Colonial Medicine, the Body Politic, and Pickering’s Mangle in the Case of Hong Kong’s Plague Crisis of 1894

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By
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Colonial Medicine, the Body Politic, and Pickering’s Mangle in the Case of Hong Kong’s Plague Crisis of 1894

Meaghan Marian

Abstract

The eruption of bubonic plague in Hong Kong in 1894 was the flashpoint of the Third Pandemic, marking a critical juncture in the story of plague and plague fighters, and also a galvanizing moment in the history of the port colony. The spread and containment of plague was accomplished through the agency of human actors, among them a rapidly growing Chinese population in the basin of Victoria Peak, a colonial regime governing from atop the Peak, an emerging class of Chinese elites, and teams of foreign scientists arriving in Hong Kong in hot pursuit of the pathogen. The arc of the plague was also potentiated by non-human agents: Hong Kong’s subtropical, monsoonic environment, the mountainous geography of the territory that supported various configurations of power, as well as migratory and commercial flows between China, the British empire and Hong Kong’s harbour, the ghosts of Chinese socio-religious tradition, heterogenous schemas of the body and disease in Chinese and Western medicine, and, of course, the fleas that bite rats, vectors of infection. I suggest that the writing of a history of plague in Hong Kong hinges on weaving together these streams of human and non-human agency. In particular, looking at Hong Kong in this moment of iatric crisis through the lens of the mangle, Andrew Pickering’s contribution to the evolving field of science studies, reveals how human and non-human agents constitute the experience of embodiment, the practice of medical science, the logics of imperialism, and not merely the writing of the histories of such.

Meaghan Marian is a doctoral candidate in the Department of History at the University of Toronto preparing a dissertation on medical science in China. Her research has been supported by the SSHRC Canada Graduate Scholarship, the Ontario Graduate Scholarship and the Lupina Senior Doctoral Fellowship. Many thanks to Dr. Tong Lam, Dr. Victor Falkenheim, Dr. Li Chen, Dr. Robert Perrins, Laurie Corna, and Sarah Sanford.

“The Hong Kong is always connected with some fatal pestilence, some doubtful war, or some discreditable internal squabble…”

The Times, 15 March 1859

The eruption of bubonic plague in Hong Kong in 1894 was the flashpoint of the Third Pandemic, marking a critical juncture in the story of plague and plague fighters, and also a galvanizing moment in the history of the port colony. The spread and containment of plague was accomplished through the agency of human actors, among them a rapidly growing Chinese population in the basin of Victoria Peak, a colonial regime governing from atop the Peak, and teams of foreign scientists arriving in Hong Kong in hot pursuit of the pathogen. The arc of the plague was also potentiated by non-human agents: Hong Kong’s subtropical, monsoonic environment, the mountainous geography of the territory that supported various configurations of power, and migratory and commercial flows between China, the British empire, and Hong Kong’s harbour, the ghosts of Chinese socio-religious tradition, alternate schemas of the body and disease in Chinese medicine, and of course, the fleas that bite rats, vectors of infection. I suggest that the study of colonial Hong Kong, and especially of the plague crisis that set the course for Hong Kong’s people and government, hinges on the meeting of human and non-human agents, a terrain ideally interpreted as a matrix of material-semiotic networks.

Taking advantage of the opportunity for experimentation afforded in a working paper, I offer this view of colonial Hong Kong in a moment of iatric crisis through the lens of the mangle, Andrew Pickering’s
contribution to the evolving field of science studies. As an interpretive framework, the mangle – so-named after the laundry machine usually called a wringer in North America – focuses the researcher squarely on the “dance of agency” (Pickering 1995, 51). This is not to say intentionality; “mangle-ish” analysis captures the way material and human agents bear influence on one another in a contingent manner. Multidisciplinarian Pickering introduces the notion of the mangle in *The Mangle of Practice: Time, Agency and Science*. Here, Pickering offers a general analysis of scientific practice and its application to the nascent field of science, technology, and society (STS). This device, Pickering writes, functions as a way of thinking about the complex array of material and human factors, circumstances, and agents that come into play at a moment where science is being practised (or, rather, where science is “becoming”). To explain, he writes that the mangle is,

… [a] convenient and suggestive shorthand for the dialectic because, for me, it...draws attention to the emergently intertwined delineation and reconfiguration of machinic captures and human intentions, practices, and so on...the worldview or metaphysics, you like, which sees science as an evolving field of human and material agencies reciprocally engaged in a play of resistance and accommodation in which the former seeks to capture the latter. (1995, 23)

Pickering cautions us about two complications in the understanding of mangling. The first is his insistence on temporal emergence, that we work the mangle as an evolving phenomenon, that the aspects of a mangle, both material and intentional, will come together in a form that cannot be predetermined or understood in causal chains. As such, he writes, “...the world of the mangle lacks the comforting causality of traditional physics or engineering, or of sociology or history for that matter, with its traditional repertoire of enduring causes (interests) and constraints” (1995, 24). Instead of probing for causality, as is the way of traditional science and social science operating in a *representational* idiom, Pickering advocates that we look for a pattern to be grasped in the mangle of factors and co-factors, incidences and coincidences, to observe “the dance of agency, and the dialectic of resistance and accommodation” (1995, 24). In this, he says, science studies moves away from that representational idiom, “…representing the world, mapping it, producing articulated knowledge of it” (Pickering 2002, 1), from its epistemological enterprise. Instead, mangling is work in ontology, in a *performative* idiom, “a decentred perspective that is concerned with agency, i.e., doing things in the world, and with the emergent interplay of human and material agency” (2002, 1). Knowledge production becomes an object of study only as an effect of the dance and dialectic, he claims, and not an object unto itself.

The second complication requires the further uprooting of naturalized patterns of thought. As we investigate the mangle, Pickering says, we must move towards a decentred, post-humanist position. He cautions the investigator not to recuperate the action of non-human agents (material instruments or machines, for example) back to a human subject (the scientist or engineer), a humanist position. This is the typical posture of the social scientist.1 Also, he warns against an anti-humanist posture, that of the engineer or scientist for whom “discourse is a pure one of material agencies from which human agency is quite absent” (1995, 25). A post-humanist position holds human and non-human agency in view at once, “…subvert[ing] the black-and-white distinctions of humanism/antihumanism...a space in which the human actors are still there but now inextricably entangled with the nonhuman, no longer at the center of the action and calling the shots. The world makes us in one and the same process as we make the world.” (1995, 26).

My sense is that the “why” and “how” of the Third Pandemic in Hong Kong have been adequately explained by earlier researchers, in the material, conceptual, and social fields alike; the role of the rat, of imperialism, and of race have all been documented by social historians, and are the material foundations of my project. What I hope to accomplish in this evolving paper is to make some space for “how” the enmeshment of human and non-human agency creates Hong Kong’s plague story. Weaving these elements together in the view of science studies, and specifically Pickering’s mangle-ish analysis, clearly illuminates the intimate interrelations of medical knowledge, practice, and society. My paper further promotes the view that medical science, technology, and imperialism are all constituted by human and non-human agents, and that medicine, imperialism, and techno-science are co-constituents one of the other as we apprehend them in history. Reviewing Hong Kong’s story through the lens of the mangle captures “…a dialectic of resistance and accommodation” (Scheid 2002, 46) in all of these aspects.
Let us turn to the plague narrative and its agents. I take the emergence of the Third Pandemic of bubonic plague in 1894 as an opportunity to demonstrate how two events – the isolation of the plague bacillus, *Yersinia pestis* by Alexandre Yersin and Shibasaburo Kitasato and the ascendance of the Tung Wah Hospital Group in the colonial structure – come together in founding the particularity of Hong Kong’s colonial experience. The plague called a segregationist colonial government into action, birthing an extensive practice of state medicine in Hong Kong through the 20th century, and it occasioned the success of a group of the Hong Kong Chinese elite in establishing legitimacy and power in the view of the colonial government that allowed for a great degree of autonomy for the Chinese community. This elite class, most of them bilingual, acted as a buffer between the colonists and the Chinese of the Taipingshan and Kowloon slums, interpreting Chinese customs the colonists could scarcely understand. In particular, this essay highlights the role of the Tung Wah Hospital and Tung Wah Hospital Committee that came to prominence in the acute phase of the Third Pandemic, 1894-1896, in advocating for a balance of Chinese and British techniques in the management of health in the colony. Plague also acted as a staging ground on which modern medicine, and specifically the infant field of epidemiology, stood to prove its validity.

**THE BUG: CHINESE AND WESTERN UNDERSTANDINGS OF BUBONIC PLAGUE**

Today, plague is known to be an infectious disease caused by the bacterium *Yersinia pestis* carried by fleas, *Xenopsylla cheopis*. Transmission is zoonotic, spread by the yellow-bellied rat, spreading most rapidly in developing areas with substandard sanitary practices. There are multiple variants of plague, the most common being bubonic plague, the strain responsible for the so-called Third Pandemic (1855-1912) that emerged from southwestern China and spread through the trade routes of 19th century empires. In the European tradition, plague epidemics were first understood as the enactment of the wrath of God (Hirst 1953, 7), and were then accounted for by the miasmic theory of disease transmission. The miasmic theory of disease, too, had its roots in supernaturalism and superstition – beliefs, for example, that the miasms or vapours causing cholera and Black Death plague were the breath of demons – but the miasmic understanding grew to found early policies on sanitation during the eighteenth century (1953, 47).

Post-Galenic shifts in European medical cosmology and the lessons of the Second Pandemic, the Black Death, put contagion at the fore of medical inquiry. Fracastorius, a physician of the 16th century, was the first to formulate a complete theory of contagion, “bridg[ing] the gap betw een sym pathetic m agic and the living” (1953, 47). Still, Fracastorius’s prescient understanding of the transmission of infectious disease was not widely accepted in his time, nearly three hundred years before the ascendance of germ theory. Physicians learned much about plague in observing outbreaks in England (mid 16th century), Egypt, and Tunisia (18th and early 19th century) with contagion theories of transmission emerging to speak back to remnants of superstitious belief (1953, 6 - 72), and uniting the European and Islamic medical models (1953, 51). Chinese medicine, though, proposed a systematic and rigorous but wholly different model of interpreting plague.

The Chinese understanding of plague is characterized by multiplicity; no single condition in the traditional medical canon in China maps directly to the biomedical notion of plague. It was understood first as an exogenous heat disease characterized by fevers and caused by *wai yin*, external factors (Benedict 1996, 101). A disease state in Chinese medical theory is just that – a transient state and not a stable form or identifiable entity (1996, 101), a process and a contingency that can be described but not mapped taxonomically. This is particularly and radically true in medical theory of the Warm Factor school (wenbing) that stresses “regional variation, discontinuity with the past, and locally tailored prescriptions” (Hanson 1997, iv). The Warm Factor and Cold Damage (shanghan) theories are distinguished primarily in how they model disease causation. The older Cold Damage school holds that disease is principally caused by the heteropathic *qi* of excessive cold or wind. This school holds that when exposure to the six climatic configurations (*liu qi*) occurs in the appropriate sequence (wind, cold, heat, moisture, dryness, fire) no illness results, but that exposure through the pores of the skin out of sequence will result in disruption of the individual’s own orthopathic *qi*. For Cold Factor physicians, Benedict suggests, the emergence of a similar disease state in a group of people – an epidemic – results from a common experience of deleterious, out-of-sequence environmental *qi*. The disease process is measured along a rubric of six warps (*liu jing*), based on “the
location and progression of illness in the human body as well as the quality (cold) of the external illness factor involved” (1996, 103).

Warm Factor theory holds instead that illness arises out of exposure by oral or nasal inhalation or through the pores to exogenous and dangerous qi, pestilential qi (li qi) in Benedict’s terms, which is marked by its geographical existence rather than temporal or sequential appearance. For this reason, epidemics that are connected by geographical experience are known as Warm Factor epidemics (wenyi). The Warm Factor School uses “four sectors analysis” (weiqi ying xue) as a diagnostic technique, the observation of the defensive sector (wei), the active sector (qi), the constructive sector (ying), and the blood sector (xue). The progression of the disease is measured in the Triple Burner model (san jiao) which sees the core of the body, the torso, divided into three zones or cavities, while the severity of an illness is measured by observing “the location, direction (inward or outward, upward or downward), and speed of an illness process” (1996, 104). As Benedict and Farquhar note (Farquhar 1994, Benedict 1996), the two schools of thought are not practised in rigorous separation but are deployed in different contexts, sometimes by the same practitioner. Thus it is possible in the logic of Chinese medicine to find two logically distinct, correct and comprehensive answers to the same problem interpreted through one protocol or the other. One school or the other may be pragmatically successful, predisposing its use for practitioners and reifying its position in medical practice.

And so when bubonic plague broke out in the mid-19th century, Chinese physicians apprehended a disease pattern explainable by either model. The Cold Damage physicians sought imbalances in orthopathic qi and climatological exogenous qi that could produce the manifest symptoms while the Warm Factor group sought connections between the environment and the progression of the disease. As Benedict notes, this systematic correlation between the “polluted environment and widespread disease” (1996, 105) had many parallels with the miasmic theory of 19th century European scientists but neither the Warm Factor nor Cold Damage groups had yet lit upon the notion of contagion. All the same, Chinese physicians considering plague were as close as making the correlation between shuyi, rat epidemic, and the bubonic disease spreading from the southwestern provinces toward the coast (Hanson 1997, 192-216). Cold Damage physicians argued that the symptoms of this spreading disease were not always alike, nor was the progression, as such a disease manifesting buboes of different colours in different parts of the body, and progressing at different rates could not result from a single pathogen. Nonetheless, the Warm Factor interpretation holding that plague was caused by an earthly rather than atmospheric qi – di qi rather than tian qi – gained prominence.

This environmental interpretation shares epistemological terrain with the Western understanding of plague and its miasmatic communicability before the advent of bacteriology in the mid 19th century. In time, the first assays of germ theory emerging as early as the mid 17th century (Hirst 1953, 73-84) suggested the existence of pathogens, causative agents of disease in the animal realm. Following this, Koch’s Postulates proposed an analytic structure that made bacterial medical theory and study scientific. Pasteur’s proof against abiogenesis cleared the path for the acceptance of the notion of contagium vivum (1953, 86) and the principles of a science of bacteriology. Within just two decades, these rapidly emerging discoveries of the 19th century were naturalized as scientific law and practice; cholera, diphtheria, typhoid and other germs were isolated, and deadly bacterial infections were no longer feared as the breath of demons or deleterious vapours. The most nefarious disease, plague, remained untested before the Third Pandemic of 1894 in Hong Kong. This staging of plague offered two bacteriologists, Yersin and Kitasato, the opportunity to define this disease in the new terms of modern medicine and to further determine the relationship between Hong Kong Chinese and their colonial governors, a real dance of agency, a mangle of colonial and native responses to life in the rapidly growing port colony.

THE BODIES: POLITICS AND MEDICINE IN THE COLONY

By the middle of the 19th century, the Chinese population of Hong Kong had expanded so significantly under such impoverished conditions as to result in Malthusian pestilence and disease, and crowding only complicated the situation due to the difficulties of building adequately spacious housing along the steep slopes of Victoria Peak. In 1841, the year before the cession of Hong Kong Island to Great Britain, the Chinese in Hong Kong numbered just 2000 but in just three years, the territory’s Chinese population rose...
to 19,000 (Sinn 1989, 10). The spatial organization of the colony echoed the discursive and governmental structures of colonial power, for while the Chinese lived in cramped quarters across Hong Kong Island and Kowloon, the British colonial powers had their residences above the fray in lush Aberdeen and Victoria Peak, areas overlooking all of the harbour, known as “Little England” (Courtauld, Holdsworth, and Vickers 1997). These settlements were chosen for two reasons: they evoked the greenery of the British Isles and the colonists believed that these were zones in the colonial landscape where good healthy air, with currents sweeping through the mountains so different from the heavy, humid air of Sheung Wan that could restore health to British exhausted by travel or the lifestyle excesses of the expatriate life. Describing this geography of healing, *The Lancet* published a letter from Dr. M’Grigor Croft, Staff-Surgeon on the colonial navy ship HMS *Ceylon Rifles*; Croft wrote,

> During several years' residence, I observed that many of my military friends enjoyed remarkably good health…morning or evening walks were invariably taken by most of these officers, and a favourite “constitutional” was by ascending a circuitous path at the rear of the town to the “Gap”…an easy incline from this for two miles enabled them to reach the pretty village and harbour of Aberdeen…and by continuing westward, a healthy walk of between four and five miles brought them back to Victoria. (Croft 1860, 454)

Croft continued to suggest the construction of a sanatorium in this area, “point[ing] out, from experience and observation, why certain spots are unhealthy, and others, not fifty yards away, the opposite” (1860, 454) for the recuperation of fatigued colonialists. Such a sanatorium was built, improving colonial mortality rates, reports *The Lancet* (Anonymous 1882, 758-759), but contemporaneous statistics tellingly account only for British death rates as there was not yet a practical need to measure the mortality of Chinese whose lives were lived largely beyond the practical influence of the colonial authority at this time. The epidemic in 1894 marked the colonial government's first significant incursion into the domestic and medical worlds of the Chinese population.

Britain maintained rule of the colony with the co-operation of commercially adept Chinese compradors, understanding that colonial rule of the increasingly prosperous and cosmopolitan territory depended on Britain's tolerance of the cultural and social organization of Chinese society. The British ruled Hong Kong nominally but the true seat of power in the Chinese community was held by a class of Chinese elite emerging through the second half of the 19th century as investors, directors, and fundraisers for community organizations. These groups included social and cultural associations as well as more formal organizations reaching back to South Chinese political movements and shantang, benevolent associations formed in the wake of the Taiping Rebellion. Described by Benedict as “…loc[i] for autonomous political power” (Benedict 1996, 131), the shantang filled a void created as the Qing dynasty lost moral and political power. They functioned equally as charitable societies and architects of public management, an “extrabureaucratic activist elite.” In Hong Kong, among the shantang-style organizations were huiguan (native place associations), craft and trade guilds, temple committees, street or neighbourhood associations, and secret fraternities, predecessors to the contemporary Triads (Sinn 1989, 13). Rallied by these groups, Hong Kong Chinese were able to mount considerable resistance against colonial rule when the demands of the colonial government were unduly onerous or where the cultural mores of the Chinese were violated. This informal rule was of the greatest influence in the domain of health, giving rise to the creation of the most notable shantang, the Tung Wah Committee.

The construction and eventual demolition of the Kwong Fook I-ts’z ancestral hall, located on crowded Taipingshan Street provoked a chain of events that would change the social structure of the colony. Hong Kong’s flourishing entrepôt trade attracted large numbers of transient labourers from the Chinese mainland who congregated in this area, known as Hong Kong’s Chinatown given its entirely Chinese population (Wordie 2002, 266). This newly formed demographic challenged a critical cultural system in Chinese tradition that demanded that the bodies of deceased Chinese be repatriated to the ancestral village, laid to rest with family members, and memorialized in formal and informal mourning rituals. Upon death in the new migrant class, the performance of traditional funerary rites and observances was nearly impossible in Hong Kong. Without families nearby to take charge of the commemoration and burial of bodies, thousands
of Hong Kong Chinese died without traditional consideration, wreaking spiritual and environmental havoc when these deceased were sometimes left undeclared in the spirit world and the streets alike. The Kwong Fook I-ts’z was designed to hold the death tablets of these deceased, a gesture remediating the break in tradition affected in the changing society of 19th century Hong Kong caught between Chinese culture and British colonial modernity. Supported by the efforts of emerging community leadership, the I-ts’z’s construction was the first major work accomplished by a colonized Chinese population advocating for its needs. As Sinn writes, “[t]hus the common ancestral hall, built only 10 years after the colony was established, reflects not only a growing sense of community consciousness but also the emergence of community leadership as well” (1989, 33). The Kwong Fook I-ts’z takes on greater historical significance, though, as the provocation for the foundation of the Tung Wah Hospital Group, one of the most important Chinese institutions in Hong Kong history and a pivotal site in the history of plague in Hong Kong.

The I-ts’z quickly assumed a prominent place in Chinese society. Beyond the death tablets, the I-ts’z became an interim station for coffins and then a place where destitute Chinese went to await death. Its facilities were extremely limited, providing food and tea but no medical treatment. In time, the need for end-of-life and post-mortem care came to exceed the limited resources of the I-ts’z and both the Taipingshan community and the colonial government recognized the need for a hospital dedicated to the care of the Chinese community. The catalyst for the assembly of the hospital and the Tung Wah group was an inspection of the I-ts’z in April of 1869. On this occasion, Acting Registrar General Alfred Lister described the I-ts’z’s abject squalor, appalled that “such heartless cruelty and filth could be found in any building in this city” (1989, 33). Consequently, the I-ts’z was closed on the grounds that the permission accorded by the colonial government was void because the building was being used for purposes other than the properly sanctioned temple. Since mistrust of Western medicine and European colonials deterred the Chinese from seeking treatment in the British built and staffed Civil Hospital, the need for a Chinese hospital was finally acknowledged. Accordingly, the Tung Wah Hospital Incorporation Ordinance was passed on 26 March 1870, mandating that “…Such and so many persons (being of Chinese origin)… [establish] and [maintain] a public free hospital for the treatment of the indigent sick among the Chinese population…to be supported by voluntary contributions and governed by a board of direction” (The laws of Hong Kong, prepared under Ordinance No. 19 of 1911).

The colonial government recognized that building this hospital would require the support and assistance of the Chinese community since earlier attempts at founding clinics had failed.7 Composed of leading members of the Chinese merchant community, the Tung Wah Committee secured funds and colonial consent to build a hospital with Chinese customs as operating principles and offering Chinese herbal treatments (Sinn1989, 41) As Sinn explains, the colonial government finally realized that this aspect was necessary if it was to contain the growing public health stressors in the colony. If the new hospital was to operate on British principles, it would be met with the same mistrust as earlier efforts. The only solution was a joint venture funded by the colonial government and Chinese community sources, including overseas Chinese, and medical care administered in the Chinese tradition by Chinese practitioners.8 Offering Chinese medicine at low or no cost to Hong Kong Chinese, the Tung Wah Hospital was built in 1872, grew and subsumed other clinics through the 1870s and 1880s, forming the Tung Wah Hospital Group as it is known today. The Committee organizing the Tung Wah Group took on great power and prestige in the colony, forming, as Sinn argues, a new Chinese elite (Sinn 1989, 82-120). The hospital board acted as the link between the colonial government and the Chinese population (Benedict 1996, 137), a better actualization of the goals of the shantang (benevolent societies) of Qing China.

While the Tung Wah Hospital Group is the most powerful example of a shantang-style organization, it is distinguished by the colonial context of its formation and by its relationship to a foreign government – a mangleing, perhaps, of traditional Chinese practices and Western colonial practices. While they made significant efforts in controlling the social and political turmoil, including the spread of plague through the late 19th century, acting against the remote and fading power of the Qing dynasty, the shantang of south China were largely unsuccessful in achieving their goals, particularly in defending China against foreign imperialism. These efforts were inadequate precisely because the shantang were organized and directed
largely by civic leaders rather than officials who underestimated their ability to mobilize the people to their assigned ends. Canton’s shantang had mobilized against plague, but in the eyes of many Europeans, civic activism alone was insufficient. From the Western perspective, China lacked the kind of efficient governmental involvement essential to effective epidemic prevention and control (1996, 135).

In Hong Kong, the Tung Wah created a different experience. The Tung Wah Hospital was a great success in its first decades, diplomatic enough to work with the colonial government on issues of public life and efficient enough to keep the colonial government at bay, reinforcing the autonomy of the Chinese population and earning the Committee some measure of deference from the colonial government. In the axes of treating disease and saving lives, though, The Lancet suggested that the Tung Wah Hospital was far less acclaimed. The Lancet reported that in 1885, 1,967 patients were admitted to the Tung Wah Hospital and of these 1,006 of these patients died under its care, a mortality rate of 42.9% (Anonymous 1882, 841). The reporter attributes this alarming death rate to the great antipathy among Chinese toward hospitalization, entering the Tung Wah Hospital only “in the last extremity, or in case of utter destitution” (1886, 841). Curiously, this report does not mention the great difference of the Tung Wah Hospital in its use of Chinese medicine instead of Western biomedicine. Somehow, this significant difference escapes the critique of the Colonial Surgeon. The author forewarns, though, of Hong Kong’s vulnerability to infectious disease, writing, “the subsoil of Victoria is steadily being poisoned by sewage…it is reasonable to expect that the colony will become every year more and more liable to an epidemic...nothing short of a general conflagration in China town is likely to avert it” (1886, 841).9

The next significant shift in medical culture and the balance of power between British and Chinese communities occurred in 1894 when the colony was an epicentre in the dissemination of bubonic plague. The third plague pandemic began in Yunnan, China in the 1770s, described by poet Shi Daonan who observed the coincidence of the plague and the proliferation of rodents, anticipating Yersin and Kitasato’s bacteriological discoveries by more than one hundred years. Shi writes,

Dead rats in the east,
Dead rats in the west!
As if they were tigers,
Indeed are the people scared.
A few days following the death of the rats,
Men pass away like falling walls!
Deaths in one day are numberless.
The hazy sun is covered by somber clouds.
While three men are walking together,
Two drop dead within ten steps! (Benedict 1996, 23)

Through the second half of the 19th century, bubonic plague spread from Yunnan in remote southwestern China to the centres of trade and emigration in Guangxi and Guangdong. Small epidemics wracked the south of China in the 1870s and 1880s until the disease spread to the treaty ports of Canton and Hong Kong, borne by Chinese soldiers returning from their work at suppressing Muslim rebellions in the western provinces (1986, 50). From this point, localized epidemics became a global pandemic, with imperial naval trade routes spreading the disease to all corners of empire. Because of its colonial status and success as a trading entrepôt and a pivotal point in the British Empire, Hong Kong played the most significant role in disseminating plague bacilli and spreading the pandemic. From Hong Kong, plague quickly spread to Macao and Fuzhou, Sydney, Honolulu, San Francisco, Vera Cruz, Lima, Asuncion, Buenos Aires, Rio de Janeiro, Alexandria, Cape Town, Oporto, and Glasgow (Echenberg 2007, 432). This third pandemic reportedly claimed 15 million lives.10 In Hong Kong, the emergence of bubonic plague vaulted the Tung Wah Hospital to the fore, buttressing the autonomy and power of the Hospital Committee in the face of the colonial government, which was unable to condition the Chinese population of the colony without the help of this elite class.
After the medical superintendent of the Civil Government Hospital, James A. Lowson, confirmed plague in Hong Kong in May of 1894, and the colonial government’s Sanitary Board deployed an ill-defined sanitation protocol. Two measures were especially contentious: the transport of infected Chinese patients to a hospital ship and the commencement of household inspection. On the first count, Lowson ordered that infected Chinese be brought aboard the *Hygeia* to attempt to contain the spread of the disease; he recorded this in his diary on May 10th:

Order from H E OAG lot report on plague in Canton in morning. Order an hour later to visit Tung Wah where I found about 20 cases of bubonic plague. Visited Tung Wah again with Ayres at 2 30pm Sanitary Board at 4 00pm. Long Meeting Gave order to have Hygeia over in morning and prepare for epidemic Government proclaimed Colony suffering from plague. (Choa 1990,133).

A bitter dispute ensued, with members of the Sanitary Board questioning the legitimacy of the Tung Wah Hospital for having misdiagnosed the cases of plague, most likely because the Tung Wah Hospital was at this time using Chinese medicine, with its heterodox understanding of medical taxonomy and diagnosis, and for having failed to isolate the geographical origins of the epidemic, a house on Bonham Strand. From these failures, Lowson derived a serious mistrust of the Tung Wah Hospital, as he writes,

I cannot denounce this hotbed of medical and sanitary vice in sufficiently strong terms…if the question of allowing this to remain was to be submitted to the public Health Authorities at home they would order its immediate abolition. Here I know that a political element enters the question, but I doubt if those who have supported it most would do so now if they knew what a Disgrace and Danger to the Public Health of Hong Kong

Ho Kai, the most prominent member of the merchant elite opposed the hospital ship, warning of the reluctance of the Chinese to be displaced, particularly to a ship. Hong Kong Chinese resisted being sent to the *Hygeia* for three reasons: because of their mistrust of colonial authority, because of their mistrust of Western medicine, and further because the newly explained notions of contagion and isolation were foreign, and not part of the Chinese medical cosmology. As a concession, Colonial Surgeon Ayres conceded that the Chinese physicians might accompany their patients aboard the *Hygeia*, but this had only limited success. On the day of the evacuation, only 36 Chinese patients were taken aboard the hospital ship (Sinn 1989, 163).

While the colonial government struggled to contain the outbreak, two camps of medical researchers had come to Hong Kong to study the plague. First to arrive was Professor Shibasaburo Kitasato, a former student of bacteriologist Robert Koch and credited with the discovery of the tetanus bacilli, arriving in Hong Kong in response to a request from the British colonial government for assistance in managing the outbreak. Dr. Alexandre Yersin arrived the same day, a Pasteurian whose distaste for Parisian society drove him to Saigon where he got word of the epidemic in Hong Kong and rushed to attend to the opportunity. Kitasato enjoyed the benefits of having been invited to study, setting up functional bacteriological laboratories in the Civil Hospital and the Kennedy Town Police station while Yersin was forced to cobble together a workspace and materials as best as he could. The two scientists worked in different ways. Yersin was puzzled by Kitasato’s focus on examining organs, the lungs in particular, while ignoring the characteristic buboes. Indeed, Kitasato’s first findings in Hong Kong were of typhoid fever, endemic in the steamy Hong Kong Mid-Levels, missing the smaller bacilli that Yersin observed (Marriott 2002,100). Kitasato is credited (in tentative terms) with first isolating the bacilli, though, as reported in *The Lancet* on 23 June 1894:

…The telegram to which we have alluded informs us that Professor Kitasato of Tokio, late assistant in Professor Koch’s laboratory in Berlin, has succeeded in discovering the bacillus of the plague. Whether that be the case or not, we have yet no means at our disposal of forming a judgement and it is certainly premature to assume that the bacillus in question is the actual cause of this terrible disease. (Anonymous 1894a, 1581-2)

*The Lancet* continues in advocating the most radical measures of sanitary reform, stating, “We learn that the Government proposes to take over and destroy all the unhealthy native quarters. There can be no doubt that in such drastic measures lies the best chance that the fury of the plague will be averted” (1894a, 1581-2).
This publication, like the colonial medical establishment, clearly favoured Kitasato over Yersin. After Yersin sent his own findings just one week after Kitasato's announcement, *The Lancet* published a mocking account of the discovery of another bacillus on 4 August 1894, not mentioning Yersin by name but alluding to his nationality and previous station in Saigon, stating,

> As far as the bacteriological side of the disease is concerned there will probably be many local savants keen on discovering a specific bacillus, and it is necessary to caution the profession against accepting all the statements which will no doubt be put forward in this respect. (Anonymous 1894b, 269-70)

A week later, Yersin's results were printed, but still held in great suspicion, Kitasato's reputation looming large (Marriott 2002, 146) and buttressed by James Lowson's support (2002, 268-270). Indeed, upon rediscovery of Lowson's diary, *The Lancet* published a short article on Lowson's role in the discovery of the plague bacillus. Here, Solomon concludes that Lowson is most likely responsible for the premature publication of Kitasato's findings, later disproven (Solomon 1997, 59-62). Lowson's personal antipathy towards the taciturn Yersin and adulation of the acclaimed Kitasato handicapped Yersin's work on Hong Kong and distracted the medical community from Yersin's work. Cowed by the group supporting Kitasato's research and making every effort at complicating his own, Yersin turned his attention to the manner of transmission.

In July of 1894, Kitasato returned to Japan to a hero's welcome. Yersin stayed on in Hong Kong, now welcomed by a colonial government no closer to containing the epidemic than before the discovery of the bacillus. It was Yersin, though, that formulated the first vaccines against bubonic plague, using the serum of mares and testing it in an outbreak in Bombay through 1896. His successor in India, Dr. Paul-Louis Simond, through careful observation of the relationship between human and rat populations in Karachi – a connection tendered by Yersin years earlier – proved the transmission of plague bacilli by *Xenosylla cheopis*. Yersin would not get credit for his discovery before his death.

In time, the spread of the plague slowed, curbed by unknowable factors; the government's sanitary reforms did not target the transmission vector, i.e., rats and the fleas feeding on rats directly. Loss of life scarcely retarded the growth of the colony. The outbreak of plague, though, altered Hong Kong's character in two significant ways. First, it ended the “enclavist” strategy of the British colonial government from concession to the turn of the century and then it strengthened the Chinese community's resolve against colonial institutions. This strategy of rule has been studied by David Arnold in the South Asian context with Britain beginning public health programs involving Western medicine only after 1918. In Hong Kong, the outbreak of plague forced the assembly of the Sanitary Board, an institution that would endure to the end of the colonial era. The discovery of rodent-borne transmission strengthened racialized interpretations of the plague. As Sinn writes,

> The plague was from the beginning identified as “Chinese,” not only because it had originated in China, but because it was carried by Chinese and recognized as a consequence of filthy, poor, Chinese habits. Neither the government nor the local English-language press disguised the fact that the main object of the sanitary measures was to prevent plague from spreading from the Chinese to the European community. (1989, 179)

The proliferation of rats in squalid areas of the territory, particularly in Taipingshan at the slope of Victoria Peak, only reinforced the notion that the colonizers should remain as segregated as possible from the Chinese masses. Still it forced the government to become embroiled in the daily lives of the Chinese in ways unprecedented in the first decades of colonial rule, invading their homes and even their bodies. The Third Pandemic thus bolstered the emerging model of state medicine, attempted first in Britain and then exported to the colonies even though this model of practice, blanketeting all with a singular strategy and standard of care, was so different from the traditional Chinese model where each patient and case is interpreted and prescribed for individually.

Paradoxically, this increase in government involvement in the lives of Chinese also diminished the power of the colonial government. The pivotal role of the Tung Wah Hospital Committee leveraged the power of the
colonial government to institute whatever reforms it wished against the massive power of the Chinese population to refuse. Sinn writes,

For two decades the Hospital had assumed the role of the Chinese community’s protector, and though in the last few years this role had diminished, the government’s interference now flagrantly exposed its impotence...The more the victims fought, the more the Committee felt obliged to uphold their wishes. The more firmly the Committee stood against the government, the more the sufferers felt their protests justified. (1989, 164)

The Tung Wah with its power influencing both the colonial regime and the Chinese population alike supported a Chinese society inside a colonial society, a fleeting moment of imperium in imperio.

But while the Tung Wah Committee succeeded in keeping the hospital and its new branches open through the epidemic, the attack on Chinese medical practices forced a significant change on the operations of the Tung Wah Hospitals. From 1896 and onwards, the hospitals began to offer Western medicine practiced by Chinese doctors and the installation of a Chinese steward in charge of sanitation. Despite the fact that plague was no better arrested or prevented using Western medicine than Chinese medicine, Western logic and practice still gained normative authority. Instituting these practices was compared to a similar process of conversion in colonial India. As one commissioner of Hong Kong argued, “[i]f natives in India, where religious scruples and racial hatreds presented so much impediment, could come to appreciate Western medicine, then it should be possible, he believed, to similarly persuade the Chinese in Hong Kong” (Sinn 1989, 200). This change marked a diminution of the symbolic powers of the Tung Wah. Convincing the Chinese community of the merits of Western medicine was a great challenge, accomplished only in the twentieth century through the colonial education system. The Chinese mistrust of surgery and particularly of amputation lingered long beyond the plague years. Other measures, particularly chemotherapies administered in tablets, inoculations, and vaccines, sharing common forms with Chinese medical treatments, were better accepted.

The first decades of the 20th century in Hong Kong centred on the ordering of the territory, and perpetuating the model of separate societies. In 1904, the Peak Preservation Ordinance institutionalized the geographical separation of Chinese and British, mandating that areas of desirable Victoria be restricted to Europeans, stating that,

…This measure has as its object the reservation of that portion of the Island of Hongkong commonly known as “the Peak” as a place of residence for persons other than Chinese. The reservation of this district is desirable in order that a healthy place of residence may be preserved for all those who are accustomed to a temperate climate and to whom life in the tropics presents the disadvantage of an unnatural environment. (Anonymous 1904)

What the colonial powers interpreted as nature’s suggestion was practised as environmental racism. The Second World War changed the relation between the colonizers and colonized people, though. Now, the British regime and Chinese population were pitted against a common foe, the Japanese Imperial Army. Occupation began on Christmas Day of 1941 and continued until Japan surrendered on 15 August 1945. This period where the British Hong Kongers and Chinese Hong Kong people found themselves similarly antagonized, created the new spirit of Hong Kong identity that would propel the territory forward in the years between WWII and the handover of 1997. In addition to being Chinese, there was now some sense in being Hong Kong people. The experience of plague and the contemporaneous attempts at building bridges between the colonial government and the Chinese population created a structure into which this identity would grow.

THE MANGLE: HONG KONG’S PLAGUE STORY IN A SCIENCE STUDIES FRAME

Let’s return to the mangle. Pickering’s tool and the material-semiotic tradition of which Pickering is a representative are not without critics. Similarly critiqued are the meeting of science, technology, and society under the rubrics of science studies, the history and philosophy of science, technology and medicine, the sociology of scientific knowledge (SSK), and multidisciplinary science studies, STS and ACT. In his history
of post-positivist philosophy and the sociology of science, J. H. Zammito iterates the fear that multi-factored analysis, like Pickering's mangle, risks condoning muddled analysis, or of diluting disciplinary clarity, writing, "if, in the aftermath of Kuhn, history, philosophy, and sociology have interfused, it is alas all too apparent that they risk bringing out the worst in the interdisciplinary mutuality" (Zammito 2004, 89). This suggests that after three decades of discursive progress, the symmetrical study of social, technological and natural factors is by now naturalized in historical methodology. Indeed, the merits of social science's version of multi-factorial analysis may be so much naturalized as to seem self-evident and not worthy of the being signposted as a research methodology any longer. The example of Hong Kong's history, though, where the totalizing tendencies of colonialism and the paucity of Chinese documentary sources inspire histories in the key of the imperialist, so to speak, the need to look for the dance of agency is amplified, specifically calling forward the complexities of colonial formations.

This approach is not without critics, however. Jonathan Harwood has challenged Pickering's framework from the view of the historian, arguing that mangle-ish analysis is not useful to the historian seeking an answer as to why historical circumstances produce the history they do, a mangle-ish approach rendering our accounts of the past litanies of "just one damn thing after another (Harwood 2005, 411-415). Pointing to the particular interests of historians, he writes, "...I don't see much prospect of getting explanations of historical change from an approach that treats [techno]science as an “assemblage of reciprocally tuned heterogeneous elements” in which everything changes everything else (2005, 414). I believe that the example presented here, Hong Kong and the plague crisis, speaks to a number of Harwood's concerns. Fundamentally, not all historians and not all historical writing are organized around the “why” of an issue or event. Certainly, a contemporary historian carries a great responsibility not to stop at uncritical documentary or narrative writing, but the questions historians pursue are far more varied than Harwood suggests.

In the case of Hong Kong and the plague, I have sought to show how all the elements were profoundly interconnected in producing not just "the plague" writ large, or the Third Pandemic, Yersin's discovery of the bacillus, or the foundation of the Tung Wah Hospital. I have built, instead, on the primary sources and the secondary social histories of medicine already extant in addressing plague, Hong Kong, colonialism, the British Empire, race, and scientific modernity as objects that allow for each other's ontological sense and in these meetings have created a narrative we know as the Third Pandemic in what Pickering might see as a representational form.

Harwood is furthermore skeptical of Pickering's borrowings from the vocabulary and vision of evolutionary biology, charging that, "...he overlooks... that evolutionary theorists themselves, while acknowledging the great diversity of processes which affect evolutionary outcomes (e.g., mutation rates, inbreeding and outbreeding, population size, selection etc.), have for a long time been intensely interested in trying to identify which of these factors are most important in shaping the evolutionary process (2005, 414). I interpret this as a variation of his early discontent with the historiographical applicability of decentred history. What Harwood says is true, but the governing questions of the biologist are not necessarily shared by the humanist or social scientist. Mapping history in the service of causality implies linearity and even a teleological nature in a world that has become no more absolutely knowable as it has been studied and known. Pickering's mangle, the general orientation of science studies toward the mapping of networks and agency, the orientation of anthropology towards thick description and issues of agency, human and non-human, and the growing interdisciplinarity of historical studies revolve around relationships, and of power moving through those relationships. These maps of networks and relationships inevitably suggest the "why" of the events they produce, but they are not structured around that question. In that this device is conceptually and methodologically non-reductive, through asking that we envision our historical subjects as complex sets of both human and non-human elements, I find we enjoy a great deal of freedom and access to the historical past as it is restaged in the process of writing. Protecting and cultivating multiplicity in historical analyses, while drawing together the human and non-human agents in Hong Kong's history, helps deliver this history from the single episteme of the modern world where all modernities, all sciences, all societies are compelled to be constituted and remembered in their modern sameness. What is wrung through the mangle of passing time is the cosmopolitan Hong Kong in its contemporary sense and the
contemporary sense of bubonic plague as a venerable old foe made manageable through the efforts of modern science. Pickering’s mangle of practice gives access to these as emerging objects with diverse and complex sets of relations, an organic history that is more than the sum of its documentary parts.

Notes

1. This refers specifically to SSK, the sociology of scientific knowledge.

2. For a thorough discussion of the social and epistemological formations of the Warm Factor school, see Hanson, Marta. External Chaos, Internal Disorder: The Creation of a Southern Medical Tradition on Heat Factor Disorders During the Qing Dynasty. PhD diss., University of Pennsylvania, 1997

3. It is important not to overemphasize the difference between the Cold Damage and Warm Factor schools of thought. They share many fundamental beliefs and understandings of bodily health. They share the belief in qi as the stuff of life, in the cosmological notions of waxing (the five phases) and yinyang (balance). They also use similar techniques of observation (syndrome differentiation and treatment determination, bianzheng lunzhi). It is also important to note the linguistic plurality of these terms; while the terms Cold Damage and Warm Factor refer to schools of thought organized around medical philosophies, these terms can also refer to groups of syndromes with common causal factors.

4. Benedict clarifies that the three jiao of the Triple Burner are not anatomical structures but rather particular bodily regions.


7. In 1866, Fan A-wye and a group of Chinese government clerks had proposed a Chinese hospital that would minister to the sick and feed the needy in Taipingshan. Colonial officials did not support the plan and did not grant use of the land. Other public health measures attempted in Hong Kong involving the use of Western medicine failed completely; the Chinese distrusted biomedicine, particularly surgery and amputation. These treatments defied tradition notions of the body and cosmology, grave insults in the Confucian heritage.

8. Overseas the Chinese played an important role in shaping late Qing and republican China as well as colonial Hong Kong. Sun Yat Sen, “father of modern china,” was very successful in rallying the overseas community behind his republican platform, a model for later groups building social and cultural programs in colonial Hong Kong. He was also a medical doctor trained at Hong Kong’s first tertiary institute, the Hong Kong College of Medicine for Chinese.

9. Sewage was not the only problem. During his travels in 1894, Alexandre Yersin found the plague bacillus as deep as 18 inches below ground level underneath the tenements at Taipingshan.

10. Echenberg cites 15 million as an approximate figure based on an anticipated mortality rate of 66%. He notes, though, that drastically higher figures are possible, given that the plague was under-reported. See David Arnold’s discussion of plague in Colonizing the Body.

11. At this time, administration of public health rested in the domain of two colonial agents, the Sanitary Board and the Colonial Surgeon – Dr. Paul Ayres at the time of the outbreak. James Alfred Lowson was Ayres’ second in command. See Choa, G. H., “Heal the sick” was their motto: the Protestant medical missionaries in China. Shatin, N.T., Hong Kong: Chinese University Press, 1990.

12. Lowson is quoted by Choa in The Lowson Diary: A record of the early phase of the Hong Kong bubonic plague 1894, A talk given to the Hong Kong Branch. Royal Asiatic Society on October 5th, 1994.

13. Later accorded knighthood by the British throne and known as Sir Kai Ho Kai.
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