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TROPICS, TROOPS AND DISEASES: EPIDEMIC DISEASE RESPONSE POLICIES OF THE BRITISH RAJ IN MALABAR

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Abstract: This article examines the epidemic disease response policies of the British Raj in Malabar, situating them within the broader framework of tropical medicine and colonial public health. It traces the arc from early European encounters with tropical disease to the systematic — and frequently inadequate — sanitary and preventive measures introduced by the Madras Presidency through to 1947.

Keywords: Malabar; tropical medicine; colonial public health; epidemic disease; British Raj; Madras Presidency

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Introduction

For the Europeans, disease was one of the great problems to overcome in securing their mastery over the wider world. Since the Europeans found South Asia as a fertile land to conquer and make settlements, it was necessary for them to fight various diseases. Thus in the nineteenth century, Western medicine responded to a series of challenges — in the epidemiology of both tropical and temperate regions, and pathology, immunology, and pharmacology all took a great leap forward.[1]

The Portuguese who landed near Calicut with Vasco da Gama in 1498, and their compatriots who established the colony of Goa in 1510, had little doubt that they could adapt to life in India. They did not find the climate especially uncongenial: having been accustomed to a Mediterranean climate, India did not represent so striking a contrast to their homeland as it did to later travellers from northern Europe.

As late as 1800, travellers to India insisted that Europeans who maintained a temperate lifestyle were likely to live a long and healthy life in their new

abode. It was only after that period that tropical climates came to be seen as incompatible with European bodies.[2] As Alfred Crosby observed, most of Tropical Asia has always been "too hot and wet for European tastes".[3]

According to Crosby, Europeans tended for medical and agricultural reasons to settle in climates similar to their own — the temperate "neo-Europes" of Australasia, South Africa and the Americas. He further opined that the Tropics, by contrast, felt inimical to temperate exotics of both animal and vegetable varieties: new diseases, and climates hostile to European forms of agriculture, deterred extensive settlement.

David Arnold also opines that there is an abundance of medical literature carrying detailed information regarding the increased mortality rate of Europeans in the tropical regions. A more recent notion regarding the tropics concerned its pathogenicity. Europeans came to notice that their mortality was higher in the tropics than at home, and that the mortality experienced by native peoples was significantly higher than among persons of similar social stations in Europe.[4]

Indeed, the second half of the eighteenth century was a time of considerable optimism about the prospects of acclimatisation and settlement in the tropics. These shifts in perception mirrored the successive phases of European expansion in India. Until the mid-eighteenth century, the European presence in India was largely confined to coastal enclaves such as Bombay, Madras and Surat. These were not formal colonies but factories established by European traders, mainly by the Dutch, French and English East India companies. These factories were merely import–export houses which existed mainly at the mercy of indigenous emperors or local rulers. The only formal colonies established by Europeans were those which comprised the Portuguese Indian Empire, the

Estado da India. But the Portuguese were themselves confined to coastal enclaves. Having in most cases no wish to settle in India permanently, there were very few systematic studies of the airs, waters and places of the subcontinent.

The British writings on the Indian environment became increasingly distinctive from the 1760s, as the East India Company began its transition from a commercial to a territorial power. Increasingly, the Company looked to India with a view to settlement and the development of its agricultural, commercial and human resources. Climate also became a potent metaphor for differences between rulers and ruled. India, it was thought, had been subjugated because her climate had made its inhabitants supine and fatalistic, while the bracing

weather of northern Europe had produced a dynamic race, fit for conquest and exploration.

According to Mark Harrison, British supremacy was therefore masked by a kind of normative ecology, in which India and Britain were paired as unequal but complementary opposites. This apparently shows the British attitude towards the Indian environment and the process of imperial expansion. It was not until the nineteenth century that India's climate was generally considered incompatible with European constitutions.

British interest in health and climate increased remarkably in the years after Robert Clive's defeat of *Siraj ud-Daula* at the Battle of Plassey in 1757. The new governors of the previously Mughal provinces of Bengal grew steadily more dependent upon the British for protection against insurrections and external aggression.[5] The years after 1765 saw the transformation of the English East India Company from a trading to a territorial power. Consequently the Company had gained *de facto* administrative control over Bengal and parts of Southern India.[6]

Disease and Environment

Race was yet another factor featured in the medico-climatic discourses of the nineteenth century. One important consequence of this racial turn in European thought was increasing pessimism about the capacity of European bodies to adapt to tropical environments. There was a growing feeling that each race was fitted by nature to a particular environment, and that acclimatisation could never be more than superficial.

In India this pessimism was clearly evident in the debates of 1820–30. In the course of these debates, proposals for the extensive colonisation of India by European farmers were rejected in favour of more modest schemes, partly on political grounds.

John Farley argues that it was only in 1898, after 300 years of activity overseas, that the British finally "declared war on tropical diseases". They did so mainly as a result of two compelling causes: firstly, the germ theory of disease, which suggested that disease in tropical regions was not specifically linked to climate and could therefore be overcome by medical science; and secondly, the concurrent expansion of the British Empire into new tropical territories, especially in Africa.

Patrick Manson's timely appeal for support for tropical medicine attracted the politically powerful backing of Joseph Chamberlain, Secretary of State for

the Colonies, and barely a year later the London School of Tropical Medicine was established (1899). This helped to establish the scientific respectability of tropical medicine and provided both model and stimulus for similar schools, institutes and associations around the world.[7] Manson's claim has been criticised and questioned by many later scholars. But if we understand Tropical Medicine in a wider sense — as the specialist medicine of "warm climates" and "torrid zones", equipped with its own literature and practitioners and as an integral part of the way in which Europeans perceived and sought to gain control over a large part of the globe — then it has a much longer history, reaching back to the earliest years of European exploration and conquest.

And indeed, medicine was a conspicuous element in the process of European exploration and colonisation virtually from the outset — in the search for medicinal herbs and spices, in the struggle to stay alive in new lands, and in the manner in which newcomers exchanged or extracted knowledge, healing goods and therapeutic services in places as far apart as Mexico, India, Java and Japan.

In this long-term perspective on tropical medicine the issues were not merely about constructing a chronology of scientific discoveries. Rather, the questions related to the place of European medicine in the wider world and how that world came, over time, to be demarcated and defined. The issues were also related to the nature and status of medical practitioners and their patients, to the role of physicians as colonial rather than simply medical experts and observers, to long-term attitudes towards indigenous societies and cultures, and to environments geographically distant and culturally remote from those of Europe. Two characteristic features of the concept of Tropical Medicine were found distinctive and interesting.

Firstly, a sense of "otherness" attached by Europeans to warm countries and tropical places. This sense of difference was reflected in accounts of plants, animals, climate and topography, and in descriptions of indigenous societies and cultures, but it was particularised through the discussion of diseases. The second characteristic was the power of localism, manifested through the particular medical needs and social composition of the local inhabitants, the impact of indigenous practitioners on Western traders and travellers, the use of local drugs and different topographies to counter disease, the growth of local medical services and even local schools of thought and practice. All of these remained closely tied to developments in medical ideas, training and

professional status in Europe itself, but they also helped in various ways to define the medicine of "warm climates" in contradistinction to the metropolis, with its ignorance of local conditions and lack of local expertise.

Tropics — the Otherness?

Arnold opines that calling a part of the globe "the tropics" or "torrid zone" was a Western way of defining something culturally and politically alien, as well as environmentally distinctive, from Europe and other parts of the moderate zone. As mentioned earlier, this sense was not so prominent in the minds of early European travellers.[8]

However, this first European impression slowly began to turn negative, and consequently, alarming concepts of the tropics emerged. Thus early in the seventeenth century Sir Walter Raleigh remarked that whether or not Paradise and perpetual spring were located "in the Tropicks" as many believed, they certainly held "the fearful and dangerous thunders and lightening, the horrible and frequent earthquakes, the dangerous diseases, the multitude of venomous beasts and wormes".[9]

Since then, particularly from the mid-eighteenth century onwards, this kind of negative representation of the tropics became relatively common in medical literature. The tropical climate was almost universally considered to be the prime cause of European ill-health and to distinguish the diseases of "warm climates" from those of the temperate zone. The heat, humidity and rapid temperature changes of the tropics were thought to have a grievous effect on European constitutions, to predispose to disease, even where they did not actually cause it — just as the abundant insects, the rapid processes of putrefaction and decay, and the offensive smells of swamps and rotting vegetation added to the acute, indeed palpable, sense of tropical danger. It was believed that the hot, wet tropics produced deadly miasmas on a scale, and of intensity, unmatched in Europe.

In the "torrid zone" disease "put on a different aspect and character": it ran its course rapidly and violently, and so called for exceptionally drastic and speedy remedies. Writers of medical literature and physicians of the eighteenth and early nineteenth centuries strengthened this belief in the singular dangers of tropical airs, waters and places compared to their temperate counterparts, especially in steamy jungles, swamps and deltas.

There were some other factors also that prompted the Europeans to sharpen the notions of tropical illness and climate. This involved several practical

considerations. Firstly, the increased involvement of European traders, soldiers and sailors in West Africa, the West Indies and latterly in India gave added urgency to the investigation of diseases seen to be peculiar to the tropics or to exist there in more extreme forms than in Europe. The trans-Atlantic slave trade and the plantation economies of the Caribbean were a major stimulus, as were heavy troop losses in different wars.

The arguments about the ability of Europeans to survive and settle in the tropics that were being so earnestly debated in Manson's day in the light of the germ theory of diseases had already begun circulating even a century earlier around Asia and the West Indies as part of oceanic trade. Yet another interesting fact is that one can discern a discussion of the diseases and medical practices of indigenous or slave populations in this literature. In some instances, the motive was little more than ethnographical curiosity. Most often, it was driven by concern for the health and hence the productive capacity of plantation workers, or the risks of "native" diseases infiltrating white households.

Even when Western medicine did not address their needs directly, the non-white populations continually informed the Western understanding of the tropics and of tropical diseases — as clinical objects, as sources of epidemic danger, as sick or "shirking" workers. This combination of unfamiliar peoples and alien places helped define the identity and distinctive preoccupations of the medicine of "hot countries".

Three further developments of the late eighteenth and early nineteenth centuries, though they occurred in Europe, also asserted the distinctiveness of tropical climates and diseases.

First, the confident use of statistics to illustrate patterns of European mortality and the impact of specific diseases — instead of narratives and descriptions of epidemics — enabled the extensive use of data showing the number of fatalities and figures of morbidity. By the 1820s, 1830s and 1840s, medical writers were making extensive use of data, sometimes giving figures for morbidity as well as mortality, often in tabular form, and priding themselves on their statistical sense. Although this approach had been introduced for temperate climates, it had particular significance for tropical medicine in isolating and providing "scientific" evidence for the extraordinarily high levels of white mortality in the tropics compared with Europe.

Second, the growth of medical geography introduced topographical surveys, again along lines broadly defined by Europe, but giving expression

to perceptions of the particular local causes of disease through the impact of climate, vegetation and physical topography.

Third, even aesthetic taste had implications for changing medical representations of the tropics. Medical writers most often deployed the literary convention of calling tropical landscapes "picturesque" or even "sublime". It is therefore necessary to locate disease prevention policies and public health activities adopted in colonial South India within the framework of Tropical Medicine for Colonisation.

Epidemics and Public Health in Colonial Malabar

Colonial authorities did not pay much attention to the development of public health and sanitation in the Presidency until the 1880s, as was the case elsewhere in the British provinces.[10]

However, public health activities in Malabar started under the auspices of the Madras Government in the late nineteenth century. One of the earliest attempts of the Madras government with regard to public health in Malabar was the introduction of smallpox vaccination. The policy of vaccination pursued by the colonial authorities was found to be immensely inefficient and ineffective. The colonial authorities were generally reluctant to appoint women vaccinators in Malabar during the nineteenth and twentieth centuries. As Arnold opines, "financial constraints and a sense of what was politically and practically achievable in India held back further advances. For example, by the late 1930s several million smallpox vaccinations were carried out annually, but they remained largely voluntary. Despite the introduction of an India-wide Vaccination Act in 1880, in 1941 vaccination was compulsory in only 81% of towns and 62% of villages."

Initially, with the beginning of preventive medicine, vaccination against smallpox was the only major preventive measure stressed by the colonial authorities in the Madras Presidency. But smallpox was not the only epidemic creating a great threat to the empire. Cholera had a massive impact on mortality during the 1876–78 famine, as it had upon many other famines of the period: along with dysentery and diarrhoea, it dominated the initial phase of famine mortality. For much of the fifty years following 1817, treatment of cholera was confined to the European military.[11] From the low ebb of death in the Madras Presidency in 1874, mortality from cholera rose steadily to 94,546 in 1875, to 1,48,193 in 1876 — the first main famine year — then soared to 3,57,430 in

1877 before falling back to 47,167 in 1878. Epidemic cholera erupted in India roughly every half-dozen years during the nineteenth century, whether there was a famine or not, and often resulted in heavy loss of life.

As a disease caused by insanitary conditions, and especially by contaminated water, cholera found a favourable epidemiological niche among famine paupers, as it did at other times among pilgrims, migrant labourers and soldiers, playing much the same role in famine mortality in India as other "crowd diseases" like typhus or relapsing fever did elsewhere.[12] Cholera had adversely affected the Malabar district. In 1890 alone, 5,385 persons died of cholera in Malabar. A total of 17,808 persons died because of various fevers in that particular year. Lack of sanitary measures such as drinking-water purification, chlorination, proper drainage systems, and the absence of an adequate number of medical institutions were the causes of the prevalence of such diseases in Malabar. Smallpox also prevailed in this year in a virulent form and caused 6,485 deaths against 391 in the previous year.[13]

In the year 1879, there was a general increase in the number of patients suffering from syphilis and other related venereal diseases in the Presidency. Disruption of family life caused by the famine had a ruinous effect in increasing this kind of disease even among the rural population.[16] The military stations in Malabar, particularly at Cannanore, posed a major threat to the native population. Absence of any coordinated public health programmes made the situation further hazardous. Many of the most important medical and

Table 1: Statement of Major Diseases Reported in the Hospitals and Dispensaries of Malabar, 1882–1892

Year	*Smallpox*	*Cholera*	*Dysentery*	*Malaria*	*Syphilis*	*Gonorrhoea*	***Worms***
1882	N/a	N/a	1,489	N/a	N/a	797	6,247
1883	508	31	N/a	21,050	690	N/a	N/a
1884	312	250	N/a	17,689	666	N/a	N/a
1885	N/a	N/a	N/a	N/a	N/a	N/a	N/a
1886	109	61	N/a	11,218	1,550	N/a	N/a
1887	N/a	N/a	N/a	N/a	N/a	N/a	N/a
1888	31	1,256	2,284	12,280	2,038	1,428	N/a
1889	22	117	2,907	14,333	2,251	1,823	13,106
1890	N/a	N/a	N/a	N/a	N/a	N/a	N/a
1891	491	408	2,804	11,312	2,648	1,548	15,677
1892	703	219	3,330	11,470	2,753	1,574	16,277

Source: Annual Reports of Civil Hospitals and Dispensaries, Madras, for the years 1882–92. Government of Madras, Madras.[14]

sanitary investigations carried out in India before the 1870s — notably the Royal Commission on the Sanitary State of the Army in 1859 and the Cholera Commission of 1861 — were prompted by official concern at the high level of sickness and mortality among the European soldiery, seen as a severe financial loss and a danger to Britain's hold on India.

The statement of various diseases shown above indicates that the prevalence of certain major diseases was due to insufficient public health and sanitation facilities in Malabar during these periods. For instance, malaria had been prevalent in a virulent form throughout all these years. Nevertheless, neither the local bodies nor the British authority took much initiative in preventive measures such as mosquito eradication and water purification.

With medical advice and assistance, measures were introduced in the 1860s and 1870s to try to tackle three of the main sources of ill-health and mortality: cholera, venereal diseases, and excessive drinking.[17] However, in Malabar, the prevalence of venereal diseases such as syphilis and gonorrhoea posed a great threat not only to the British soldiery but to the natives also. One of the major carriers of these diseases was the military men and other officials under the British. However, public health and sanitary measures were not adequate to tackle these problems for the British in Madras Presidency until 1920.

By the 1920s and 1930s, there was a reorientation of state policy, medical research and sanitary practice away from the old "enclavism" and towards a more India-oriented system of public health.[18] When the occurrences of cholera had a considerable fall in the 1920s, malaria occurred in the Presidency in a virulent form. In 1925 alone, 8,10,615 malaria cases were reported in various medical institutions in the Presidency.[15] Even though the mortality rate was less, its occurrences posed a major threat to the natives of Malabar. Sanitary facilities were not adequate in this period either.

Until 1924, the natives of Malabar in the rural areas did not have many facilities in Western medicine. Their access to Western medicine in any form was very much limited. The great mass of the rural population had till then practically no experience of the Western system of medicine, since there was no opportunity for coming into daily or occasional contact with Western "qualified" doctors.[19]

The Madras Public Health Act was passed in the year 1939, in order to strengthen public health and sanitation activities in the Presidency. As mentioned in the beginning of the Act itself, the main aim was to make

provision for advancing the public health of the state of Madras.[20] According to the provisions in the Act, the government was directed to constitute a Public Health Board consisting of the following members: the Minister of Public Health; the Minister for Local Administration; three members of the Madras legislature nominated by the government; the Surgeon General with the Government of Madras; and the Sanitary Engineer of the province.

The Public Health Board was empowered to give advice to the government with regard to public health administration from time to time with necessary improvements. As per this Act, every village panchayat and municipality ought to have a Health Officer. Where in the area of a village panchayat or municipality there was no health officer posted, the government could nominate a medical officer serving in any health institution under the control of the village panchayat or municipality concerned. Provisions were also included to appoint temporary health officers in cases of emergencies such as outbreak of epidemics or any other infectious disease in any local area.[21]

Thus, it was after 1939 that certain measures were undertaken by the Presidency government to tackle public health issues in Malabar. Health Officers were appointed in every village to administer public health activities in Malabar. Yet even until 1946, medical and public health provision remained woefully inadequate in Madras in general and Malabar in particular.

The situation was markedly different in Travancore, where the government had allocated funds for sinking wells for ensuring safe and pure drinking water in the rural areas in the 1920s. Even cholera inoculation had received government attention as early as the 1920s. Chlorination of water had been initiated by the government in 1934 itself. The presence of the Rockefeller Foundation in Travancore was yet another beneficiary factor for the development of public health programmes as rapidly as possible.

Preventive health measures were strengthened by the Travancore government in the early decades of the twentieth century by expanding the access of smallpox vaccination to rural areas. Vaccination was made compulsory for school children and government officials, and by 1933–34 vaccination was made compulsory for all citizens of the state. When the Royal family got themselves vaccinated, it further helped to diminish the foreignness and native apathy towards cowpox vaccination in Travancore. Thus by the 1930s the state could claim, although not completely, that it had brought smallpox under control by adopting conducive public health activities. Filariasis was yet

another disease that was brought under control by the government since 1933. Hookworm disease was also threatening the natives, and the state had adopted different measures to control it from the 1920s.

When plague posed a major threat to the natives of Travancore in 1927–28, the government adopted many preventive measures such as mass inoculation, rat-hole fumigation and house disinfection to arrest the spread of the disease. Malaria received the attention of the government only in the 1930s. Measures were taken to destroy malaria-causing mosquitoes and by 1947 the state had efficiently controlled the mortality rate due to malaria.

In 1928 the Travancore government approached the Rockefeller Foundation to extend their help in reorganising their public health and sanitation departments with innovations. By this time Travancore state had made rapid strides in Western medicine. There were 30 hospitals and 38 dispensaries, constituting a total of 66 institutions, under the control of the Travancore government, and 18 grant-in-aid medical institutions under the control of missionaries and other private agencies. Among these, fourteen hospitals were run by different medical missions. These infrastructure facilities reinforced the process of the development of public health and sanitation in Travancore in the early decades of the twentieth century.

Conclusion

It is apparent that the growth of Western medicine in Malabar was a complex process until the late twentieth century. Vaccination had been warmly welcomed by the colonial administration in the early decades of the nineteenth century as a token of its benevolence and proof of the superiority of Western science over eastern "prejudice". Thus the state gradually, as Arnold opined, "from an abiding sense of political insecurity and by rumbling discontent over this, and other forms of medical intervention, shied away from a more energetic vaccination program".[22] Curative medicine was further stressed by the state not through compulsion but by persuasion and accommodation of the indigenous mind. Troops were a major priority category in the southernmost tropical topography.

Although the basic mode of transmission of smallpox was well known, and vaccination offered a potentially effective form of prophylaxis, the vaccine operation — in many ways the pioneer and exemplar of public health in India — ran into repeated difficulties.

Vaccination against smallpox in nineteenth-century India was thus only partly constrained by popular opposition and apathy. In the areas of Malabar, where the prevalence of epidemics posed a great threat to the lives of the natives, vaccination was necessitated because of the absence of variolation. But the ambivalent or hesitant attitude of the state and the divided nature of medical opinion were also critical factors. Seeing the health of its European subjects and servants as its first priority, the state was reluctant to make the financial and administrative commitment necessary for an effective assault on smallpox. Malabar, abundant in natural resources, had not been cared for by the British in providing preventive health care. The same was the situation in the context of curative medicine.

When the state shifted its focus, one of the better ways to provide efficient health care was to establish and maintain well-equipped hospitals or dispensaries dispensing Western medicine in each village or in any defined area of the district; but unfortunately the funds required to start a sufficient number of hospitals or dispensaries on the existing lines were not available.

Only a few dispensaries were started in Western medicine until 1939. After the passing of the Madras Public Health Act in 1939, the state began to pay a little more attention to dispensing Western medicine in Malabar. However, until 1947, the growth of Western medicine in Malabar remained sluggish. Hence the dissemination of Western medicine in Malabar remained an unfinished agenda of the colonial apparatus until the beginning of the twentieth century.

Endnotes

1. John M. Mackenzie, General Editor's Foreword, in David Arnold (ed.), Imperial Medicine and Indigenous Societies, pp. i–vi.
2. Ibid., p. 9.
3. Alfred W. Crosby, Ecological Imperialism: The Biological Expansion of Europe, 900–1900, p. 135.
4. Mark Harrison, op. cit., p. 10.
5. Mark Harrison, Climates and Constitutions: Health, Race, Environment and British Imperialism in India, 1600–1850, p. 4.
6. Ibid., p. 5.
7. David Arnold, Warm Climates and Western Medicine, p. 2.
8. During the first voyages to the Caribbean, Columbus made repeated comparisons between trees, birds, fish — found familiarities, etc. David Arnold, op. cit., p. 6.

9. Sir Walter Raleigh, History of the World, p. [?].
10. Although a sanitary department existed, in 1870 it was merged with the vaccination department to form a central sanitary department. It was in 1880 that Medical and Sanitary Officers were appointed in the Madras Presidency. In each district they were known as 'Civil Surgeons'. They had charge of public health and sanitation in the districts of the Presidency. The local self-government policies of Lord Ripon strengthened the efforts to improve sanitation by increasing the availability of funds at the local level. In 1885 the Local Self-Government Act was passed and local bodies came into existence, now responsible for sanitation at the local level, though adequate staff were not provided by the Central Government. In 1912, the Government of India sanctioned the appointment of Deputy Sanitary Commissioners and Health Officers with the local bodies and released separate funds for sanitation. Annual Reports on Civil Hospitals and Dispensaries on Madras for various years, Government of Madras.
11. David Arnold, 'Medical Priorities and Practices', p. 171.
12. David Arnold, 'Social Crisis and Epidemic Diseases', 393.
13. Annual Reports of the Civil Hospitals and Dispensaries in Madras for the year 1890, 15.
14. Annual Reports of Civil Hospitals and Dispensaries, Madras for the years 1882–92. Government of Madras, Madras.
15. Triennial Report on the Working of the Civil Hospitals and Dispensaries under the Government of Madras for the years 1923, 24 & 25, 83.
16. As per the annual reports, admissions in the Civil Hospitals in the Presidency numbered 15,847; in 1878 the number rose to 21,170; and in 1879 it was further increased to 25,340. Apart from this, a total of 22,025 cases of gonorrhoea were also treated in the Civil hospitals of the Presidency. Annual Reports of the Civil Dispensaries for the Year 1879, 7.
17. David Arnold, 'Medical Priorities and Practices', op. cit., p. 168.
18. David Arnold, 'Social Crisis and Epidemic Diseases', 393.
19. V. R. Muraleedharan, 'Rural Health Care in Madras Presidency: 1919–39', Indian Economic and Social History Review, 1987, 24: 323, 325.
20. Medical departments were under the control of the central government until 1919. As per the Act of 1919, public health, sanitation, and vital statistics were transferred to the provinces. In 1920–21, Municipality and Local Board Acts were passed containing legal provisions for the advancement of public health in provinces. The Government of India Act of 1935 gave further autonomy to provincial governments with regard to public health and sanitation. Health activities were categorised in three parts: federal, federal-cum-provincial, and provincial. In 1937 the Central Advisory Board of Health

was set up with the Public Health Commissioner as secretary to coordinate public health activities in the country. In 1939, the Madras Public Health Act was passed, the first of its kind in British India. In 1946, the Health Survey and Development Committee (Bhore Committee) was appointed to survey the existing health structure and make recommendations. For more details, see Madras Public Health Act, Published in Fort St. George Gazette, 7 March 1939, Government of Madras, Madras.

21. Ibid., pp. 135–139.

22. David Arnold, 'Colonizing the Body', 158.

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