

54 YN 1886/7/30.

55 YN 1886/7/30.

56 Asada Sōhaku et.al., Bōbyō Sōsetsu [Collected Treatises on Cholera] (Tokyo: for Kitazawa Ihachi, 1879).

57 YN 1886/7/25.

58 YN 1890/7/21

59 For the concept of hygienic citizenship, see, for example, works of sociologists of David Armstrong, "Public Health Spaces and the Fabrication of Identity", Sociology, 27(1993), 393-410; Deborah Lupton, The Imperative of Health: Public Health and the Regulated Body (London: Sage Publications, 1995).

60 The Home Ministry's "Advise to People over the Prevention of Cholera" appeared in YN 1877/8/31, 1877/9/1, 1877/9/3, 1877/9/4.

61 YN 1879/7/22.

62 Matsubara Iwagorō, Saiankoku no Tokyo [1893], (Tokyo: Iwanami Shoten, 1988); Yokohama Gennosuke, Nihon no Kasō-shakai (Tokyo: Iwanami Shoten, 1949). These and similar works are discussed in Kida Jun'ichiro, Tokyo no Kasō-shakai (Tokyo: Chikuma Shobō, 2000).

63 Suzuki Umeshirō, "Osaka Nago-cho Hinmin-shakai no Jikkyo Kiryaku", in Nishida Nagahisa, Toshi Kasō-shakai [Urban Underclasses] (Tokyo: Seikatsusha, 1949), pp.213-262.

64 A Similar idea was expressed over the cholera in slums in Tokyo in YN 1886/8/12.

65 Suzuki "Osaka Nago-cho Hinmin-shakai no Jikkyo Kiryaku", 196-197.

66 Hormoz Ebrahimnejad, Medicine, Public Health and the Qajar State: Patterns of Medicinal Modernization in Nineteenth-Century Iran (Leiden: Brill, 2004).

67 Fernand Braudel, Civilization and Capitalism 15th-18th Century: Volume Three. The Perspectives of the World, translated by Sian Reynolds (London: HarperCollins Publishers, 1984), p.25.

68 John Pickstone, "Production, Community and Consumption: The Political Economy of Twentieth-Century Medicine", in Roger Cooter and John Pickstone eds., Companion to Medicine in the Twentieth Century (London: Routledge, 2000), 1-19.