

Introduction

Hygienic Modernity in Chinese East Asia

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The chapters in this volume are about the intersections of power, culture, and science that have gone into the struggle to overcome disease and improve people's health in some Chinese regions of East Asia over the course of the "long" twentieth century—since the late Qing reforms gathered momentum in the 1860s. Part of the volume adds to the story that has been told of colonial medicine—but the geographical focus here shifts from the British Empire to two East Asian empires, those of the waning Qing dynasty in China (1644–1911) and the new empire of Japan (1895–1945), and to the republican and communist regimes that followed these empires in Taiwan and mainland China, respectively. The diverse and very specific geographical focuses of these chapters view China from the perspective of a variety of regions far from the centers of Chinese state power. The chapters by Sean Hsiang-lin Lei and Ruth Rogaski look primarily at Manchuria under Qing and Japanese rule. Marta Hanson's narrative moves to the far southern Pearl River delta, while three others (by Yu Xinzhong, Shang-Jen Li, and Li Yushang) that deal with mainland topics in fact are rooted in the regionally specific experience of Jiangnan, in the lower Yangzi delta. Three chapters (by Wu Chia-Ling, Lin Yi-ping and Liu Shiyung, and Tseng Yen-fen and Wu Chia-Ling) deal with the island of Taiwan under Japanese rule and under American patronage after the Second World War. Moreover, even though in the West the history of sanitary science has mostly been written around urban experience, none of these chapters tell the story of a major modern city. Instead, they locate much of their action in the countryside, along a continuum of medium to small towns and villages. The most important metropole, offstage but influencing the action, is Tokyo, the capital of

the Japanese Empire. The very different regimes of empire engaged here—dynastic or colonial—do not produce an overarching narrative of imperialism as the shaper of colonial medicine; nor do the various localities examined easily stand in for China as a whole.

Rather, as a group these chapters suggest that a critical history of public health—commonly analyzed as a state- and nation-building project, during both the colonial and post-colonial eras—is richer when we can trace global genealogies of scientific practices in interaction with highly local situations. When chapters show us outbreaks of disease—plague, malaria, SARS (severe acute respiratory syndrome)—as environmental phenomena in motion, we are driven to follow paths that elude the logic of either imperial colony or nation-state, drawing in both international and local players across a variety of regimes that successively governed portions of the Chinese cultural sphere. Each case is embedded in a local situation and a local power grid, yet reveals transnational and international influences and interventions, whether we are dealing with midwives in colonial Taipei, the night-soil economy in treaty-port Shanghai, the plague fighters of the period 1910–19 in Manchuria, or the successive Japanese, American, and international projects for malaria control in Taiwan.

In fact the perspectives that have shaped this picture of several regionally discrete Chinas, each rooted in local conditions, are themselves the product of the situated knowledge of the core group of contributors, seven of whom live and work in Taiwan. (The other two Chinese contributors are from the People's Republic of China, and only two besides myself are native English-speaking Americans.) Conceived and developed by a working group from the Academia Sinica in Taipei, this volume assembles for the first time for an Anglophone audience the voices of a group of Chinese specialists reflecting together upon their own culture's pre-modern and modern medical history. The regional Chinese geographies that emerge in these pages are selective and partly the result of happenstance (there is nothing from central, southwest, or northwest China, or from Hong Kong or Singapore). But what is here reflects the intellectual networks of a group of cosmopolitan provincials whose work upends conventional understandings of center and periphery without, however, reifying any purely local knowledge of Taiwan alone. These chapters reflect the possibly unique circumstances of Taiwan—outside the framework of the normative nation-state system, yet prosperous and technically advanced, serving as a crossroad of the knowledge systems of both the East Asian and North Atlantic spheres.

At that crossroad, modern scholarship on the history of Chinese medicine and science has been nurtured for over fifty years. Taiwan's intellectual elite, politically marginalized as refugees from communism or as former colonials of the island, nevertheless built upon Chinese and Japanese state and public identifications of science with modernity that go back to the nineteenth century. As Anglophone intellectual influence and patronage increased after the Second World War, the study of Chinese science in Taiwan was nourished by the inspirational *Science and Civilisation* series by Joseph Needham and his Chinese collaborators that took shape in the mid-twentieth century.¹ The Taipei-based Academia Sinica carried forward the "Enlightenment" modern scholarship² of the pre-communist twentieth century, absorbed the perspectives of Anglo-American social history and cultural studies movements, and in the last decade has branched out into science and technology studies (STS)—a project that rejects the humanist-positivist divide to bring multidisciplinary perspectives to bear upon institutions and movements at the intersection of science and society.

This intellectual trajectory lies behind the present volume's historical perspective upon the science and politics of public health policymaking and action over the course of 150 years. Part of the background is a deep history of medicine in Chinese civilization. Not only do Chinese scholars today have access to an impressive 2,000-year-old archive, but they have produced a relatively well-studied modern history of classical medicine written in their own language and not merely derived from pioneering investigations from the first world. Researchers based on Taiwan, including contributors to this volume, have written on an array of fruitful topics: about the relations between medicine and the imperial state, medieval medicine and gender, ancient religion and healing; about Chinese responses to the early modern Western sciences introduced by the Jesuits, and the sociology of medical practitioners, as well as culturally informed epidemiological histories of specific diseases including smallpox and leprosy. Accordingly these researchers see the introduction of Western biomedicine and the project of hygienic modernity against a historical background that cannot be confined to narratives of resistance or accommodation, or captured by treating indigenous patterns of belief and practice simply as folk traditions.

At the same time, because the world seen from this perspective may be largely Sinophone, but cannot be identified with any one state or political regime, it encourages the recognition of both the universalism of modernizing claims for the scientific transformation of medicine and the embedded-

ness of actual practices in diverse local conditions. Such a perspective also helps us to move beyond the discourse of medicine and nation, mediated by the experience of imperialism, which has so far dominated the English-language scholarship of colonial medicine.

Here there is a visible contrast between the directions taken by Chinese scholarship and the dominant portrait of Indian colonial medicine framed by South Asia's history under British rule. Concerning India, the discourse of colonial medicine has been shaped by British scholars interested both in colonial power relations and in the important role that natural history in the field and tropical medicine played in the evolution of cosmopolitan science in the nineteenth and twentieth centuries.³ But the heterogeneous subcontinent lacked an easily accessible indigenous archive, and the British rulers of India were uninterested in native technological development. Among Indians, before the 1950s, modernizing local elites were more likely to study law and the humanities than science. Congress Party nationalists initially admired Japanese scientific precocity but did not imitate it.⁴ Although in China the intellectually iconoclastic May Fourth movement of 1919 established "Mr. Science" as an icon of modern identity for almost all educated Chinese, in India the pursuit of science and medicine remained relatively undeveloped. As David Arnold has noted, medicine and public health had a low priority as a British tool of empire, and Indian elites also remained lukewarm about sanitary policies likely to be controversial among the populace.⁵ Indian intellectuals interested in the history of science lamented that South Asia had no Joseph Needham to inspire their field.⁶

When, after independence, South Asian scholars found a critical voice with which to examine their own modern history, they focused on the class and cultural hierarchies that imperialism had left behind, making their signature subaltern studies movement an investigation into the cultural politics of identity. Their interventions created the concept of the postcolonial as a critical perspective on modern subjectivity, on lasting colonized states of mind rather than a simple period of time. If Indian postcolonial studies aimed to provincialize Europe—reimagining indigenous civilizations and claiming an alternative modernity—science was a particularly difficult field for such an endeavor. Both Indian and Chinese scholarship were hobbled by the problem of derivative discourse—that is, the search for an authentic indigenous science judged by scientific standards.⁷ Narratives about the plurality of sciences, the achievements of indigenous technologies, or the

social networks that sustained local techno-practices all too easily merged into a story of scientific backwardness. Still, as Deepak Kumar has said, this crisis of colonial identity in China was “quick and sharp” in the early twentieth century, rather than long drawn out as in India.⁸ Even down to the end of the nineteenth century, Chinese scholars were aggressive in claiming a scientific genealogy “on their own terms,” while throughout the twentieth century, the cosmopolitan authority of modern science appealed to Marxists and liberals, and communists and nationalists, alike. Significantly, imperial Japan as well as the hegemonic West offered models.⁹ The Chinese association of scientific achievement with successful modernity continues to have strong nationalist overtones in the PRC today, as anyone who saw the opening ceremonies of the 2008 Olympics in Beijing will attest.

This complex East Asian legacy—including modern Chinese traditions of Enlightenment scholarship and the experience of Japanese colonialism—has played a role in the perspectives on science studies that shape the Taiwan-based scholarship in this volume. In pursuing the social study of medicine here, contributors do not avoid the story of colonial medicine, but they do so without the baggage of either nationalist identity politics or subaltern consciousness. They bracket it between their mother civilization’s medical history on the one hand, and, on the other hand, some regionally specific flows of the globally circulating technological practices we call modern public health.

The chapters are organized into three sections, roughly chronological in order. However, the chapters intersect thematically in ways that disrupt chronology and blur distinctions between tradition and modernity, while showing interactions between colonial, national, and transnational power centers. As narratives concerned with change through time, some chapters look back to indigenous Chinese knowledge and practices surrounding disease and cleanliness in the late imperial period (the Ming and Qing dynasties), and others move forward to the 2003 SARS outbreak that pitted institutions of multiple Chinese states against a rapidly moving public health crisis that could not be managed within conventional political boundaries. Across this broad time scale, the chapters that touch on indigenous Chinese medicine and hygiene show both persistence and transformation in ways that complicate the notion of a sharp divide between medical tradition and mod-

ern biomedicine. In addition, although the chronological grouping of specific chapters suggests such a conventional transition between imperial and modern China (marked by the revolution of 1911) as well as a break between colonial and postcolonial eras (divided by the end of the Second World War), the contents of the chapters are connected in ways that blur these classifications. In the first section, "Tradition and Transition," the chapters by Leung, Yu, and Lei center on ideas of cleanliness and contagion in successive epidemiological settings in late imperial China. But these chapters exhibit links to treaty-port models of modern hygiene and to both medical and public health approaches to epidemics from the plague in the early twentieth century to the outbreak of SARS in the early twenty-first century.

The middle section, "Colonial Health and Hygiene," groups stories of Taiwan and Manchuria under Japanese rule, and of treaty-port Shanghai. The Shanghai story links back to Yu's discussion of late imperial practices surrounding the night-soil economy in the first section, while Japanese public health projects in Manchuria in the 1930s may usefully be linked to the campaign against plague in the last decade of the Qing Empire.

The third section, "Campaigns for Epidemic Control," shifts perspective to public health as a transnational phenomenon. As rapidly moving, borderless outbreaks, modern epidemics like plague, cholera, and smallpox have been natural subjects for pioneering work in the global history of health and disease. In this volume, case studies of public health projects aimed at curbing epidemics use Chinese sources but are well suited to understanding scientific knowledge and practice as globally circulating, adapting to both technological change and different regimes of power. The section leads off with Lin and Liu's narrative of both prewar and postwar campaigns against malaria on Taiwan, where readers will certainly be led to question the distinction between colonial rule and postcolonial dependency. It continues with Li Yushang's account of the Maoist campaign against schistosomiasis in the mid-twentieth century, and two chapters on SARS. In none of these chapters does the postcolonial identify easily with the national. Rather, these chapters call attention both to local, regionally specific health problems, and to the transnational dimensions of public health crises in the second half of the twentieth century. Politically, the discussions of malaria and SARS invite comparison with Lei's earlier account of the role of non-Chinese international players in the plague-fighting campaigns of the late Qing Empire. As history of science, they show how technical strategies evolve and change, always under political and social constraints. In sum, each case

study—shaped by local social and technical systems, political resources, and available scientific understandings—takes its place in a critical historical genealogy of modern public health movements which deployed a variety of state and international levers of power as they seesawed between utopian goals and coercive means.

Tradition and Transition

“Hygienic modernity” refers to the term *weisheng* (*eisei* in Japanese), less as a translation than as a pointer to the changing conceptualizations of this classical Chinese phrase as it was applied to projects for sanitary reform and disease control in and around the old Chinese middle kingdom from the late nineteenth century through the twentieth. As analyzed by Ruth Rogaski in her seminal book on the topic,¹⁰ the term *weisheng* for centuries reminded Chinese of health regimens that were the responsibility of the individual—regimens that couched medical advice in the language of prevention more than in that of cure, and gave moral and even religious underpinnings to moderation in diet and conduct. Hygienic modernity was born when *weisheng* was given a public meaning, first as part of Meiji Japan’s modernizing sanitary movement (*eisei*, in Japanese), and later throughout the Chinese cultural sphere. In time, *weisheng* came to designate both the ideals of public health as entitlements justifying the exercise of modern state power, and the bureaucratic institutions charged with carrying out public health policy. But the chapters here analyze sophisticated preexisting ideas, cultural habits, and forms of social and political agency in ways that complicate this picture of a traditional *weisheng* of personal hygiene being transformed into a modern *weisheng* of public health institutions.

For example, Yu looks at what described a clean city street in Qing dynasty Jiangnan as an early public health issue, showing how cleanliness was achieved through a combination of commercial and community management of night soil. Wu shows us some of the reasons for the resiliency of the network of local, lay midwives in colonial Taiwan in the face of a Japanese campaign to replace them with experts in so-called scientific motherhood. Shang-Jen Li finds British residents of treaty-port Shanghai who came to appreciate the logic of local Chinese regimens for healthy living. Hanson’s chapter on the role of traditional Chinese medicine in the medical management of the SARS epidemic in Guangzhou reminds us that classical Chinese medicine did not simply fade away under the assault of biomedical

reforms. Rather, it underwent a twentieth-century transformation that, in concert with PRC state sponsorship, has made its modern hybrid form of TCM (traditional Chinese medicine) into an established sector of the health-care system.

Leung elaborates the important theme of the conceptual plasticity of pre-modern China's inherited language of health and disease. Her chapter shows that in both learned medicine and popular culture, *chuanran*, the key classical Chinese term for disease transmission through polluting agents, suggested several implicit models of contagion or contamination using the metaphor of something dyed or stained. This idea coexisted with an evolving learned medical discourse that had a basically configurationist approach to the etiology of disease, basing it on people's bodily constitutions in interaction with seasonal cycles and local environments. The most sophisticated forms of this configurationism were worked out in doctrines about febrile diseases, identified as Cold Damage (*shanghan*) and Warm disease (*wenbing*).

European medical history teaches that the broad idea of contagion—involving human contact with some sort of polluting agent—has been a historical concept of disease transmission that ordinary people intuitively acted upon, even as learned medical discourse struggled to come up with satisfactory theories of disease etiology. Leung shows that discussions of similar issues in the Chinese medical literature occurred even before the twelfth century. Here configurationist (environmental) and contagionist (polluting agent) models of disease etiology could not easily be teased apart. If Ming and Qing learned medical orthodoxy built upon the venerable tradition of Cold Damage disorders, in which fevers were attributed to damage from the *qi* (breath, air, energy) of unseasonable manifestations of seasonal cold and wind, epidemic fevers—when large numbers of people got sick at the same time—led leading experts to posit more elaborate configurationist models of long-term climate cycles. Beginning in the seventeenth century, many doctors shifted to a more regional focus, locating the source of disease in the *qi* of particular local environments. These latter configurationist doctrines sound very like miasma theories: as polluting agents, the *qi* of swampy southern microclimates, or the filth that came from human neglect—rotten organic matter, corpses, or trash heaps—were all *chuanran*. Such interpretations of contagion existed side by side with understandings of some serious chronic disease patterns (such as *xulao*, or “consumption,” identified with modern tuberculosis, and *mafeng*, or “numb wind,” iden-

tified with leprosy) as transmitted from person to person directly, either through heredity or sexual intercourse.

In sum, Leung argues that preexisting understandings of *chuanran* prepared Chinese to some extent for the novel views of contagion brought into China by late-nineteenth-century biomedical germ theory; but at the same time, the understandings confined the Chinese perception of contagion to certain traditional categories of chronic disease. This effectively excluded new forms of epidemics from consideration. Therefore, when Chinese of the late Qing read the English “germ”—itself a popular hybrid term—as *chong* (vermin), they were riffing on old ideas of the transmission of consumption (*xulao*, *feilao*, *shilao*) by invisible worms passed along from the bodies of those who died of the disease—a notion that easily inflected early-twentieth-century understandings of tuberculosis.¹¹ As the chapter by Sean Hsiang-lin Lei points out, the real novelty of the medical discourse surrounding the Manchurian pneumonic plague crisis of 1911 lay not in the realization that a disease might be catching (*ranbing*), but in the construction of a whole new etiological disease category (infectious disease, or *chuanranbing*). Since an infectious disease was defined as one transmitted by a microscopic pathogen, this disease category depended upon germ theory. Moreover, this new category drew a sharp distinction between acute and chronic disorders, something more blurred in classical medical teachings.

However, the resilience of the learned medical traditions of etiology based on constitutions and environments shows in the way both TCM experts and citizens of China responded to the SARS crisis. Lei tells us that in Manchuria in 1912, physicians trained in classical medical doctrines died treating plague victims because they refused to accept germ theory—much less the innovative model of respiratory transmission promoted by Wu Lien-teh (Wu Liande), the bio-medically trained doctor in charge of public health measures. But Hanson shows that in Guangzhou in 2003, TCM herbal formulas were widely used both as prophylaxis by the general public and in hospital treatment of victims. Bypassing the issue of contagion or infection and sticking to their perennial criticism of germ theory as reductionistic, TCM physicians claimed familiarity with SARS as a recognizable kind of south-eastern regional disease outbreak, following the pattern of Warm disease disorder—a purely indigenous nineteenth-century revision of Cold Damage disease doctrine. In hospital treatment in Guangzhou, the TCM physicians used established formulas that targeted each of the four stages of progress of disease as defined by Warm disease doctrine—without, however, reject-

ing the practices of isolating patients or aseptic management of the hospital environment. The Manchurian plague experience may have empowered bio-medical critics of Chinese medicine to an unprecedented extent, but over the long term, supporters of Chinese medicine took refuge in the view that plague was a new and uniquely deadly disease not seen before in China. A century later TCM came out of the SARS experience with its credibility intact, confirming its current partnership with biomedicine in the PRC's unique state-supported system of integrated Chinese and Western medicine (*Zhong xi yi jiehe*).

In Yu's fascinating chapter, we learn that a clean street in a Jiangnan city between the sixteenth and nineteenth centuries depended upon the commoditization of night soil, in which urban excrement was gathered and sold to farmers for fertilizer. In this environment a household's latrine was a source of profit, and a network of dung gatherers (at the bottom), neighborhood night soil contractors (in the middle), and boatmen plying the waters between cities and countryside maintained a trade that was understood as supporting both urban commerce and agricultural production. Rubbish collection was a supplementary and less smoothly functioning business: a certain amount of waste management was organized by local merchants with shops on major commercial streets, and more occasionally it was subsidized as a community service—by official or gentry task forces that undertook particular projects, such as dredging watercourses. Jiangnan elites were aware of the aesthetics involved and often criticized the stench and filth of northern cities—even Beijing, the capital city—compared to their own home region, which was warm and wet enough to support the night soil trade year-round.

When Shanghai opened up as a British-controlled treaty port in 1852, the new foreign concession's Municipal Council adapted this existing system for the territory under its governance. Soon recognizing the economic value of night soil, the Council attempted to make night soil contractors into municipal employees and to use profits from the agricultural trade to make its sanitation department self-supporting. What changed, gradually, was more a conceptual framework than a technological system, as urban sanitation was rationalized in terms of public health, while rules proliferated to foster a modern hygienic aesthetic by curbing odors and confining the labor of collection to nighttime hours. This hybrid local system helped keep groundwater cleaner, and as a result Chinese cities—as well as Japanese ones—were slow to install sewage treatment plants or encourage the

use of flush toilets. The benefits to agriculture remained, although the costs of new sanitary workers, equipment, and surveillance meant that for the ultimate consumer, the peasant, fertilizer costs went up.

After the crisis of the Sino-Japanese war in 1894–95, Chinese nationalist elites broadened their horizons beyond Shanghai-style urban order to look to Japan as a model. As city after city in China established municipal sanitation services in the last fifteen years of Qing rule, Japanese-style hygiene police, supervised by public security forces, ushered in regimes of hygienic modernity that were both nationalist and colonial. Nonetheless, the substrata of older patterns of urban organization remain visible, if only historians know how to look for them.

Colonial Health and Hygiene

The question of whether China became a Western colony after the opium wars of the 1840s and 1850s is still debated. Some scholars see the coastal treaty ports, the military incursions that created them, and the institutional and cultural innovations they stimulated as the key to understanding China's path to modernity.¹² Others, perhaps a larger number, focus on the much broader urban and rural heartlands of China, and the agency of reformist elites and regional and central governments in defending Chinese sovereignty and instigating nationalist revolution. Mao Zedong's famous formula describing his struggling nation—"semifeudal, semicolonial"—remains relevant, calling attention to the limited geographical range of the coastal treaty ports and the foreign-controlled railway lines that branched out from them, as well as to the vast countryside beyond, where the majority of the population lived.

This semicolonial world of the British-dominated treaty ports is evoked in the chapter by Shang-Jen Li here, but also by the work of Yu Xinzhong in the previous section. Among the treaty ports, Shanghai particularly was a laboratory for new urban systems of control, surveillance, and aesthetics. British missionaries, merchants, and diplomats represented China as a tropical environment debilitating to Western residents, and the privileged European powers pushed for action against epidemic diseases that threatened their own citizens' well-being and, by extension, that of the native Chinese. Li's chapter shows how British residents rationalized food preferences brought from home as they dealt with the anxieties of expatriate life—invoking familiar themes of mid-nineteenth-century discourse on

tropical medicine about the health effects of climates, constitutions, races, and civilizations. Yu shows how the Shanghai International Settlement became a symbol of hygienic modernity, even as its infant bureaucracies built upon traditional patterns of sanitary management based on the economics of night soil.

But the chapters by Rogaski and Wu in this section, and the one by Lin and Liu in the third section of the volume, shift the focus to imperial Japan. Beginning in 1874, Meiji Japan adopted Western medicine, especially as practiced in Germany, as the basis for its reformed medical system. Bio-medical laboratory research by European-trained Japanese scientists advanced quickly, led by the Institute of Infectious Diseases (Denzenshō Kenkyusho, later incorporated into Tokyo University), established by Kitasato Shibasaburo in the tradition of the germ theory of Robert Koch, his teacher. According to the Japanese scholar Iijima Wataru, imperial expansion shaped research agendas even before the First World War. In the 1920s, after the creation of the Greater East Asia Co-Prosperity Sphere (*Dai-tō-a Kyōeikenhe*), the study of southern medicine (*nanho igaku*) was developed for tropical areas and expansion medicine (*kaitogu igaku*) for temperate continental regions.¹³ Both the research on tropical parasites in the tradition of southern medicine and the exploration of northern endemics in expansion medicine were closely linked to local public health reforms in various Japanese colonies, including Taiwan and Manchuria.

Iijima implies that the most sophisticated modern medical researchers who studied or worked with Kitasato Shibasaburo focused their energies on Japan's colonies partly because the epidemiological management of the Japanese home islands was controlled by a rival organization (the Tokyo Medical School). But from a more global perspective, we can see how these Japanese medical researchers, like British colonial scientists, used their nation's colonies as field laboratories for research controlled from the metropolitan center. Expansion medicine was about fostering Japanese settlements in Manchuria, and so focused on understanding how Japanese might best adapt to the Manchurian environment, but—as Rogaski shows—the perception of that environment as a wilderness made the researchers see the local people who were the objects of rural hygiene projects as primitive creatures at one with the natural environment.

Yet from the point of view of Japanese relations with the West, we can also see the asymmetrical character of Japanese scientific networks exemplified by Kitasato. His contributions to the Koch laboratory were un-

remarked in Europe,¹⁴ but they built his position as a leader in Tokyo, so that he embodied the diagnostic achievements of germ theory when sent to Hong Kong to fight the plague epidemic of 1894–95 there. In this way, beginning in the 1890s, Japanese-controlled regions on the periphery of the East Asian continental heartland—Taiwan and Manchuria—became laboratories where new hygienic practices were introduced to Chinese people. The Meiji government, from 1868 onward committed to westernization of the Japanese archipelago, brought the zeal of a convert and the autocratic impulses of a self-confident paternalism to its agenda for creating a model modern empire able to rival and even surpass those of the Western powers. The chapters in this volume on the Taiwanese case show how the blueprints originating in Bismarckian Germany prompted reforms implemented in Japan, which were then adapted for Taiwan, the planned model Japanese colony. In contrast to the looser strategies of indirect rule practiced by the British in the vast Indian subcontinent, Japanese governance of Taiwan achieved a penetration of local society possibly unequaled anywhere else in the colonial world.

The chapters here on Japanese malaria control and on the reform of midwifery in Taiwan are both framed by this fine grid of Japanese governmental supervision. A key institution was the imported Japanese sanitary police, responsible for both the island-wide household registration system that included records of all births, and the enforcement of sanitary regulations in the villages—which contributed to the multi-pronged strategy for the control of malaria analyzed here by Lin and Liu. Initiated in 1905, even before state-mandated collection of population statistics in Japan itself, this household registration system is praised today by historical demographers as one of the most thorough in the world for its time.¹⁵ Further, as colonial educational institutions spread, locally trained physicians and other health professionals found career opportunities in clinical and research medical science—so successfully that modern medical doctors came to constitute a significant proportion of the island’s educated elite.¹⁶ The antimalaria drive described by Lin and Liu was just one example of a colonial policy of sanitary reform, education, and surveillance that reached a large proportion of an apparently compliant population.

By comparison, in Manchuria, Japanese rule was always in the hands of the military, though indirect before 1932 and after 1937 overwhelmed by the Sino-Japanese and the world wars. In Rogaski’s chapter here, hygienic modernity came first of all in the form of scientific investigation. The vast

land of Manchuria, imagined as a still-untamed frontier, was a laboratory for Japan's modern scientists from many disciplines: archaeology, linguistics, and anthropology, as well as the expansion medicine discussed above. However, although the military-run South Manchurian Railway Company's civilian research arm produced remarkable scholarship, Rogaski shows that the legacy of Japanese scientific medicine in Manchuria has been symbolized by the notorious hospital of Military Medical Unit 731, dedicated to biological warfare—where lethal wartime experiments on human subjects were conducted. In Manchuria colonial policies of hygienic modernity have come to be remembered in the context of a violent military occupation. Modern nationalist ideology and anti-Japanese passion still dominate PRC discourse about today's three northeastern provinces (i.e., Manchuria) during the first half of the twentieth century. Indeed, Rogaski shows that local Chinese responses to coercive Japanese vaccination campaigns to control plague and other epidemic diseases fit patterns recorded in other colonial settings like India: distrust, panic, and rumors about the colonizers' supposedly malevolent intent.¹⁷ At the same time, she blurs the distinction between colonizer and colonized by showing us that in the two decades of semi-colonial rule before 1932, Chinese biomedically trained experts, including Wu Lien-teh's ongoing plague prevention organization, were partners with Japanese scientists in Manchuria, embracing common strategies and goals.

In the study of colonial medicine in India, centered on the British Empire, public health was first analyzed in terms of state projects of surveillance and control, animated by imperial ideologies of race, gender, and civilization. Since the cultural turn of the 1970s and 1980s, the emphasis has shifted to the theme of the subjectivity of the colonized "other." The achievement of the subaltern studies movement among South Asianists from the Indian subcontinent was to go beyond a straightforward rhetoric of nationalist resistance and empowerment and probe the complex identity formations produced by the fact that, for English-speaking and educated South Asians, the categories and languages of analysis for understanding modernity were themselves a product of colonialism.

The chapters here on the Taiwan case reveal the contours of the Japanese state's colonial project, but do not connect either accommodation (in the case of malaria eradication) or resistance (of birthing women) with anti-colonial politics or nationalist identity formation. Their work pretty much bypasses subaltern studies models of interpretation altogether. The ambivalence—the benevolence and promise as well as the coercion and submis-

sion—entailed by Japanese-mandated hygienic modernity do emerge from the Taiwan materials. Lin and Liu give the colonial medical project of the first half of the twentieth century credit for laying the groundwork for its postcolonial sequel in the Republic of China in the 1950s and 1960s, under the auspices of the American sponsored and funded World Health Organization (WHO). When the island was declared free of malaria in 1965, it was a story of genuine medical progress in the eyes of the Taiwanese people, who had by and large complied with public health interventions from a variety of regimes over the years. In Lin and Liu's retrospective, the focus is on the nexus of power and politics that guided the choice of anti-malarial strategies in both colonial and postcolonial settings—a nexus that in their analysis involved issues of cost, available technologies, administrative infrastructure, and current scientific understandings. Public health emerges not as a primary site of either colonial or postcolonial state building, but as a local instantiation of more globally diffused health policy projects.

It is interesting that in this volume the most detailed narrative of local resistance to the Japanese project of hygienic modernity comes from a study of women's health. Although Japanese policy on Taiwan aimed to reform midwifery along the Meiji model, Wu found and interviewed elderly survivors of female networks that were relatively indifferent to propaganda for scientific childbirth. In dismantling the Japanese version of a widespread colonial stereotype of ignorant mothers and unhygienic native midwives,¹⁸ Wu argues for the medical rationality of some established lay obstetrical practices, like the use of alum and sesame oil to dress the umbilical cord, and also for the receptivity of midwives to simple aseptic measures, like sterilizing scissors or knives with boiling water. She suggests that the modest gains in infant survival under Japanese colonialism owed more to the improvement of public sanitation in the cities than to scientific health education of mothers or midwives. And her main conclusion is that female social networks determined women's choices of attendants at their home births, while, ironically, biomedical teachings about childbirth increased women's perception of risk. Thus we are left not with a colonized identity or a derivative discourse of modernity, but with women whose comfort with their purely local traditions of obstetrics was based on gender, class, and kinship solidarities and connected to a shared belief that childbirth is natural and normal.

In writing about colonial medicine and public health in Taiwan, these scholars bypass themes of colonial identity to return the reader to the sci-

ence itself and the complex social and technical systems through which it operates. Their work suggests that in Taiwan neither medical tradition nor medical science was mobilized by the local population to serve anticolonial ends. To be trained as a modern midwife, or as a doctor supporting research and clinical work on malaria, was a route to a modern professional identity, valued for its social prestige and its humanistic aura independent of politics. These authors write about the colonial medicine of Taiwan as social scientists and historians whose critical perspectives are directed at the politics and culture of public health policies and campaigns themselves.

Recently some scholars have questioned the usefulness of the very category of colonial medicine. With particular reference to the experience of the British Empire, they point to the fact that in India the overwhelming majority of modern medical specialists and providers were local people, including many operating outside formal colonial bureaucratic institutions; and they reject cultural theories of hegemonic discourse propounded by the largely South Asian proponents of subaltern studies. Japanese hygienic modernity in Taiwan may be a better case study for such an interpretation: policies of assimilation and “Japanization” contrast with British colonial policies that maintained caste-like hierarchies of race.¹⁹ Japanese policies in Taiwan achieved a consensus supporting public health as a social good shared by colonized and colonizers alike—argued for by the fact that after the early 1920s travel between the island and the Japanese mainland was unrestricted, on the ground that both populations could be considered “healthy.”²⁰

Beyond the issue of comparative colonialisms, medical history itself may be better understood when we frame the colonial in a larger historical trajectory. Looked at over the history of the twentieth century, legitimating ideologies of modern medical science must be imagined as plural, given the power of indigenous, traditional health practices to continue to be embedded in people’s daily life. In addition, for the colonized in Taiwan, a career as a medical scientist provided an attractive modern identity, even though the cultural resources for such a path were not evenly distributed across the island landscape. Chinese people’s attachment to indigenous practices and beliefs, and their aspirations to participate in a global culture of modern science, took a specific local color in colonial situations, but they both survived the colonial era and continue to interact today.

Campaigns for Epidemic Control

Chapters in the present volume deal with four case studies of public health campaigns in Chinese East Asia: against plague in Manchuria (1911–12), malaria in Taiwan (from 1910 into the 1980s), schistosomiasis in the lower Yangzi delta (1948–58), and SARS in South China, Taiwan, and Singapore (2003). Three of these four are local responses to diseases that have challenged modern public health systems around the globe. Only one—against malaria—was directed by a colonial regime, and even here Lin and Liu compare and contrast Japanese malaria policies before the Second World War with those of the Republic of China in cooperation with the World Health Organization in the postwar years. Two—against plague and schistosomiasis—were sponsored by Chinese governments that saw success as critical to the popular legitimacy, national sovereignty, and international prestige of their respective regimes. Two—against plague and SARS—were manifestations of a global health crisis that mobilized international organizations as well as individual states.

Looking at all four of these movements together, the issues of colonial medicine are less important than longer-term patterns of public health policymaking and action. One sees common goals and strategies pursued by a variety of East Asian regimes, whether empire or nation, communist or capitalist, democratic or authoritarian. One way to analyze these commonalities is to look for an international style of public health campaigns that emerges in the twentieth century—the age when technologies based on germ theory first became available for widespread use. Such an approach will emphasize the globalizing thrust of modern public health regimes, increasingly underwritten by international organizations dominated by the more powerful global political players. It may also draw upon Foucauldian notions of modern state governmentality, where public health campaigns based on an Enlightenment ideology of health as an entitlement serve to propagate, legitimate, and consolidate power, and eventually to inform the subjectivity of citizens themselves.

These public health movements are marked by coercion and utopianism, a campaign style of politics, the intrusion of the state into private domains ordinarily left alone, and appeals to the authority of science to justify policy. Outsiders may suspect a will to power in public health bureaucracies and their governmental sponsors, whose actions in public health emergencies legitimizes state power in other dimensions of national life. Workers

within public health bureaucracies are more likely to see themselves as beleaguered humanitarian professionals, probably underfunded and certainly constrained by politically driven policymakers as well as ignorant or panicky citizens. When they dealt with emergencies, more than in their everyday work of disease prevention and health education, public health professionals captured public attention with militant rhetoric, metaphors of battle, and utopian promises of a disease-free future.

However, each of these four public health movements had its local historical context and style of implementation, and commonalities were not evenly distributed among them. The campaign against pneumonic plague in late Qing Manchuria was a pioneering one, and beyond the goal of saving lives was a desire to demonstrate the hitherto underappreciated power of Western medicine against the claims of the indigenous Chinese medical establishment. This demonstration effect was important for the Qing state's newly fledged nationalist credentials in the spotlight of critical international scrutiny—and threatened action—by the dominant European powers and Japan. As a campaign reflecting on China's national reputation and prestige, the fight against plague in Manchuria most closely resembles the antischistosomiasis campaign in the People's Republic in the 1950s. As a response to a potentially borderless global health emergency, it bears comparison with the fight against SARS almost exactly one hundred years later. In the case of SARS, what is striking is the greater reach of WHO as an international organization operating outside the direct sphere of the nation-state system. In 2003 it was more difficult, if not impossible, for any of the various Chinas of the Nanyang region to make nationalist claims about the successful resolution of the crisis.

The PRC's battle against schistosomiasis and the Japanese colonial anti-malaria campaigns were directed against debilitating chronic diseases rather than acute epidemics. Both involved labor-intensive mobilizations at the grass-roots level. But although the Japanese network of community health stations and the Communist Party's leadership of peasant villagers were both shaped by cost considerations, and both reached rural populations, the Maoist campaign was the self-consciously populist one, its political agenda more trumpeted and its paternalism more disguised.

A striking contrast is the incremental pragmatism of the Japanese organization—with its emphasis on both prevention and cure, mosquito control and treatment of sufferers from the disease—and the PRC's radical goal of eradication and its mass campaign style of action. Maoist propaganda rhe-

torically evoked images of an acute epidemic, comparing snail eradication to the control of plague rats, and evoking the traditional community ritual of “bidding farewell to the plague god” in Warm disease (*wenyi*) outbreaks. Neither biomedical nor TCM doctors would have agreed with this reclassification of the chronic disorder of schistosomiasis as an epidemic emergency.

Ironically, in its utopian aspirations and its ability to mobilize large populations for its realization, the Maoist schistosomiasis campaign is more comparable not with Japanese antimalaria strategies, but with the postcolonial American-inspired war on Taiwan’s malaria-carrying mosquitoes with islandwide DDT sprayings. We are accustomed to think of the manufactured emergencies of the 1950s public health campaigns in mainland China as the product of a uniquely Maoist campaign style of politics. However, looking at them side by side with a Taiwanese campaign encouraged by highly respected international aid groups and the UN health establishment invites critical reflections on global patterns of public health projects in the age of germ theory. Public health movements involve political and social mobilizations; policy always involves choices; and the human fears and hopes aroused by health and disease become a resource that both constrains and legitimizes drastic action.

With malaria, Lin and Liu offer a historical perspective; with SARS, Tseng and Wu offer a contemporary one on public health campaigns. Both chapters call for awareness that, even in the hands of experts, public health policies are driven by judgments that are partially subjective. This is true whether the actors are agents of a colonial power making decisions affecting the colonized inferior, or agents of a democratic government forced to decide how far personal freedoms may be repressed for the collective good. With hindsight, both Li Yushang and Lin and Liu point to the negative side effects of these campaigns and, along with their very real successes, to their long-term failure to attain their sweeping goals. The authors show that politically strategic decision making, the labeling of “side effects,” and the paradoxes of unintended consequences are central to a critical history of public health regimes. Historical perspectives on SARS also encourage us to consider this paradox: SARS found public health professionals operating in a moral economy of risk, in which people claimed the right to safety; while in spite of the high-tech, twenty-first-century speed of expert analysis and decision making about the epidemic, medicine had to fall back on one of the oldest and crudest of control measures, quarantine.

But public health is not just about epidemic crises. The vast majority of

twentieth-century public health bureaucracies were engaged in the mundane activities of education, prevention, and monitoring. In passing, our essayists illustrate this fact with their discussions of childbirth education and marsh drainage in Taiwan, the enforcement of sanitary ordinances concerning night soil in Shanghai, and vaccination drives in Manchuria. But it is the campaigns—mobilizations in response to acute emergencies—that capture public attention. The media give such cases more attention, and scholarship follows suit. Successful interventions such as occurred in the plague and SARS outbreaks discussed here have been the best public testimony for the potential of public health, and the most compelling legitimizers of its power. In cases of chronic disease, it has been far more difficult to claim that public health interventions—rather than long-term, less-well-understood changes in society, economy, and technology—have been responsible for improvements in people's well-being. As scholars, we need to be critically aware of our participation in this image of public health as driven by crisis, of its special twentieth-century relevance in the age of germ theory, and of the interests served by such an image.

For finally, it is on the daily level that hygienic modernity has penetrated most deeply in Chinese East Asia. This may not have supplied enough ideological traction to ensure an orderly response to an epidemic crisis like SARS (here Tseng and Wu contrast Singapore's discipline with Taipei's confusion and Beijing's cover-up). However, the chapters in this volume have traced some of the paths by which the more quotidian disciplines of public health have over the course of the twentieth century become part of Chinese normality. However locally inflected, such disciplines have gained much of their authority from their global circulation.

NOTES

1. The series *Science and Civilisation in China* began publication in 1954, and has continued since Needham's death in 1995. Originally planned as seven volumes, the series has ballooned to 22 separate published titles to date, with five more pending. See <http://www.nri.org.uk/science.html>.

2. This term, popularized by Hu Shi, was used to characterize the intellectual and social reform movements of the years immediately after the overthrow of the imperial system, roughly 1915–27.

3. A good overview is Arnold, *Science, Technology and Medicine in Colonial India*, part of *The New Cambridge History of India*.

4. Sen, "The Character of the Introduction of Western Science in India during the Eighteenth and the Nineteenth Centuries," in Habib and Raina, eds., *Social History of Science in Colonial India*, 69–82. See also Kumar, *Science and the Raj*, 212, 225–26.
5. See Harrison, *Public Health in British India*, 228–34. See also Arnold, *Science, Technology and Medicine in Colonial India*.
6. For an overview, see Raina, *Images and Contexts*. Indian engagements with Joseph Needham and the so-called Needham question about the nondevelopment of science in Asia are discussed in Habib and Raina, eds., *Situating the History of Science*.
7. The landmark study here is Chatterjee's 1986 book, *Nationalist Thought and the Colonial World*.
8. Kumar, *Science and the Raj*, 226.
9. This has been argued by Elman in *On Their Own Terms* and in *A Cultural History of Modern Science in China*.
10. Rogaski, *Hygienic Modernity*.
11. Andrews, "Tuberculosis and the Assimilation of Germ Theory in China, 1895–1937."
12. For recent articulations of this position, see Hevia, *English Lessons*, and L. Liu, *The Clash of Empires*.
13. Iijima, "Infectious and Parasitic Disease Studies in Taiwan, Manchuria and Korea under the Japanese Empire."
14. For Kitasato's career in Europe and his failure to be nominated for a Nobel Prize, see Bartholomew, "Japanese Nobel Candidates in the First Half of the Twentieth Century," 243–53.
15. Yang and Hsieh, "Infant Mortality in Colonial Taiwan 1905–1945."
16. See Lo, *Doctors within Borders*, 90–94, 117–31.
17. See Arnold, *Colonizing the Body*, 141–44, 211–26.
18. For efforts to reform midwifery in British India, see Arnold, *Science, Technology, and Medicine in Colonial India*, 89–91.
19. Kumar, *Science and the Raj*, 222–27, 231–36.
20. Lo, *Doctors within Borders*, 95–96.

