Anthropology and Public Health: Bridging Differences in Culture and Society
Robert A Hahn and Marcia Inborn

Print publication date: 2009
Print ISBN-13: 9780195374643
Published to Oxford Scholarship Online: Sep-09
DOI: 10.1093/acprof:oso/9780195374643.001.0001

"Sanitary Makeshifts" and the Perpetuation of Health Stratification in Indonesia

Eric A. Stein

DOI: 10.1093/acprof:oso/9780195374643.003.0020

Abstract and Keywords

This chapter examines the economic, ethical, and cultural complexities of health policies that emphasize "cost-effectiveness" at the expense of creating stable health infrastructure. Drawing on ethnographic, archival, and oral history research in rural Central Java, Indonesia, it examines latrine and toilet construction efforts from the time of 1930s Rockefeller Foundation hookworm prevention projects to the present. Although hygiene and sanitation projects since the 1970s enabled over half of rural villagers to build indoor toilets, lack of water and drainage, patterns of drought, and the economy of fishponds has fostered continued public defecation in rivers, ponds, and drainage canals. Makeshift or partially completed sanitation programs have led to wide disparities in access to water and toilets. As a consequence, social difference has become encoded at the level of sanitary objects, as indoor toilets become temporal markers of status within village hierarchies centered on development discourses of modernization.

Keywords: sanitation, Indonesia, inequality, Rockefeller Foundation, anthropology

Introduction

The 2006 UNDP Human Development report, noting that 2.6 billion people worldwide lack basic access to toilets, has called for the renewed prioritization of sanitation within global health and development agendas. Inadequate sanitation, combined with the lack of access to clean water, has

contributed to the persistence of diarrheal diseases, dysentery, cholera, hepatitis, typhoid, parasitic infections, and skin rashes—diseases that have largely disappeared from the US and Europe since the early twentieth century but continue to define global disparities in health conditions. Access to sanitation, and to toilets in particular, can have a considerable impact on health outcomes. While access to basic pit latrines results in a 30% reduction in child mortality on average, the provision of flush toilets can have much greater benefits; for example, in Egypt and Peru families with access to flush toilets experienced a nearly 60% decrease in mortality for children in their first year (United Nations Development Program [UNDP] 2006). Despite the advantages of flush toilets, the UNDP report reigns in ambitions for providing such technologies globally, stating that "inadequate financial resources and technical capacity, allied in some cases with water shortages, make it unrealistic to assume that a developed country model could be extended rapidly across the developing world" **(p. 542)** (UNDP 2006 :112). Rather than insisting on developed country standards anytime in the near future, the UNDP—committed to reaching Millennium Development Goal sanitation targets by 2015—emphasizes steady increments on a ladder of improved sanitation, beginning with the construction of simple pit latrines for the majority of those without current access.

In *War against Tropical Disease* (1920), Andrew Balfour, one of the early twentieth century figureheads in the field of tropical medicine, described the "sanitary makeshifts" constructed in East Africa by British army hygienists during World War I. Balfour praised improvised technologies such as sliding drawer latrine buckets, petrol can manure incinerators, and urinals carved into ant hills, but also implied that such solutions were suitable only under the "exceptional circumstances" posed by the war (1920:99–142). Yet, the standards created under exceptional circumstances have often become the norm in developing contexts. Because of the reluctance of donor foundations, health organizations, and national governments to invest in sanitary infrastructure, "cost-effective" sanitary makeshifts have in many cases become permanent "appropriate technologies." Although such makeshifts often satisfy the "basic needs" requirements of development targets by reaching large numbers of people relatively cheaply, they often constitute unreliable, labor-intensive solutions that become social markers of poverty. What are the local, long-term consequences of "cost-effective" sanitary solutions? How might inadequate sanitary facilities further promote social inequalities? Given the critical importance of sanitation for improving morbidity and mortality as well as for fostering social status and practical

convenience, what are the barriers that prevent the widespread distribution and use of more adequate technologies, such as flush toilets?

This chapter addresses these questions through an historical and ethnographic consideration of sanitation in rural Banyumas, Central Java, Indonesia. The first part examines sanitary makeshifts created in conjunction with Rockefeller Foundation hookworm prevention campaigns in the 1930s, during the time of the Netherlands East Indies colony. Rockefeller Foundation campaigns, responding to economic depression and funding constraints within the Dutch colonial state, emphasized a system of "costless" hygiene in which even the poorest villagers were expected to build latrines, water pipes, and toothbrushes from the palm leaves, bamboo, stones, and coconut husks that could be gathered from wooded commons. Village elites trained as hygiene technicians orchestrated sanitary work, showed public hygiene films, and made rounds of village houses giving educational speeches on disease transmission and latrine construction. After decolonization in the 1950s, certain characteristics of the Rockefeller Foundation approach remained salient in the work of the Indonesian national health services and continue to parallel general patterns within global health policy. Exploring these historical transitions **(p. 543)** and their implications for understanding social class in contemporary Java, the chapter considers how both technologies and health personnel constitute makeshifts within economically deficient sanitary programs.

Methodology

This study draws from the approach of historical anthropology, combining archival research, oral history, and ethnography to understand the long-term shifts in local Javanese experiences related to sanitary campaigns in the Banyumas region. Field reports, journals, correspondence, and other records at the Rockefeller Archive Center provided an overview of policy decisions, theories behind sanitary work, and activities in Java from the perspective of Dr. John Hydrick, the Rockefeller Foundation field officer in Java. While such sources show what health institutions and their agents intended to achieve, they rarely give a clear picture of what actually happened on the ground in public health work. Moreover, official documents are often sculpted for the benefit of aid organizations, which reward optimistic reports of development activities with continued funding. However, no written archive that records the perspective of Javanese villagers during the 1930s campaigns exists. What I know about rural Javanese experiences with Rockefeller Foundation hookworm projects is taken from the recollections of octogenarian Javanese

villagers, whose memory fragments have enabled a piecing together of certain aspects of the past. From documents in the Rockefeller Archive Center, I identified a rural sub-district in Banyumas that was heavily invested in during the hookworm prevention campaigns in the 1930s. From 2002 to 2003, I lived in the sub-district and held extensive conversations with older villagers, numbering 15 in total, who could still recall the work of the hygiene technicians. Although such memories have been shaped by collective storytelling and resonate with the politics of present understandings of the past (Halbwachs 1992 ; Portelli 1991 ; Stoler and Strassler 2000), these narrative accounts provide an important contrast with official archives, revealing details that suggest the limits of sanitary policy. Certain data that would be particularly important from a public health standpoint are irretrievably lost: rates of hookworm and other diseases linked to poor sanitation, number of villagers with access to latrines, and the availability of clean water. [1] Yet, other details emerged regarding patterns of social deference to hygiene technicians and conditions of extreme poverty that provide an ethnographic understanding of life in late colonial rural Java.

During the period of fieldwork in Java, I also carried out 120 extensive, unstructured interviews with current health officials, sanitary workers, midwives, doctors, village volunteers, farmers, students, and others regarding their understandings of and experiences with public health. These interview **(p. 544)** conversations, carried out in a mixture of Indonesian and Javanese, centered on perceptions of existing health and development services, personal illness accounts, ideas about the body and pollution, and various forms of village gossip. The many conflicting narratives about health often indicated the socioeconomic fissures within the village, as wealthier, better educated villagers often held more biomedically oriented etiological models of disease and were more likely to seek hospital care than social subordinates. [2]

While much of my time was spent inside villagers' homes in rural Banyumas, I also participated in village development sessions, followed sanitary workers on village visits, attended meetings of the village women's Family Welfare Organization (PKK), attended village maternal and child health clinics, hung out on street corners with unemployed youth, and attended afternoon ping-pong matches in my neighborhood. As much as my fieldwork was ethnographic, I also strove to frame what was happening in rural Banyumas within the larger politics and history of the Banyumas region and in the sphere of the nation. Thus, when I was not in Karang Wetan I stayed in the city of Purwokerto, the Banyumas regional center, and met

with health administrators at hospitals, the department of public health, the Environmental Health Academy (AKL) and General Sudirman University, also utilizing available library and historical materials from each location. I made several visits to Yogyakarta for similar meetings, traveled to the former School for Hygiene Educators in Magelang, and took a 2-week archival visit to Jakarta that included meetings with administrators in the Indonesian Department of Health. A portion of this chapter draws from materials I gathered at these locations as well as from the Royal Tropical Institute (KIT) in Amsterdam, the Royal Institute for Linguistics and Anthropology (KITLV) in Leiden, and the National Archives in the Hague in the Netherlands.

Colonial Era Rural Public Health

Throughout the nineteenth and early twentieth century the primary objective of colonial public health services had been to protect the lives and economic interests of European colonists through sanitation and quarantine in cities, ports, barracks, and plantation estates. [3] The rural expanse in Asia, Africa, and Latin America, where the vast majority of the world's population resided, was largely untouched by public health until the years after World War I, and even then only in patches. [4] In the Netherlands East Indies, rural public health was mainly limited to smallpox and other vaccination campaigns until the 1920s (Boomgaard 1986 ; Schoute 1937). Clinically focused, hospital- or laboratory-based Dutch physicians in the Public Health Service were largely unsupportive of sanitation and hygiene education for indigenous populations. [5] Such activities **(p. 545)** were deprioritized and underfunded within official policy, despite the general recognition among liberal politicians of the importance of such activities for "civilizing" colonial subjects (Benda 1958 ; Gouda 1995 ; Groeneboer 1998). By the late 1930s, however, the Netherlands Indies Public Health Services had warmed to such work, in part through the influence of the Rockefeller Foundation, which began hookworm prevention sanitary campaigns in the colony in 1924. in 1937, the Netherlands Indies hosted the League of Nations Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene, which proposed "enrolling the local people themselves to cooperate in the task of their own improvement" (League of Nations 1937 :42). This participatory approach foreshadowed the principles of Primary Health Care introduced at Alma Ata nearly 40 years later (WHO 1988).

The Rockefeller Foundation, a transnational philanthropic institution funded by the Standard Oil wealth of John D. Rockefeller, played a major role in the expansion of medical services and public health in 62 countries

and territories, across Europe, Australia, Asia, Africa, Latin America, and the Caribbean since 1913. The initial work of the Rockefeller Foundation focused on hookworm eradication campaigns in the rural U.S. South, but expanded through the International Health Division to work on hookworm, malaria, and yellow fever, as well as on other forms of technical and educational assistance (Ettling 1981 ; Farley 2004). A primary supporter of the League of Nations Health Organization, one of the objectives of the Rockefeller Foundation was to multiply institutions of public health education and maintain global networks of disease surveillance (Manderson 1995 ; Weindling 1995). The Rockefeller Foundation used colonial networks to create vast laboratories, secure test subjects, disseminate biomedical principles, publicize its medical philanthropy, and also develop certain ideas of humanitarianism and rights that predicated the demise of colonialism and outlived the time of explicit colonization. As an external agency, the Rockefeller Foundation used the infrastructure and security of colonial states to sponsor a vision of public health based heavily on prevention, without taking the same risks as European governments that invested in the overall economy, security, and infrastructure of the colonies.

Hookworm was often the explicit rationale used by the Rockefeller Foundation to gain entry into the institutional space of foreign public health administrations (Lowy and Zylberman 2000). The Rockefeller Foundation selected hookworm as a model disease because of its chronic presence throughout much of the tropics, its ability to be easily purged from the body with vermifuge treatments, and its potential to be eliminated from the environment through the construction and use of latrines. Although the Rockefeller Foundation exhibited an interest in improving health conditions on a global level, the main purpose of the work by the International Health Board was primarily demonstrative. As John Farley (2004 :5) states in his history of the Rockefeller **(p. 546)** Foundation International Health Division, “The eradication of hookworm was a means to an end, not an end in itself.” Hookworm prevention work provided initial inroads into various foreign health services, serving to demonstrate the effectiveness of Rockefeller Foundation public health methods for physicians abroad.

According to biomedical models, hookworm, a parasitic soil helminth, persists in warm environments through cycles of chronic infection linked to practices of outdoor defecation. Typically entering the body through pores or wounds in the feet when one steps on contaminated soil, hookworm larvae mature in the bloodstream, then travel from the alveolar capillaries into the lungs, where they are expectorated into the mouth and ingested,

finally settling in the small intestines. There, the mature worms feed on blood from the walls of the small intestines and lay millions of eggs, which are expelled from the body through defecation, potentially repolluting the soil with future larvae, completing the cycle of infection. Severe and prolonged hookworm infection creates a distinctive body type, characterized by an emaciated, skin-and-bones frame with a protruding, swollen stomach. Hookworm disease, the outcome of protracted hookworm infection, produces anemia, contributes to growth stunting and mental retardation in children, and weakens the immune system, making the body more susceptible to infectious diseases. The debilitating effects of hookworm disease, though rarely fatal, are marked by a persistent lethargy, earning its designation by journalists in the early twentieth century U.S. South as the “germ of laziness” (Ettling 1981 :36–38). Reforming hygiene practices through the construction of latrines and education campaigns held the potential for breaking cycles of reinfection. From the perspective of colonial governments and plantation owners reliant on indigenous labor, hookworm prevention was particularly attractive in areas with high rates of infection, as the disease caused a persistent and debilitating lethargy that hindered worker productivity (Hewa 1995). Such colonial concerns, although often secondary to Rockefeller Foundation objectives, provided an economic incentive for colonial governments to accept offers of Rockefeller Foundation aid.

Despite the potential benefits of hookworm eradication, the arrival of the Rockefeller Foundation in Java in 1924 was fraught with persistent tensions with physicians in the Netherlands Indies Public Health Service, who perceived the intervention as an encroachment on their own medical sovereignty. For the first few years, the Dutch assigned Dr. John Hydrick, the Rockefeller Foundation field officer, to Serang, an insurrectionary district in West Java. In Serang, rumors abounded among colonized populations over the nature of his activities, with some claiming that Hydrick and his staff intended to steal the souls of Muslims and convert them to Christianity. [6] Deaths from overdoses of Oil of Chenopodium, the vermifuge used in the curative treatment of hookworm disease, further escalated distrust. [7] Such tensions, coupled with the **(p. 547)** strict financial limitations on Hydrick’s activities during the 1930s depression, led to his adoption of a particularly frugal model of health prevention that sought to ease tensions with rural populations and achieve compliance with Western standards of hygiene through the cheapest possible means. By 1933, Hydrick had chosen the area surrounding Poerwokerto in the Banyumas region of Central Java as the demonstration area for his Intensive Rural Hygiene projects, turning over 60 villages into health models for inspection by Dutch bureaucrats, Rockefeller

field officers, foreign health administrators, indigenous medical students, Asian royalty, and other curious travelers. By the end of the 1930s, the head of the Dutch Public Health Service called Hydrick's Demonstration Unit in Poerwokerto the "center of rural hygiene" for all of the colony. [8]

The centerpiece of the Rockefeller Foundation Intensive Rural Hygiene projects was the hygiene *mantri*, or hygiene "technician," a low-level administrative figure trained to provide rudimentary health education and sanitary inspections within the village of his own origin. The Dutch had used other kinds of *mantri*—smallpox vaccinators, tax collectors, labor contractors, and farm administrators—as an extension of indirect rule, drawing on local elites to maintain order beyond the reaches of colonial governance. For Hydrick, the hygiene *mantri* constituted a critical means for reaching local populations not only in their own vernaculars but also through the social networks that made the hygiene *mantri* familiar, and status-superior, to those he visited on his rounds of the villages. In Karang Wetan, the Banyumas village in which I carried out much of my research, the hygiene *mantri* in the 1930s was the son-in-law of the village head and the son of the *Kayim* (chief Islamic leader) of a neighboring village. Although he died of malaria in 1942, he is well remembered in Karang Wetan because his daughter married his nephew, who became village head in the 1970s, and later remarried the son of the village secretary, who went on to become village head from 1996 until 2003. In rural Java, such dense concentration of authority around several interwoven village bloodlines is not uncommon. Hydrick, continuing the tradition of colonial indirect rule, tapped into such networks of authority though his policy of local assignments for the hygiene technicians with the aim of legitimating his projects among village populations.

In 1936 Hydrick established a Hygiene *Mantri* School in urban Banyumas, which produced several hundred graduates stationed across various parts of Java. The school expanded the previous hygiene *mantri* training program from 6 to 18 months, adding in laboratory technique and extensive field practice components. Yet, graduates of the Hygiene Mantri School were not comprehensive health professionals, but were, rather, highly specialized hygiene propagandists trained largely in persuasive methods and in techniques of basic sanitation. As George Strode, the associate director of the Rockefeller **(p. 548)** Foundation International Health Division, observed during a 1938 visit to the Poerwokerto Demonstration Unit, the hygiene *mantri* was an inferior version of sanitary officers trained in the West:

> What is Poerwokerto? It is an attempt to develop constructively permanent health work among the teeming millions of illiterate and poverty-stricken natives at a cost within the capacity of local governments to pay … the interesting thing is the instrument though which the objectives are reached and the care used in applying that instrument. The hygiene-mantri is the instrument. She, or he, is simply a health visitor but one who could not measure up to the standards considered necessary in the Occident … nor would a hygiene-mantri be of great use if transplanted to a highly civilized community, as would a competent P.H. nurse from the West were she employed in the East. The Hygiene-mantri is a makeshift … [9]

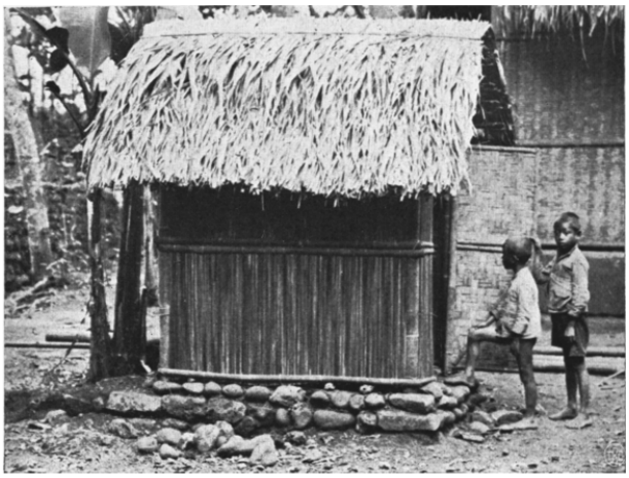
For Strode, a double standard was necessary to meet the health needs of the "teeming millions" within the financial limits set by penurious colonial welfare policy. Yet, the hygiene *mantri* was for Strode not a temporary "makeshift," but part of a permanent solution that supplanted colonial commitments for the provision of clinical care in rural areas.

In theory, the hygiene mantri's propaganda films, health speeches, and home visits were expected to cultivate desires among villagers to participate in and pay for the construction of their own sanitary infrastructure. Hydrick disputed the limits that poverty placed on the ability of village populations to fund sanitary works:

> The idea is everywhere prevalent that village populations never have any money and that it will be difficult to pay three or four guilden at once, but if the matter concerns an article that the native villager likes to have he can always find the money for it. Propaganda must create the desire …. [10]

For those villagers who could not find the money to afford manufactured cement latrine pit linings and covers, Hydrick devised a system of "costless" sanitation and hygiene that could be constructed out of the plentiful natural resources within village yards and commons. The hygiene *mantri* taught school children how to make toothbrushes and fingernail brushes from the fibers of coconut husks, to drink from individual homemade bamboo cups, and to build bamboo piping to funnel water for hand washing and bathing. Diagrams on hygiene propaganda posters showed village women how to weave together food covers from bamboo fibers in order to prevent contamination from flies. Hygiene films demonstrated how the latrine, the most important element within the Rockefeller Foundation projects, could

be made by digging a simple pit topped with a bamboo platform secured by stones and covered with thatch (Figure 19.1) (Hydrick 1937). At face, Hydrick's model seems **(p. 549)**



A sanitary costless latrine

Figure 19.1. 1930s hygiene propaganda image, with original caption (Hydrick 1937).

particularly empowering and utopian. It relied on communal participation to construct the essential sanitary implements necessary to prevent parasitic infections and other prevalent forms of disease in the rural tropics, drawing only from the free, available resources in the local environment. In that respect, the Intensive Rural Hygiene Projects might be seen as a prescient parallel of contemporary participatory development schemes.

Yet, the sanitary infrastructure produced out of such initiatives suffered from several critical problems. Although few archival data exist to document latrine coverage and use for the 1930s, several small landholders in rural Banyumas recalled that it was only "*wong sugih-sugih*," the wealthy, who could afford to construct the latrines. They also explained that some wealthy villagers owned latrines even before the time of the hygiene *mantri*, as status symbols that connected them to the modernity and convenience of the late colonial world. Many rural Banyumas families reported first having access to latrines or toilets only after the 1970s, if at all. Bu Lilis, a former female hygiene *mantri* active in the late 1930s, suggested that many people in Banyumas wanted to build latrines, but were forced (*terpaksa*) "*not* to make them" because of conditions of poverty. Those who did build latrines could rarely afford to finish the construction process. While some construction materials might have been freely **(p. 550)** obtained, the

extensive labor for producing such works was never factored into Hydrick's economic equation. Banyumas villagers explained that it might take over a full week to dig the 3 meter deep latrine pit and complete the latrine cover. [11] The value of such intensive labor investments—which might have been used instead to secure family income through other productive activities—was offset by the ephemerality of the makeshift latrines, which, if they survived heavy monsoon rains, filled to capacity every several years and had to be replaced. In the absence of trained sanitary engineers planning their construction, makeshift latrines also had the potential to contaminate ground water and overflow into rivers. While sturdier concrete lined pit latrines might have proved more durable, no service existed in the 1930s to pump and discard the latrine contents.

In addition to these infrastructural problems, the particular social dynamics that governed interactions between elite hygiene *mantris* and subordinate villagers also shaped the possibilities for effective sanitary campaigns. Village elites in Java occupy a role as patrons who provide work and other benefits to subordinate clients, but they are also generally feared for the power they wield over the social order. A former hygiene *mantri* recalled that people would sometimes flee their homes or refuse to answer the door when they arrived for educational home visits. Part of this fear might have been linked to the hygiene *mantri's* association with other colonial authority figures, such as smallpox vaccinators (*mantri cacar*), who exercised some degree of coercive power over village life. The time of the 1930s in Banyumas was also particularly tense, as government transmigration programs led to rumors about "kidnapping *mantri*" (*mantri culik*), who abducted people from the villages and sent them off to Sumatra as forced plantation laborers. [12] In their social position as superior elites and within the climate of late colonial violence, hygiene *mantris*, though known in their own villages, were perceived with some distrust despite their commitment to persuasive methods of health education. Because of their association with latrines and polluting aspects of the body, the hygiene *mantris* were also the subjects of village mockery. In the present, Banyumas villagers refer to the hygiene *mantris* not by their Dutch title (*mantri higiene*), but by the humorous and derogatory term "*mantri kakus*," meaning "outhouse technician." One woman referred to the hygiene mantris as "technicians of messing up other folks' business" (*mantri orak arik*), suggesting that some villagers perceived their home inspections, intimate questionings, and probing into backyards as unwanted violations of privacy. The practice of using local elites mobilized the most educated and influential villagers into

the field of public health, but also infused health work with the malevolent power dynamics of indirect rule within highly stratified village societies.

In the 1930s, Rockefeller Foundation rural hygiene projects worked within the extreme financial limits posed by depression economics and adjusted to **(p. 551)** the deprioritization of rural sanitation within national health agendas. The Intensive Rural Hygiene Projects in Java reflect the consequences of operating under such conditions. Partially trained, exclusively preventive health propagandists were paid a fraction of the wages of Dutch health professionals and expected to provide coverage to thousands of households each. On the basis of such fleeting visits, rural Javanese villagers, many uneducated and living at the threshold of subsistence, were expected to embrace biomedical etiologies and commit money and labor toward the construction of temporary sanitary facilities. Memories of older Javanese villagers suggest that the project of sanitary reform in rural Banyumas was largely unrealized except among wealthier, educated families who could better comprehend the hygiene messages and afford to invest in latrines, wells, and other implements of hygiene. Others relied on "*garam inggris*," English salts, as a purgative to cure them of worms as they endured cycles of reinfection. As will be discussed subsequently, certain elements of the Rockefeller Foundation projects remained intact following decolonization in the 1950s and came to reflect general strategies within global health policy, reproducing the same kinds of village health stratification as those that occurred in the 1930s.

Postcolonial Transitions

The 1937 League of Nations Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene in Bandung, influenced by the Rockefeller Foundation perspective, represented a global shift toward the increasing prioritization of sanitation and hygiene for rural populations across Asia. The conference expressed optimism for the possibility of indigenous cooperation and active participation in the project of "rural reconstruction," which was conceived as a holistic, integrated approach including health, economy, agriculture, and education (Litsios 1997 :261). The World Health Organization, reflecting on the history of public health, noted the similarities between the objectives of the 1937 League of Nations conference and the goals of the 1978 Alma Ata Primary Health Care Declaration (WHO 1992 :201). In the interim between the 1930s and 1970s, however, emphasis on the total welfare of rural populations, including sanitary reform, was largely displaced by other health and development objectives. The violence and

dislocations of World War II and the wave of decolonizations that followed across Asia disrupted the growing trends of the 1930s. The World Health Organization, replacing the League of Nations as the key international health policy agency in the postwar period, invested heavily in malaria control strategies in the 1950s that largely proved to be unsuccessful (Packard 1997). Rather than emphasize drainage and sanitation as a way to eliminate the breeding grounds of anopheles mosquitoes, the **(p. 552)** malarial control programs relied on aggressive spraying with DDT and other insecticides, reflecting the technologically centered trends of other postwar development approaches (Litsios 1997).

In Indonesia, doctors trained under the Rockefeller Foundation continued to pursue the Intensive Rural Hygiene approach following the departure of Dr. Hydrick in 1939. Although activities of the projects were attenuated during the period of the Japanese occupation of the Netherlands East Indies colony in World War II, Indonesian doctors revived the Hygiene *Mantri* School after 1945. In 1947, when Dutch return to rule over the former colony instigated a revolutionary war, Indonesian doctors fled the Banyumas region and reestablished the Hygiene *Mantri* School to the East in Magelang, claiming rural hygiene for the emerging Indonesian nation. Dr. R. Mochtar, who had been Director of Health Propaganda under the Dutch at the end of the 1930s, was integral to these efforts linking rural hygiene with the project of nationalism. Following Indonesian independence, Dr. Mochtar served as Head of the Division of General Hygiene through much of the 1950s and attempted to expand the rural hygiene approach. Beginning during the revolutionary war in the late 1940s, hygiene *mantris* were renamed “hygiene educators” (*pendidik hygiene*) and presided over a system of village level “hygiene workers” (*djuru hygiene*) intended to carry out house visits, oversee latrine construction, and inspect sanitary conditions of village neighborhoods. Although the projects expanded the number and kinds of personnel involved with hygiene work, the postwar approach retained the economizing features of the earlier hygiene work, as rural health and sanitation remained deprioritized within national and international policy agendas. By the mid-1950s, fewer than 700 *pendidik hygiene* and *djuru hygiene* combined operated throughout the entire Indonesian archipelago out of a total population of over 100 million (Mochtar 1957 :315). In 1961, an American NGO commissioned a survey of the Banyumas hygiene projects and found that they had only a minimal impact even in areas of long-term activity (Calhoun 1961). Pak Arif, a former *pendidik hygiene*, recalled that around 1960, “health centers were lacking” and that rather than concentrate his efforts on sanitation, he was “still caught up helping to look for areas

with malaria and smallpox." The perpetual deferral of attention to conditions of poverty and the emphasis on "emergency" disease conditions thus complicated long-term efforts to transform sanitation in rural areas.

While the project of rural hygiene barely left an imprint upon the Indonesian archipelago across a 30-year period from the 1930s to the 1960s, the global shift to prioritization of family planning in the late 1960s led to the rapid mass mobilization of resources to limit population growth. Shortly after General Suharto displaced President Sukarno from power in 1966 following the mass killings of over 500,000 suspected "communists," Suharto redirected military, police, and other institutional resources toward intensive national birth control **(p. 553)** campaigns. At the village level, the majority of family planning work was carried out by female village volunteers called *kader*. Continuing the precedent of indirect rule set by the earlier hygiene projects, *kader* were drawn from the ranks of rural elites—typically they were obligated to carry out their duties as the wives of minor officials—enabling them to best influence reproductive decisions within the village. By the 1970s, the *djuru hygiene* position was dissolved and home visits regarding sanitation were replaced with home visits to enlist new IUD acceptors. *Kader* activities in the related Family Welfare Program (PKK) required female village elites to teach classes on cooking and nutrition, give demonstrations on child rearing, and to encourage women to sweep their yards and maintain clean homes. By the 1980s, the *kader* role expanded to include maternal and child welfare activities, which continue today in the form of monthly village clinics limited to the principles of Selective Primary Health Care. In the 1990s, there were approximately 1.5 million active *kader* in Indonesia (Ministry of Health 1994), up to 25 to 50 for each village, particularly in densely populated Java where family planning work has been most active. Aside from sub-district sanitation officials who each preside over 10 to 15 villages, the *kader*, who receive very little training and no pay, are most directly responsible for teaching principles of hygiene and sanitation as part of their village welfare work. In the following section I discuss contemporary sanitary conditions in rural Banyumas, Central Java, concentrating on the forms of stratification that characterize village access.

Stratified Hygiene

Banyumas villagers like to joke that the major irrigation canal through the region, part of which was built by the Dutch, is now the "longest toilet in Java." In the early mornings, people can be found wading in the canal to do the wash, bathe, and relieve themselves. In areas without regular

access to running water, open yards are also used out of necessity. After over 70 years of sanitation and hygiene efforts, only about 50% of families in the Banyumas region have access to basic private toilet facilities in their homes as of 2002. [13] Karang Wetan, which has served as a model development village since the 1930s, has attained the highest level national village development ranking—*swasembada*, meaning "self-sufficient." The village has electricity, paved streets, and other official indicators of modernity. Yet, of the 536 households in Karang Wetan, over 100 have neither a latrine nor an indoor toilet, less than one-third of homes have piping for the disposal of waste water, and over 200 homes are without wells or other on-site sources of clean water. [14] Banyumas villagers without sanitary facilities are primarily landless sharecroppers, pedicab drivers and other day laborers, or small landowners farming remote hillside plots **(p. 554)** (*lading*) for cassava, potatoes, corn, and other low-value staples. The cost of installing a toilet and septic tank inside the home is approximately US $60 dollars—nearly double the local monthly wages—and the cost of wells runs many times higher. Government programs since the 1980s like the "Family Toilet" (*Jamban Keluarga*) campaigns and various rotating credit schemes (*arisan*) have provided some financial assistance, but fall far short of meeting the extensive needs of the rural populace. Even within model villages like Karang Wetan, considerable disparities persist, with possible ramifications for morbidity and mortality.

The reasons for such sanitary deficiencies are complex. Ways of accounting for these deficiencies, however, often shift blame for poor sanitation or mask the problem completely, which may further entrench existing patterns of exclusion. When I first arrived in Karang Wetan in 2002, village officials responded to my inquiries about sanitation by assuring me that *all* villagers owned and used toilets, which I soon learned to be untrue. Because of issues of village pride, shame over existing poverty, and desires to maintain high development rankings, usually well-intentioned officials were prone to lead me astray. I looked beyond such forms of sanitary subterfuge to the everyday practices that served as alternates to the use of indoor toilets in Karang Wetan and in the wider Banyumas region.

A common and widespread location for outdoor defecation in the Banyumas region is the many fishponds (*blumbang*) used to raise catfish, gurami, and carp for market sale and local consumption (Figure 19.2). This pattern also exists more widely across Indonesia (Mukherjee 2000). Bu Haryati, a house servant from Karang Wetan born in the mid-1930s, recalled that when she was a child a large fishpond behind the home of the village head was used as

the latrine for most people in her neighborhood up until the mid 1940s, when the Japanese appropriated all of the fish and the pond was drained. Some Javanese consider defecating in fishponds to be essential for the economy, as carp, catfish, and gurami all feed on human feces. Thus, using the ponds is encouraged by local fish farmers, who build semi-private latrine platforms (*plangkrangan*) above them for squatting. From a public health perspective, such practices have the potential to spread parasitic infections to consumers of contaminated fish. Several villagers, appearing to recognize the potential dangers of oral–fecal transmission, claimed to never eat the fish from their own ponds, but sell it instead in public markets. The presence of convenient and semi-private fish pond latrines served as a deterrent for some villagers for investing in indoor toilet facilities, which failed to recycle potentially useful human wastes.

Ecological factors also foster the use of public waterways as locations for defecation outside the home. In Karang Wetan, the dry season between May and November can exhaust available sources of water that might be used for **(p. 555)**

Figure 19.2. Latrine over a Banyumas fishpond, 2002. (Photo by Eric A. Stein)

hygienic purposes. By September, rice fields that flowed with water several months earlier are reduced to barren patches of cracked earth. Because of the uneven water table in Karang Wetan, many wells on the East side of the village dry up around that time, making washing, bathing, or using toilets inside the home very difficult. The severe drought creates a situation in which using the nearby river that borders the village becomes a necessity, even for those villagers who own toilets but lack sufficiently deep wells or servants to transport water into the home. Such limits on access to water are not absolute. Wealthier villagers who can afford to build deeper, better

maintained wells with electric pumps continue to have access to clean water inside the home year round.

Yet, the use of the river cannot be reduced to a problem of drought. The river also serves as a space of public sociability where women converse as they bathe and wash clothing, children swim, and men fish or gather sand for use in construction work. When the water level was still low 10 years ago before the construction of a major dam downstream from Karang Wetan, young women washing in the morning would cross the river to meet up with the young men who lived in the village on the other side, taking some of them as husbands. Now, because the water level is high and the current much faster, the river is considered too dangerous for crossing, but people still do their washing and bathing at the edge, sometimes defecating into the water. There is also a particular aesthetic of purity that guides use of the river. For some, defecating in the river is considered refreshing (*sejuk*) and more comfortable than using **(p. 556)** a toilet in the home. Those who use the bamboo stands constructed over the river's edge report enjoying the satisfying "*Plung Lap*!" sound of the feces entering the water and disappearing, without any smell. The aesthetics of the river—coupled with the comforts of defecating in a familiar place—compels a few people to visit the water's edge even when the wells are full and the indoor toilets are flowing.

For wealthier, better educated villagers as well as sanitary officials, social subordinates' apparent pleasure in using the river is taken as evidence that unsanitary practices are the result of cultural backwardness rather than poverty. Such practices are perceived to be tied to the persistence of "primitive" behavior. Pak Satiman, a former hygiene educator who had recently retired from sanitary work, expressed "cultural backwardness" in terms of a generational gap:

> There are people from villages who when they defecate they must submerge their buttocks entirely underwater. Then at some point they go to visit their children in Jakarta. The bathroom has a sit-down toilet. For a full week they can't defecate, the river is too far. In the end by the time they get back to Purwokerto their feces is already hard and they need medicine for constipation. This is a true story, not a fable.

Pak Satiman attributed such behavior as well as fears over the home visits of sanitary personnel to the "stupidity" of rural villagers, who stubbornly resisted modernity and its associated hygienic practices. Pak Guru, a retired

school teacher, explained that “hygiene has progressed” since the time of the *mantri*, “but there are still those who need to be straightened out [*benahi*].” This rhetoric of development, in which “backward” villagers need “straightening out,” replicates an earlier colonial discourse on hygiene, in which Europeans defined “native” bodies as inherently dirty, open, and polluting (Anderson 1995, 2006 ; Burke 1996 ; Comaroff and Comaroff 1992 ; McClintock 1995 ; Stoler 1995). In postcolonial Indonesia, such perceptions of hygiene have shifted to the determination of class difference, where a similar discourse on hygiene casts the poor as predisposed to unclean lifestyles. This perspective blames sanitary deficiencies on individual ignorance and stubborn adherence to traditional ways, downplaying the economic and environmental factors that prevent access to toilets and other facilities.

Rural elites have a twofold stake in monitoring the sanitary conditions of subordinate villagers. Within dense village settlements, cement walled houses with wells and running water stand adjacent to dirt floored bamboo houses without toilet access. Aside from aesthetic concerns, wealthier villagers who tend to embrace biomedical conceptions of disease etiology fear that unsanitary practices will spread infection into their own homes. Pak Guru, the man who wanted unhygienic villagers “straightened out,” complained that in his **(p. 557)** neighborhood there were 5 or 6 houses without toilets. During the rainy season people developed scabies and houses were infested with biting ants “because all of the yards were soiled with human feces.” Pak Guru and other villagers who recognize uncontained waste as an epidemiological danger identify subordinate villagers who lack sanitary facilities as the primary cause of outbreaks of infectious disease.

Beyond the potential risks for his own family, Pak Guru was also a practicing Muslim and an elite landholder with ties of patronage to subordinate clients, who worked as sharecroppers in his rice fields and provided other forms of labor during the off-season. As such, he held a stake in the moral economy of village society, in which he was obligated to attend to the welfare of dependents (Scott 1976). For many village elites, volunteering in village governance activities or serving as Family Welfare *kader*, is treated as a way to discharge such obligations to the village poor. Through the Family Welfare Program (PKK), elite female *kader* run the maternal and child health clinic and hold monthly meetings open to the public to discuss matters of health, hygiene, sanitation, nutrition, development, home economy, and other areas of practical knowledge that might “empower” villagers in attendance. To some extent, these services displace more traditional expectations of

patronage tied to moneylending, labor, and food redistribution. In effect, the makeshift approach to hygiene and sanitation has placed village elites in the role of "biological patrons" who are invested more in monitoring and cultivating the healthy bodies of subordinates than in seeing to their material well-being.

While the system of biological patronage mobilizes educated elites through unpaid volunteer work using existing systems of moral order, it also represents and reproduces problems inherent to the social stratification upon which it depends. Many village poor actively avoid public figures (*tokoh masyarakat*) like teachers, officials, *kader*, and wealthy landowners out of fear and deference to authority. This avoidance is compounded by elites' attitude that economically disadvantaged villagers adhere stubbornly to the past, living in unsanitary or "primitive" home conditions by choice. Consequently, Family Welfare meetings are largely comprised of *kader* themselves, so that sanitation and hygiene messages they might disseminate rarely reach the lower economic strata of village society directly. Certain exceptions exist. One woman in Karang Wetan who regularly attended the Family Welfare meetings lived in a dirt floor home without a toilet and relied on the income of her husband, a poor pedicab driver. I later discovered that she attended the meetings out of obligation to the neighborhood *kader*, who allowed the woman to watch television in her home.

Kader express frustrations that they are unable to do more through their work to benefit the poor. Some *kader* manipulate the data on Family Welfare surveys so that poorer villagers will gain added rice supplements or health **(p. 558)** insurance. Other *kader*, unsatisfied or bored with their obligations, fail to attend meetings or completely drop out. Recognizing that work as village volunteers almost never leads to government employment possibilities, many women leave their posts as soon as their husbands leave office. Finally, family welfare work is targeted exclusively toward women, who may heed sanitary messages, but have insufficient power within the household to demand that economic resources be dedicated to the construction of toilets and wells.

The gendered nature and exclusionary aspects of the Family Welfare system, which primarily benefits female *kader* and their peers, poses limits to the effectiveness of health education messages that have particular consequences for the transmission of infectious disease. During the dry season of 2003 I encountered numerous people who claimed to be suffering

from typhoid fever. From a biomedical perspective, typhoid fever is caused by *Salmonella typhi* bacteria, which is transmitted primarily through a fecal–oral route by contaminated food or water. Untreated typhoid fever is associated with a case fatality rate as high as 10%, primarily caused by intestinal hemorrhaging and fatal peritonitis. Typhoid can be treated effectively with antibiotics; however, an incomplete course of antibiotics can increase the chance that an individual will become an asymptomatic carrier of *S. typhi* bacteria. Understanding both the etiology of typhoid and the effective cure is therefore critical for ending cycles of reinfection.

When I solicited villagers' explanatory models (Kleinman 1980) on typhoid —how they named the disease, accounted for its origins, described its symptoms, and proposed a cure—the majority explained that typhoid was caused by eating food that was too spicy. Other explanations of etiology included cigarette consumption, coffee, or bodily imbalances. Few Banyumas villagers identified typhoid as an infectious disease, fewer knew that it was spread by fecal contaminated water and food, and no one, not even health professionals, knew that one could become an asymptomatic disease carrier. When I asked a nurse who lived in Karang Wetan and worked as a *kader* in the Family Welfare Program about typhoid education campaigns, she complained that she had publicly explained the cause of typhoid numerous times and that she could not imagine that anyone in the village did not understand how it was spread. The misperception of some *kader* that they are reaching entire village publics with their speeches furthers the blaming of poor, excluded villagers for failing to heed warnings about washing hands and boiling water and causing their own infectious diseases.

The problem of typhoid fever goes beyond the level of village health education, to policy making on a global scale. Typhoid falls within the category of "neglected infectious diseases," yet remains largely under-represented even within this emerging field of epidemiological interest.[15] Although typhoid fever ranked fourth among 10 common diseases in Central Java hospitals during the 1980s, with a case fatality rate between 3.1% and 10.4% (Gasem, Dolmans, Keuter, and Djokomoeljanto 2001), it remains a low priority at multiple tiers **(p. 559)** of the health system. These seemingly high rates of sickness prompted me to inquire about local typhoid fever prevalence rates at the sub-district clinic (*Puskesmas*). The *mantri* in charge of clinic records informed me that no such data existed. Because typhoid fever is not considered to be as life threatening as other major tropical infections, it does not warrant a separate category within the clinic's system of disease recording. Instead, when someone is diagnosed

as potentially having typhoid fever, it gets recorded as a “gastrointestinal disturbance” along with various other forms of diarrhea and intestinal distress. In part, this generalized category was due to the lack of available testing equipment at the clinic and the generality of typhoid symptoms, which complicates definitive diagnoses. The result is that typhoid fever epidemics may go unreported, unless a significant number of cases require hospitalization. Since the antibiotic used to treat typhoid fever is the same as what is given to treat a variety of other gastrointestinal infections, making the distinction matters little from the perspective of the health clinic staff. Although a relatively cheap and effective, yet short term, vaccine exists for typhoid fever, it is not included among the many other immunizations received in childhood or thereafter in Indonesia. Because of the emergency paradigm that governs which diseases become vital on an international level, particularly in terms of funding aid, certain infections receive extensive attention to the exclusion of others. The absence of an “emergency” status for typhoid fever allows a variety of conflicting local etiologies to flourish, which, from an epidemiological standpoint, miss the critical importance of preventing contagion from recently infected disease carriers. The misapprehension of typhoid fever also masks its essential structural component: typhoid fever is typically caused by inadequate water and food sanitation in places with a weak infrastructure for human waste disposal and hand washing. But because it is more often attributed to spicy food, and, with no health workers arriving to correct this belief, most people lack the motivation to avoid potential exposure and cannot complain that their routine suffering is caused by a lack of sanitary facilities.

Conclusion

Although ecological factors shape sanitary access, such limits are rarely absolute. The vast desert settlements throughout the Southwestern United States, served with flush toilets in almost every house, are a testament to the capabilities of sanitary technologies to provide adequate coverage in even the most water-scarce environments. The problem of sanitation is ultimately one tied to a range of disparities, not only in the economic differences among household incomes, but also in the global and national prioritization of sanitary policy, the differential provision of sanitary technologies, and the level of inclusion of impoverished families within health education campaigns. While the vital **(p. 560)** importance of sanitation has long been recognized within the field of public health, there has rarely been a prolonged commitment in policy for addressing sanitary needs within underdeveloped countries or adequate funding for carrying out the task.

[16] The largely vertical determination of health priorities by global health agencies since the end of World War II has favored attention to a small number of diseases with high mortality rates over nationally contained everyday infections that cause routine suffering, such as those tied to lack of sanitation (Birn 2005 ; Farmer 1999 ; Litsios 1997 ; Packard 1997 ; World Health Organization 1992). Rather than the creation of sustainable sanitary infrastructure, emphasis has been on low-cost, “sanitary makeshifts” to provide temporary solutions to widespread lack of access. These may take the form of improvised or inadequate facilities—bucket latrines, unlined latrine pits, bamboo pit covers, or even flush toilets without a stable water source—that are sometimes labeled as “appropriate technologies” within development discourse.

Deficient technologies, however, only partially account for the perpetuation of health stratification. Poorly trained, underpaid or volunteer health personnel also constitute “cost-effective” solutions that ultimately fail to accomplish their objectives. [17] Hierarchies are exacerbated by conscripting village elites as often reluctant unpaid local health educators to teach about hygiene and sanitation, creating their biological patronage over low-status clients. Village elites heed the messages of public health and benefit from improved sanitation, but rarely convey such messages and benefits effectively to rural poor. Furthermore, continued emphasis on personal responsibility for labor-intensive sanitary construction and maintenance is conducive to an economy of blame, in which subordinate villagers are shamed by village elites for failing to meet sanitary expectations and also treated as dangerous and polluting. This effectively replicates the language of an earlier colonial discourse on hygiene, but places it within a framework of social class, reinforcing existing social inequalities.

While people in the upper economic strata of any society enjoy sanitary facilities built into their homes, schools, and places of work without effort, impoverished people, especially in the global South, are expected to remain persistently vigilant in guarding their own health conditions by expending their own labor and funds. Although some villagers receive indoor toilets, they may not have the time or money to keep them maintained or have access to water to put them to use. These partial sanitary systems are often counted in village development reports even though they offer no health or other benefits for their owners. Moreover, sanitary makeshifts, though only partial and temporary, may lift the health conditions of villages, slums, or countries just above the threshold of emergency concern, making them ineligible for further aid. [18] The emphasis of the UNDP Human Development

Report on meeting Millennium Goal Sanitation targets by providing millions of people with pit latrines may serve to ameliorate the most severe sanitary deficiencies, but it **(p. 561)** may also mean those pit latrine owners will be passed over on the next round of funding and not climb higher up on development rungs, maintaining them in conditions of poverty.

The breadth of the field of anthropology—which recognizes history, ecology, health, economy, politics, culture, and power as interdependently contributing to the formation of social conditions in any given location—offers a unique and complex perspective from which to view problems of sanitation. Anthropological work on symbolic pollution (Douglas 1966) has provided a rich starting point for understanding human "waste" not only as a vehicle for the transmission of infectious pathogens, but also as a conceptual category tied to moral sentiment, religious principles, and ethnic, class, and national identities. Yet, an "anthropology of sanitation" has yet to emerge as a distinctive area of interest, despite increasing anthropological attention to public health and development. For the same reason that Javanese hygiene *mantri* became the subjects of village mockery, anthropologists may be reluctant to engage in research that casts them into the marginal field of "toilet studies." Historical anthropologists exploring the lasting imprints of colonial orders, however, may discover that hygiene, the body, and waste serve as a key to understanding mechanisms of social subordination and difference (Anderson 2006 ; Burke 1996 ; Comaroff and Comaroff 1992). Applying such understandings to address the contemporary inequities of sanitary conditions might be seen as less a niche topic than part of a larger project to come to terms with unequal power relations on a broader scale.

Notes

References

Bibliography references:

Anderson W (1995) Excremental colonialism: Public health and the poetics of pollution. *Critical Inquiry* 21:640–669.

Anderson W (2006) *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines*. Durham, NC: Duke University Press.

(p. 563) Arnold D (1988) “Touching the Body: Perspectives on the Indian Plague.” In: *Selected Subaltern Studies*. R Guha, G Spivak, eds. Oxford, UK: Oxford University Press. pp. 391–426.

Balfour A (1920) *War Against Tropical Disease, Being Seven Sanitary Sermons Addressed to All Interested in Tropical Hygiene and Administration*. London: Baillière, Tindall & Cox.

Bashford A (2003) *Imperial Hygiene: A Critical History of Colonialism, Nationalism and Public Health*. London: Palgrave.

Benda H (1958) *The Crescent and the Rising Sun*. The Hague: W. van Hoeve Ltd.

Birn A (2005) Gates’s grandest challenge: Transcending technology as public health ideology. *The Lancet* 366:514–519.

Boomgaard P (1986) The Welfare Services in Indonesia, 1900–1942. *Itineraro* 10(1):57–81.

Burke T (1996) *Lifebuoy Men, Lux Women: Commodification, Consumption, and Cleanliness in Modern Zimbabwe*. Durham, NC: Duke University Press.

Calhoun J (1961) *A Look at the Initial Health Education Project in Indonesia*. Djakarta: Ministry of Health.

Comaroff J, Comaroff J (1992) *Ethnography and the Historical Imagination*. Boulder, CO: Westview Press.

Curtin PD (1989) *Death by Migration: Europe’s Encounter with the Tropical World in the Nineteenth Century*. Cambridge, UK: Cambridge University Press.

Curtin PD (1996) “Disease and Imperialism.” In: *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500–1900*. PD Curtin, ed. Atlanta, GA: Rodopi. pp. 99–107.

Curtin PD (1998) *Disease and Empire: The Health of European Troops in the Conquest of Africa*. Cambridge, UK: Cambridge University Press.

Douglas M (1966) *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. New York: Praeger.

Ettling J (1981) *The Germ of Laziness: Rockefeller Philanthropy and Public Health in the New South*. Cambridge, MA: Harvard University Press.

Farley J (1991) *Bilharzia: A History of Imperial Tropical Medicine*. Cambridge, UK: Cambridge University Press.

Farley J (2004) *To Cast Out Disease: A History of the International Health Division of Rockefeller Foundation (1913–1951)*. Oxford, UK: Oxford University Press.

Farmer P (1999) *Infections and Inequalities: The Modern Plagues*. Berkeley, CA: University of California Press.

Gardiner P, Oey M (1987) “Morbidity and Mortality in Java, 1880–1940.” In: *Death and Disease in Southeast Asia: Explorations in Social, Medical, and Demographic History*. NG Owen, ed. Oxford, UK: Oxford University Press. pp. 48–69.

Gasem H, Dolmans W, Keuter M, Djokomoeljanto R (2001) Poor food hygiene and housing as risk factors for typhoid fever in Semarang, Indonesia. *Tropical Medicine and International Health* 6(6):484–490.

Gouda F (1995) *Dutch Culture Overseas: Colonial Practice in the Netherlands Indies, 1900–1942*. Amsterdam: Amsterdam University Press.

Groeneboer K (1998) *Gateway to the West: The Dutch Language in Colonial Indonesia 1600–1950*. Amsterdam: Amsterdam University Press.

Halbwachs M (1992) *On Collective Memory*. Chicago, IL: University of Chicago Press.

Hewa S (1995) *Colonialism, Tropical Disease and Imperial Medicine: Rockefeller Philanthropy in Sri Lanka*. Lanham, MD: University Press of America, Inc.

(p. 564) Hydrick J (1937) *Intensive Rural Hygiene Work and Public Health Education of the Public Health Service of Netherlands India*. New York: Netherlands Information Bureau.

Kleinman A (1980) *Patients and Healers in the Context of Culture: An Exploration of the Borderland between Anthropology, Medicine, and Psychiatry*. Berkeley, CA: University of California Press.

League of Nations (1937) *Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene: Report of the Preparatory Committee*. Geneva: League of Nations Health Organization.

Litsios S (1997) Malaria control, the cold war, and the postwar reorganization of international assistance. *Medical Anthropology* 17:255–278.

Lowy I, Zylberman P (2000) Medicine as a social instrument: Rockefeller Foundation, 1913–45. *Studies in the History and Philosophy of the Biological and Biomedical Sciences* 31(3):365–379.

Macleod R, Lewis M (1988) *Disease, Medicine and Empire: Perspectives on Western Medicine and the Experience of European Expansion*. London: Routledge.

Manderson L (1995) "Wireless Wars in the Eastern Arena: Epidemiological Surveillance, Disease Prevention and the Work of the Eastern Bureau of the League of Nations Health Organization, 1925–1942." In: *International Health Organizations and Movements, 1918–1939*. P Weindling, ed. Cambridge, UK: Cambridge University Press. pp. 109–133.

Manderson L (1996) *Sickness and the State: Health and Illness in Colonial Malaya, 1870–1940*. Cambridge, UK: Cambridge University Press.

McClintock A (1995) *Imperial Leather: Race, Gender, and Sexuality in the Colonial Conquest*. New York: Routledge.

Ministry of Health (1994) *Primary Health Care in Indonesia*. Jakarta: Ministry of Health.

Mochtar R (1957) Health Education in Indonesia. *Madjalah Kedokteran Indonesia* 7(10):315.

Mukherjee N (2000) *Myth vs. Reality in Sanitation and Hygiene*. Jakarta: Water and Sanitation Program East Asia and the Pacific.

Murphy E (2004) Developing sustainable peripheries: The limits of citizenship in Guatemala City. *Latin American Perspectives* 31(6):48–68.

Packard R (1997) Malaria dreams: Postwar visions of health and development in the Third World. *Medical Anthropology* 17:279–296.

Portelli A (1991) *The Death of Luigi Trastilli and Other Stories: Form and Meaning in Oral History*. Albany, NY: SUNY Press.

Schoute D (1937) *Occidental Therapeutics in the Netherlands East Indies during Three Centuries of Netherlands Settlement (1690–1900)*. Batavia: Netherlands Indies Public Health Service.

Scott J (1976) *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven, CT: Yale University Press.

Stoler A (1995) *Race and the Education of Desire*. Durham, NC: Duke University Press.

Stoler A, Strassler K (2000) Castings for the colonial: On memory work in new order Java. *Comparative Studies in Society and History* 42(1):4–48.

United Nations Development Program (2006) *Beyond Scarcity: Power, Poverty, and the Global Water Crisis*. Human Development Report.

(p. 565) Weindling P (1995) “Social Medicine and the League of Nations Health Organization.” In: *International Health Organizations and Movements*. P Weindling, ed. Cambridge, UK: Cambridge University Press, pp. 134–153.

World Health Organization (1988) *Four Decades of Achievement: Highlights of the Work of WHO*. Geneva: WHO.

World Health Organization (1992) *Collaboration in Health Development in South-East Asia, 1948–1988*. New Delhi: WHO Regional office for South-East Asia.

Notes:

(1.) While older villagers’ narratives provide a general outline of health conditions in the 1930s, such narrative knowledge does not meet the statistical criteria of epidemiological precision. Moreover, responses sometimes diverged about basic sanitary resources, such as access to clean water, with some villagers recalling a common practice of boiling drinking water and others remembering that water was consumed directly from the river. Such differences, I suggest, most likely reflect stratified forms of knowledge and practice around health and the body.

(2.) By “subordinates” I refer both to clients in direct subordination to economic and social patrons as well as the general differentiation of class

and status in Java that entails everyday deference to educated social figures, professionals, officials, and wealthy landowners.

(3.) John Farley (1991 :4) suggests that the “basic goal of tropical medicine was to render the tropical world fit for white habitation and white investment.” See also Arnold 1988 ; Bashford 2003 ; Curtin 1989, 1996, 1998 ; Macleod and Lewis 1988 ; and Manderson 1995, 1996 for discussion of various aspects of the political economy of medicine in European colonies.

(4.) Several historians (Arnold 1988 ; Manderson 1996 ; Gardiner and Oey 1987) have noted the limited reach and effectiveness of colonial medicine within indigenous populations into the twentieth century.

(5.) Letter from Hydrick to Sawyer, December 17, 1935 RF RG1.1 Series 655J Box 1 Folder 5, Rockefeller Foundation Archives, Rockefeller Archives Center (RAC), Sleepy Hollow, New York.

(6.) John L. Hydrick, “Third Quarter 1925 Report,” p. 53, box 228, series 655, RG 5.3, Rockefeller Foundation Archives, RAC.

(7.) John L. Hydrick, “Third Quarter 1925 Report,” box 228, series 655, RG 5.3, Rockefeller Foundation Archives, RAC.

(8.) Letter from Dr. Offringa to the Minister of Colonies, January 3, 1936, No. 25, Ministerie van Kolonien 1900–1963, Openbaar Verbal, Algemene Rijksarchief, The Hague.

(9.) George Strode officer’s diary, July 30, 1938, p. 25, RG 12.1, Rockefeller Foundation Archives, RAC.

(10.) Hydrick to Van Lonkhuijzen, November 5, 1930, p. 2, folder 3753, Series 655, RG 2, Rockefeller Foundation Archives, RAC.

(11.) It is unclear whether this estimated construction period also included the lengthy process of making the latrine liner, a woven bamboo tube 3 meters long that was sealed with pitch. It is likely that many latrines went without liners and deteriorated more rapidly.

(12.) One man in Banyumas claiming to be in his 90s reported having been himself a victim of such kidnapping until he returned from Sumatra in the 1950s after decolonization.

(13.) This figure was reported to me by a sub-district sanitation official and might be regarded as a general average estimate, though numbers vary widely from village to village.

(14.) The accuracy of such data, which I compiled from the annual village development report, is difficult to confirm. The tendency is to inflate such figures to increase village development rankings.

(15.) Although the World Health Organization has directed attention toward the problem of typhoid fever, other organizations, such as the Global Health Council and the Global Network for Neglected Tropical Diseases, do not include typhoid among their lists of “neglected” infections.

(16.) Renewed commitments to addressing sanitary disparities have been relatively recent, such as the UNDP 2006 report, the UN General Assembly declaration of 2008 as the “International Year of Sanitation,” and the formation of the World Toilet Organization in 2001 (www.worldtoilet.org). These calls largely repeat the declaration of the “International Drinking Water Supply and Sanitation Decade” of the 1980s.

(17.) The designation of volunteer health personnel as “cost-effective” may be misleading, as their lack of training and motivation results in relatively ineffective health education and sanitation work that may defer costs to hospitals, clinics, and other treatment centers.

(18.) See Murphy 2004 on the notion of “sustainable peripheries.”