Essay Review

Tropical Medicine and Public Health in Latin America

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Marcos Cueto (ed.), *Salud, cultura y sociedad en América Latina: nuevas perspectivas históricas*, Estudios Históricos 20 (IEP), Lima, Instituto de Estudios Peruanos, Washington, DC, Organización Panamericana de la Salud, 1996, pp. 256, no price given (84-89303-59-2).

Sidney Chalhoub, *Cidade febril: cortiços epidemias na corte imperial*, São Paulo, Companhia das Letras, 1996, pp. 250, no price given (85-7164-587-6).

Recent years have seen a rapid growth of interest in the history of tropical medicine, sparked by a number of academic and political developments. Imperialism is back on the scholarly agenda, leading us to ask how important empire was to science and medicine, and vice versa. Post-colonial studies raise questions about how the colonies were critical to the constitution or genealogy of science and medicine in the metropolitan centres. Contemporary problems also play a part. The persistence of diseases like malaria, the return of "old" diseases once believed almost conquered, such as cholera, as well as the eruption of deadly new ones, like the Ebola virus, lead us to consider the political geography and economy of disease, as well as styles of tropical medicine. Cholera and malaria were, of course, once familiar diseases in Europe, yet by the early twentieth century had been re-designated as essentially "tropical" diseases, a shift in definition which makes us ask: what is tropical about tropical diseases?

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It is generally recognized, in fact, that the term "tropical" refers to much more than geography; it includes the idea of the essential difference of place, peoples and diseases in hot and humid climates. Latin American medicine and public health fall naturally enough under this broad understanding of tropical medicine, but, as yet, studies of Latin America tend to stand somewhat apart from other studies of tropical medicine. One reason for this is the uneasy fit between the colonial framework and Latin America; to many historians of medicine, indeed, tropical medicine *is* colonial medicine. Though the concept of informal empire has a place in Latin American studies, the colonial framework, as developed in studies of India and Africa, is of limited use in the study of the independent countries of the region in the nineteenth and twentieth centuries. In the case of Brazil, for example, Portugal remained a point of reference in medicine for some time after the Court moved from Lisbon to Rio de Janeiro in 1808. But after independence in 1822, France was much more influential in medicine and public health, followed by Germany later in the century, and the United States in the twentieth century. There were, that is, multiple and shifting centres of reference.

From the first years of political independence, and especially after 1840, when the worst threats of regional revolts had passed, and the nation began to consolidate under the Emperor, Dom Pedro II, physicians in Brazil tried to define their tropical milieu and assess the possibilities and constraints their tropical

location presented in forging a civilization in the tropics. Though Brazilian physicians were European in medical orientation, often training and publishing their work in Europe, they were conscious that their own contributions to medicine were largely ignored or appropriated by others; they also suffered from European cultural and racial condescension, because they lived and practised *in* the tropics, which Europeans by the middle of the nineteenth century held to be far from the centres of progress, as well as disagreeable places of physical and moral insalubrity and degeneration. At certain moments, the burdens of being called "tropical" were sufficiently great to lead some physicians in the country to deny the existence of "tropical" diseases, or a medical specialty worthy of the name "tropical medicine". It was the involvement of tropical medicine with national self-making that gives special interest to tropical medicine and public health in Brazil, and in the countries of Spanish America.

All these considerations make the books under review here very welcome. As Marcos Cueto points out in his very informative introduction, the history of public health and medicine is both old and new in Latin America. Old in that, as in Europe, there has long been a tradition of medical history written by physicians, and new because, again as in Europe, this has given way in the last fifteen to twenty years to the new social history of medicine. Within this social history, moreover, one can discern two phases in Latin America—a first, structuralist and Foucauldian one, which was responsible for turning many social scientists and historians to medicine and public health as a field of study; and a second phase, in which the most valuable lessons of dependency theory and structuralism have been absorbed, but the earlier exaggerations and reductionisms (which left medicine little more than an epiphenomenon of the economy and doctors and public health officials self-deceived and self-deceiving instruments of capitalism) have been put to one side, in favour of more subtle considerations of how the state, the medical profession, and public health functionaries defined and reacted to the problems of disease and ill-health in the region.

The chapters in Cueto's book are a good reflection of this recent trend. They represent a high standard of research and writing, and are well documented, cited and argued.[1] The collection makes no effort to be comprehensive in country coverage (five of the twenty countries of Spanish and Portuguese America are discussed, with Brazil getting the lion's share of attention), a feat not, in my view, possible at this time. Nor has there been any effort to tie the chapters together thematically, so that occasionally chances to reflect on points of overlap, convergence or difference between the countries have been lost. Nevertheless, the idea of gathering together in one volume the work of some of the best, younger historians of medicine and public health currently working on Latin America pays off.

Moreover, the lack of thematic integration is compensated for by the concluding contribution by Cueto and Anne-Emanuelle Birn, which takes the form of a syllabus on the comparative history of public health, drawing on materials in Europe, the United States, and Latin America, from the nineteenth and twentieth centuries. This is a pioneering effort to connect Latin America to trends and developments elsewhere. Read together with Sidney Chalhoub's book on fevers in Rio de Janeiro in the late nineteenth century, we have here some fascinating material, as well as a stimulus to further study. The latter is Cueto's stated and overly modest goal, and it is certainly met. Many Latin American historians of medicine are engaged in a "one-way dialogue" with scholars elsewhere; that is, they read, absorb, and critique work by historians outside Latin America, without being read themselves. It is hoped that many of the contributors in the books reviewed here will find an audience in English; some of them have done so already, and where possible, I

[1] The footnotes to Cueto's introduction cite many other recent studies in the history of public health and medicine in Latin America, and for this reason it is a very valuable resource.

give references to their English-language publications in the footnotes.

In what follows, I have organized my comments around four, inter-related themes provoked by my reading of the two books. The first is the politics of disease. By this I refer to the factors that make certain crises of health politically salient, and likely to prompt public health or other interventions, even when the diseases concerned are not the most significant in causing loss of life or ill-health in the overall population. The issue is: who defines the "public" in public health? In a purely colonial situation, the public was defined by the imperial power. In Latin America, the politics of national and regional governments come to the fore, along with the general issue of the strength or fragility of the national state, since almost all initiatives in health and medicine flowed, in the relative absence of an independent, philanthropic class within civil society, from the state.

The second theme is the role of medical science in shaping public health programmes and policies, in particular, the impact of bacteriology in defining tropical medicine in Latin America. Was it swift, or slow? Did bacteriological methods replace older miasmatic or environmental programmes of public health, exist in parallel, or form an interesting combination with them? How was the history of laboratory medicine played out in Latin America, and with what effect?

The third theme is the role of international, philanthropic agencies in tropical medicine in Latin America. Why did Latin America become a kind of testing ground for some of the Rockefeller Foundation's most ambitious and controversial programmes in public health in the twentieth century, and what were they? How did the informal networks of economic and political power between the United States and Latin America allow the Rockefeller Foundation to negotiate its particular role in Latin America and with what degrees of co-operation and conflict with Latin American public health and political authorities? Fourth and last is the issue of ethnicity and race in medicine and public health. When and where has race been salient in structuring perceptions of morbidity and mortality in Latin America, and how has it affected degrees of action and inaction in public health?

These themes have their counterparts in Europe and the United States, where the history of public health is a well-established field. Even so, our understanding of public health in these regions remains tantalizingly partial. The efficacy or otherwise of public health or medical interventions in reducing indices of mortality and morbidity; the pace at which national or more local systems of public health were put in place; the degree to which medical science informed public health measures; and the ways in which class, gender, and ethnicity affected policies and outcomes—all these issues are still actively debated, even in single countries, such as Britain, on which a great deal of work has been done.[2] Apply all these limitations in our understanding of the history of medicine and public health to Latin America, and one gets some sense of the difficulties historians face. Variations between countries in Latin America are greater than those in Europe, while the number of historians of medicine studying Latin America are far fewer.

I turn first to the politics of disease, the politics, in other words, of what moves the state to action, in what ways, and with what effect. Take cholera, for instance. This is a disease that generated a great deal of discussion among medical and state authorities in Europe in the nineteenth century, as the large, historical literature on the subject attests. As in Europe, cholera was new to Latin America in the nineteenth century, and at first was understood as an imported disease. Once established, however, it became absorbed into

[2] Comparative work is extremely important and extremely rare. For an excellent contribution to the history of public health in many countries (but not Latin America), in which the different rates of institutionalization of public health administration are assessed, along with the discontinuities, inertia, and hesitations, see Dorothy Porter (ed.), *The history of public health and the modern state*, Amsterdam and Atlanta, Georgia, Editions Rodopi B. V., 1994.

the miasmatic framework of the times. Lilia Oliver's contribution to Cueto's volume, on the impact of successive cholera epidemics between 1833 and 1859 in Guadalajara, Mexico, shows that, as in New York over the same period, the epidemics provoked awareness about the insalubrity of the city, and some sanitary measures to deal with them. While cholera in Brazil is not addressed in the two books under review, its story illustrates the different impact epidemics can have in different political contexts. The major epidemic in 1855–56 had almost no effect on public health policies, though it left at least 200,000 people dead (this figure is surely an underestimate; the exact number of victims is unknown, owing to the absence of data on the causes of death and variations in death rates—the absence, that is, of the kind of detailed, vital statistics that became part and parcel of the sanitary revolution in Europe).

The inaction over cholera in Brazil had many causes, from the weakness of the federal agencies charged with preventing the importation of disease, to the fact that cholera killed mainly the poor, black, often enslaved population, who lacked resistance because of malnutrition and abysmal sanitary conditions. The highest death rates were also concentrated in the northeastern parts of the country, far from the centre of federal power in Rio de Janeiro. Yellow fever acquired, meanwhile, a very different geographical, demographic, medical, and above all political, profile, as essays by Jaime Benchimol, in Cueto's volume, and by Chalhoub in his book, show. The first major epidemic occurred in 1849–50; by the 1870s yellow fever was endemic and epidemic in the federal capital, with serious epidemics occurring frequently in the 1890s. Altogether, some 60,000 people died in Rio de Janeiro from yellow fever between 1850 and 1909 (though again, the figures need to be treated with caution and are probably much too low).

By the end of the nineteenth century, it was realized that yellow fever was both a specific disease and local in origin, though its precise mode of transmission continued to baffle physicians. The disease was given a high priority by the political authorities immediately before and after the declaration of the First Republic in 1889, precisely because of its large presence in the federal capital, the high incidence of death amongst those infected, and especially because it targeted European immigrants who lacked immunity acquired from childhood incidences of the disease. Yellow fever therefore threatened the political project of increasing European immigration whose purpose was to "whiten" the "mulatto" population. Sporadic and usually ineffective efforts were therefore made to clean up some of the most unsanitary areas of the city in the last years of the nineteenth century. The political urgency of the issues of race, salubrity and national progress explain why bacteriology and parasitology came so quickly to dominate public health in the country, and why yellow fever eradication was the key to the first, systematic public health campaign in the capital in the opening years of the twentieth century.

Nísia Trindade Lima and Nara Britto's analysis of the medical discovery of the problems of sanitation in the interior of Brazil points, similarly, to the politics of disease, in demonstrating how malaria, hookworm and Chagas's disease came to define "the" public health after World War I. All three diseases converged on the supposed inertia and therefore lack of productivity of rural workers in a country with a largely agricultural, export economy. According to reform-minded and nationalist doctors at the time, the rural population was diseased, not racially compromised, and could therefore be salvaged through programmes of rural hygiene (the question of gross inequities in land ownership and rural immiseration was thus bypassed). Though the analysis in Lima and Britto's chapter is restricted in its sources (being largely based on a medical journal which lasted a year and which often sold less than fifty copies an issue), it nonetheless draws attention to one of the more interesting efforts by Brazilian doctors at self-organization in order to promote a centralized system of public health. The results

were very incomplete; a more centralized national department of health was created by the federal congress in 1919, but its effects in the 1920s were limited, given the continued power of the states within federal Brazil to define their own political goals, and the meagre resources given to health in the federal budget.

A last example of the politics of disease is Diana Obregón's nice study of another public health "discovery", that of leprosy as a national, public health problem in Colombia at the end of the nineteenth century and beginning of the twentieth. She shows how a generation of young Colombian doctors, influenced by Hansen's announcement of the bacillary cause of leprosy, and eager to promote their own expertise in the new laboratory medical science, exaggerated the incidence of the disease. By the 1920s, they found they had created an image abroad of Colombia as a country of lepers. Slowly, the doctors began to de-emphasize the significance of leprosy, as Colombia turned to an export economy and external markets. By the 1930s, with little achieved in treatment, leprosy was presented as much less of a threat.

Obregón's essay takes us to my second theme, the impact of the new microbiological sciences in public health in Latin America. Throughout the nineteenth century, miasmatic and environmental approaches to disease dominated medicine and public health. But if Latin America was generally "miasmatic" in its medical and public health outlook, it did not, nevertheless, go through a miasmatic—that is, a sanitary—revolution at that time. The public health revolution, such as it was, occurred only in the era of laboratory medicine. One could argue, indeed, that this was Latin America's misfortune—to have had a bacteriological revolution before it had had an adequate sanitary revolution. To this day, more deaths and ill-health are caused by lack of access to clean water and adequate sewage than by lack of vaccinations.

Studies are beginning to fill in the story of the rapidity with which bacteriology and parasitology came to influence public health initiatives in Latin America. Two contributions to Cueto's book, by Julyan Peard and Jaime Benchimol, for example, form interesting companion pieces on the transition to the microbiological model in Brazil. Together they indicate how attuned physicians in the country were to the latest European developments, but also the different meanings that could be attached to laboratory medicine in different historical circumstances.

Peard's essay is a rich and insightful study of the so-called "Tropicalistas", the name given retrospectively to the first group of physicians in Brazil to use the laboratory as a tool in tropical medicine in the period between 1860 and 1890, as they sought to define Brazil's identity as a civilization in the tropics, and make health a more consistent project of the nation. Living as they did in a slave society (Brazil was the last western country to abolish slavery, in 1888), and working in Salvador, Bahia, one of the blackest cities in a mulatto country, the Tropicalistas, in their studies of yellow fever, beriberi, filariasis and hookworm disease, negotiated a middle way between the demands of the older tropical environmentalism and the new laboratory medicine. Pioneers though they were of microscopical investigation, they nonetheless kept a close association between the older miasmatic theory and the new laboratory medicine, an association which allowed them to balance place, climate, social factors and microbiological causative agents in their explanations of Brazilian diseases. They were, in this regard, a transitional generation of physicians. Despite the novelty of their experimental work, then, Peard shows that they clung to the idea that something special about the Brazilian environment affected the course of disease, making European diagnoses and therapeutics misjudged, and Brazilian expertise essential. It is a very nice case study of the uses of universalism and particularism in the arena of tropical medicine.[3]

The Tropicalistas were, however, marginal to national policy-making in public health,

[3] See Julyan Peard, 'Tropical disorder and the forging of a Brazilian medical identity, 1860–1890', *Hisp. Am. Hist. Rev.*, 1996, **77**(1): 1–44.

because they were somewhat marginal to official medicine in Bahia, and Bahia was in turn marginal to Rio de Janeiro, the federal capital. It was in Rio that federal policies were made, that political patronage was most felt, and where bacteriology really took off (as it did also in the state of São Paulo, the economic engine of the Brazilian export economy by the late nineteenth century). Jaime Benchimol's fine-grained study of the extraordinary career of Dr Domingos Freire, the Brazilian "discoverer" of the "bacillus" of yellow fever, plunges us into the acrimonious, competitive, and sometimes farcical world of bacteriology in the 1880s. In 1883 Freire was given permission by the public health authorities (astonishing though it seems in retrospect) to vaccinate non-immune, mainly immigrant, individuals, using his own vaccine of unproven worth (and this in a city where smallpox vaccination was not routinely available). It was an extreme example of the politics of disease discussed earlier.

By the time the Reed Commission in Havana confirmed the new mosquito theory of yellow fever transmission in 1901, and introduced new methods of controlling the disease by the control of the vector, Freire's moment had passed. From being one of Brazil's best-known bacteriologists, with a reputation that extended to Europe, he was acknowledged after his death as responsible for one of Brazil's most glaring scientific "errors". But the significance of Freire's work lies not in his mistakes (similar mistakes were made in many countries in Europe, and in the United States); Benchimol's argument is that the bacteriology of Freire and his contemporaries in the 1880s and 1890s represented a real point of disjuncture with the past in Brazil—the moment in which the microbiological sciences were converted into the most dynamic area of Brazilian medicine, in large part by doctors and theories later discredited by scientists in Brazil and abroad.

The question, or puzzle, prompted by Benchimol's chapter, though not directly addressed by him, is why it was that bacteriology, or the microbiological sciences more generally, had so decisive an impact in Brazil. Within fifteen years of Freire's vaccinations, the first systematic public health campaign was carried out in the federal capital, led by Oswaldo Cruz. Directed against the plague, yellow fever and smallpox, the programme was founded on the new bacteriological and vector theories of disease transmission. The microbiological sciences filled, in effect, an institutional and political vacuum. Previous investments in public health at the national, regional or local level had been scanty at best. Though doctors had repeatedly called for reforms of medical education and public health interventions, they were rarely heeded. A strong class of public health officials, committed to social or environmental medicine, and with resources behind them, was absent. In Brazil, the extraordinary persistence of slavery had a lot to do with this. The conjuncture between the new bacteriology and parasitology, and Brazil's insertion into the world economy from the 1870s on, changed the situation; health became for the first time a more continuous political objective, given the problems of agricultural productivity, the desire for immigrants in the wake of abolition, and the rapid and chaotic growth in the cities. Additionally, there was the sheer promise bacteriology held out of controlling, if in limited ways, the kinds of diseases that politically were most sensitive in the country. Put together with what we know of the impact of bacteriology in other countries in Latin America in the same period, the Brazilian case suggests that it was in the "periphery", rather than Europe, that the new microbiological sciences could have the most dramatic impact on the organization and style of public health.[4]

The third theme adumbrated by Cueto's book is the projection of this bacteriological/parasitological approach to disease into the 1920s and 1930s, through the activities of international, philanthropic health

[4] See also Marcos Cueto, 'Tropical medicine and bacteriology in Boston and Peru: studies of Carrion's Disease in the early twentieth century', *Med. Hist.*, 1996, **40**: 344–364.

organizations and agencies. Here the Rockefeller Foundation was the critical institution. Marcos Cueto has been responsible for several excellent studies of the work of the Rockefeller Foundation, drawing attention to the complex technical and political factors involved in the shift of attention of the Rockefeller Foundation from the United States to Latin America, starting during World War I.[5] These factors included the proven successes of the new microbiological public health campaigns in eradicating specific diseases, as in the example of yellow fever in Havana; the fear that Latin America would be a source of infection, or re-infection, of the United States, as contacts with, and immigration from, the region grew; and the concern for workers' productivity in an area of the world in which the United States had increasing economic interests. Mention should be made also of the role of Gorgas, the Surgeon-General of the U.S. Army, and director of the campaigns against yellow fever in Havana and Panama, in re-directing the interests of the Rockefeller Foundation further south. Cueto's essay in his edited volume is a very fine survey of the activities of the International Health Board of the Rockefeller Foundation in Latin America, showing how Latin America became the site of efforts to achieve the complete eradication of certain, specific, tropical diseases.[6] According to his investigations at the archives of the Foundation, between 1913 and 1940, the Foundation spent just over 13 million dollars in Latin America, of which almost one half was on yellow fever projects. This was a very considerable sum—in 1922, the entire federal public health budget for all Brazil was only 2 million dollars (compared with $12,000 in 1917).[7]

Cueto demonstrates how the Rockefeller Foundation's selection of each disease for elimination was greeted with immense enthusiasm, only to be followed by disillusionment. Belief in the possibility of the complete eradication of hookworm was the first to fade. Yellow fever at first seemed more hopeful, precisely because, unlike hookworm disease, it was believed to be a disease of the city rather than the countryside, and therefore more amenable to management; yet the programme of eradication was almost undone when there was a resurgence of yellow fever in rural towns of the interior of Brazil in 1928. (Incidentally, the story of Noguchi's anti-yellow fever vaccine, introduced in the 1920s, forms an interesting counter-point to Benchimol's story of Domingos Freire's vaccine thirty-five years earlier; Noguchi had the weight and the prestige of the Rockefeller Foundation behind him, and it was not until the end of the 1920s that it was realized that his vaccine, based on his erroneous identification of the "spirochete" of yellow fever, protected no one.) Malaria was the third disease targeted by the Rockefeller Foundation; the main effort in Brazil occurred in 1938, when the importation of *Anopheles gambiae* from Africa led to 100,000 new cases of the disease and between 14–20,000 deaths. The rapid employment of technicians in order to eliminate larvae led to limited success in specific areas of infestation, and this for a time revived the notion of complete eradication as a possibility in other areas of the world.

The results of the Rockefeller Foundation's efforts in Latin America are hard to measure. One effect, certainly, was to draw attention to the unhealthy lives and unsanitary conditions of Latin America's poor populations; another

[5] See especially Marcos Cueto (ed.), *Missionaries of science: the Rockefeller Foundation and Latin America*, Bloomington, Indiana, Indiana University Press, 1994; and his 'Sanitation from above: yellow fever and foreign intervention in Peru, 1919–1921', *Hisp. Am. Hist. Rev.*, 1992, **72**(1): 1–22.

[6] An English-language variant of this essay can be found in M Cueto, 'Visions of science and development: the Rockefeller Foundation's Latin American surveys of the 1920s', in Cueto (ed.), *Missionaries of science*, note 5 above, pp. 1–22.

[7] Data from Steven Williams, 'Nationalism and public health: the convergence of Rockefeller Foundation techniques and Brazilian federal authority during the time of yellow fever, 1925–1930', in Cueto (ed.), *Missionaries of science*, note 5 above, pp. 23–51.

was to turn the attention of public health officials in Latin America away from France, traditionally the source of their models of medicine and public health, towards the United States, despite the latter's limitations. These limitations were especially apparent in the top-down, one-disease, public health campaigns which were usually short-term, and ignored the more intractable economic and social causes of morbidity and mortality. The tensions and conflicts between different models of public health in Latin America are addressed in Anne-Emanuelle Birn's excellent analysis of the work of the Rockefeller Foundation in post-revolutionary Mexico, when different political and public health goals caused the Foundation's original plans to be modified.

The authors of the essays in Cueto's collection are all committed to, or trained in, medical history. Sidney Chalhoub, in his book *Cidade Febril* (or *Fever City*), approaches his topics as a social historian who has sometimes been surprised to discover how much the rhetoric of medicine and public hygiene was intertwined with, and often disguised, the political project of blaming the poor for their ills. This familiar theme is pursued here in the less familiar context of late nineteenth-century Brazil, and in a way which returns us to the issue of the politics of disease with which my review opened. In a short work, made up of three chapters, Chalhoub analyses first the senseless destruction of one of the largest slum buildings in Rio de Janeiro (the cortiços of his title) in 1893, on the grounds it was a miasmatic source of feverish infections in the city—a senseless destruction, because its chief result was simply to push the slum dwellers into other slums further away from the city centre, where politicians and entrepreneurs jostled for building opportunities, as the city expanded rapidly. The destruction of slums had, therefore, multiple causes; they were sporadic, with hygiene providing at times a superficial gloss on what was a matter of the police and money. But the use of hygiene in the discourse of politics foreshadowed what occurred on a massive scale in the early twentieth century, when Rio was re-built and beautified in the name of sanitation and urban progress.

Chalhoub's second chapter analyses the selective attention paid to yellow fever from the 1870s on, and his third examines the history of the resistance to smallpox vaccination.[8] This latter chapter is his most innovative in drawing attention to the role of popular beliefs and religion in public health. The revolt against compulsory smallpox vaccination in Rio de Janeiro in 1904 is a well-known episode in Brazilian political and public health history. This was not the first time that Brazil had tried to make vaccination obligatory; but it was the first time a serious effort was made to enforce the idea, using the full power, authority and resources of the federal government. The popular riots that broke out were, however, so serious that the congress finally voted to drop the idea of compulsion, since the unrest jeopardized the even more important political goal of eradicating yellow fever. The latter was indeed eliminated by 1908; smallpox was not (Chalhoub estimates that by the end of the public health campaign, only 10 per cent of Rio's population was vaccinated, and this was the highest rate in the century). In 1908, the city suffered one of the worst outbreaks in its history, in which many thousands, mainly poor people died, largely because of the failure to vaccinate.

Most historians who have examined the smallpox story in Brazil have emphasized the resistance of the military positivists, who saw compulsion in public health as an intolerable infringement of the right to individual liberty. Since such a right was not one normally enjoyed by the poorest residents of the city, however, other historians have looked elsewhere for the popular rejection of smallpox vaccination—to the population's intense dislike of the invasion of their homes by sanitary inspectors, their suspicion of doctors and of the state, their fears

[8] Chalhoub has published the chapter on yellow fever in English; see 'The politics of disease control: yellow fever and race in nineteenth century Rio de Janeiro', *J. Lat. Am. Stud.*, 1993, **25**: 441–63.

about the effectiveness of the vaccination itself, and especially their fear of the use of the police and the courts to enforce sanitation. Such fears were not without their rationality, and had their counterparts in resistance to vaccination in other places of the world.

Chalhoub, however, turns to yet another source of popular resistance among the poor in Rio de Janeiro, namely their continued reliance on an alternative method of smallpox control, that of variolation. Variolation was, according to Chalhoub, associated with Afro-Brazilian religion, which the political class, eager to represent Brazil as a European civilization in the tropics, wished to repress as too visible a sign of the African origins of the country's popular culture. Resistance to vaccination, in this interpretation, was therefore symbolic of the deep racial, class and cultural cleavages in Brazilian society. Chalhoub is admittedly speculative about the extent to which variolation was practised in the decades leading up to the revolt against vaccination; its effects on the incidence of smallpox cannot therefore be assessed. But his essay is certainly a very interesting exploration of the different meanings—cultural, religious, political—that disease can have among different groups in a society, and adds a hitherto unexplored dimension to our understanding of the cultural and social gulf that separated the poor from the public health authorities at the turn of the century.

In all his chapters Chalhoub stresses the impact of racism in the history of medicine and public health. He contrasts, for example, the great attention paid to yellow fever by doctors and politicians in the last three decades of the nineteenth century, because of the disease's perceived connection to white immigration, with the neglect of tuberculosis, a disease of far greater significance to the poor, black population of the city. In pointing out the racism embedded in Brazilian official medicine and public health Chalhoub is surely right. For too long, Brazil has presented itself to the outside world as a "racial democracy", a country which lacks the sharp racial divisions that mark its powerful neighbour to the north, the United States. But in reality, Brazil for much of its history has barely qualified as a formal democracy, and the social mythology of racial harmony cannot conceal the fact that the poor are poor mainly because they are black.

Yet in comparing what was done about yellow fever in Brazil with what was done about tuberculosis, Chalhoub perhaps over-estimates the power of the hygienists, and underestimates the difficulties most countries encountered in finding adequate solutions to diseases of poverty and immiseration. The most successful methods of controlling tuberculosis at the time, moreover, involved social techniques, such as compulsory notification, strict isolation, and disinfection, which would have provoked the same kind of resistance as did vaccination. Improved living standards for the mass of population, which historically has been the best means of reducing tuberculosis, was not then, and is not still, a political project of the state. As Diego Armus's essay in Cueto's collection also demonstrates very clearly, tuberculosis, belatedly taken up as a public health issue in Argentina in the early twentieth century (roughly at the same time as in Europe), was as open as any other disease to the biases and stereotypes of race and nationality.

Historically, public health has often been achieved at the cost of procedures and practices that are intrusive, or that over-turn individual rights to privacy and liberty of action; success in public health interventions (outside of military or authoritarian rule) has therefore often depended on the acceptance by a population that the risks and inconveniences of public health measures are outweighed by the advantages they bring. Historical studies, which require us to be attentive to questions of state and social power, citizenship rights, medical legitimacy, and community cooperation and reciprocity, can often tell us a great deal about why and when public health interventions succeed or fail. The essays reviewed here take us some way to understanding some of these issues in Latin America, while suggesting new opportunities for further investigations.