Mapping of Fevers and Colonising the Body in British Ceylon

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This paper identifies paradigmatic shifts in the conceptualisation of fevers in British Ceylon, from agues and fevers in the early 1800s and fevers of particular regions in the mid-1800s to a powerful notion of malaria in the early 1900s. In the early colonial records, agues and fevers were seen primarily as a threat to European visitors to the tropics, including the colonisers. In contrast, the fevers of specific regions were identified as localised ailments endemic among the local population and somehow connected to the specifics of local ecology and the indolent nature of the natives. With the triumph of tropical medicine between 1880 and 1905, localised fevers rapidly gave way to malaria and the identification of malaria parasites and vectors between 1880 and 1905, which came to be seen as embodying the characteristic disorders of the tropics, reinforcing certain hegemonic views about the colonial subject and the potential benefits of western medicine.

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This paper explores how certain evolving western notions of malaria within the colonial encounter shaped and were, in turn, shaped by ideas about the tropics, the nature of tropical man and the role of colonial medicine in defining and addressing the problems of the tropics. A key issue that is examined is how conceptualisation of the disease over time, within the framework of tropical medicine, served to define the colonial subject along the lines suggested by previous research in the region by scholars such as Arnold (1993), Harrsion (1994) and Kumar (1998). Examining colonial records related to fevers and subsequently malaria, one can identify several paradigmatic shifts in colonial medicine. It started out as an eclectic and evolving body of knowledge open to acquiring new knowledge through the colonial encounter and the opportunity offered to study, interact with and learn from local medical systems and their rich knowledge about local disease conditions. The mapping of fevers in the tropical landscape helped identify opportunities and challenges for the coloniser and the colonised. It also helped evolve a policy of direct versus indirect rule and a dual economy setting the parameters and limits of economic and social growth. Slowly but surely, colonial medicine acquired a hegemonic position in defining the nature of tropics, the character of tropical man, the reasons for his economic and social backwardness and what tropical medicine had to offer in bringing relief to long-standing and endemic problems of the region. Just as the mapping of fevers helped define the economic and social policies of the colonial state, the identification of the malaria parasite and its action on the human body helped define a colonial subject with specific attributes and propensities, justifying, rationalising and legitimising colonial medicine as well as colonial intervention in general.

There are several stages in the establishment of malaria as a key health problem and a major obstacle to progress and development in what was then Ceylon. The Portuguese, Dutch and initial British records commonly refer to "agues and fevers" as widely prevalent ailments in various parts of Ceylon. In the subsequent records, fevers are designated by regions in which they were prevalent, following a practice that existed in colonial India [see Arnold 1993]. This "mapping of fevers", in turn, determined colonial strategies to do with economic expansion and policies relating to direct versus indirect rule. The term "malaria" became established as a uniform disease category, subsuming regional fevers, in the 1870s or so, it being typically attributed to miasma or bad air from marshy areas. New discoveries in tropical medicine proved otherwise during the 1880 to 1905 period. As elaborated elsewhere, the indigenous conceptions of the disease and

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relevant therapies derived from a mixture of scholarly ayurveda and local herbal traditions gradually but more or less completely gave way to western medicine, marking the hegemonic triumph of colonial medicine [Silva 1991; Pieris 1986].

Agues and Fevers

The early colonial literature is replete with references to "agues and fevers" in various parts of Ceylon [Silva 1991, 1994, 1997]. After 1860, the term "malaria" gradually but steadily became established in official records.

Robert Knox, one of several Englishmen in captivity in the Kandyan Kingdom from 1660 to 1679, had several attacks of agues and fevers during his efforts to locate an escape route to the Dutch territory through the wilderness of northern Ceylon. He observed "The Disease this land is most subject to, are Agues and Feavours (sic)" and further referred to it as the "Countrey Sickness".

In this way we went into these Northern parts eight or 10 times ... For these Northern Countrey being much subject to dry weather, and having no springs, we were fain to drink of ponds of rain water ... This did not agree with our Bodies, being used these parts we used often to be sick of violent Feavours and Agues, when we come home. Which Diseases happened not only to us, but to all people that dwell upon the Mountains, as we did, whensoever that went down into those places; and commonly the major part of those that fall sick dyes. At which the Chingulays are so scared, that it is very seldom they do adventure their Bodies down thither ... Our Countreymen and Neighbours used to ask us, if we went thither purposing to destroy ourselves ... At length we learned an Antidote and Counter-poyson against the filthy venomous water, which so operated by the blessing of God, after the use there of we had no more Sickness. It is only a dry leaf; they call it in Portuguese Banga, beaten to power with some of the Countrey jaggory: and this we eat Morning and Evening upon an empty Stomach. It intoxicates the Brain, and makes one giddy, without any other operation either by stool or Vomit [Knox 1681].

From Knox's account it is clear that the 17th century inhabitants of the Kandyan Hills, among whom Knox was living, took care not to visit the northern plains to protect themselves against what was then described as agues and fevers. It is not clear whether his theory linking the disease to the drinking of the "filthy venomous water" of the dry zone was influenced by any prevailing indigenous ideas or was a product of the European conceptions of the time. The antidote referred to may be cannabis and probably the practice of using it as a prophylaxis against agues and fevers was introduced to the country by the Portuguese [Uragoda 1987: 218].

Fevers received a great deal of attention from successive colonial medical establishments in Ceylon because they posed a serious threat to the health of the colonisers themselves. In his *Notes on the Medical Topography of the Interior of Ceylon* published in 1821, Henry Marshall documented how the British troops deployed to suppress the 1818 rebellion in Ceylon suffered and frequently died of fever.

Fever became prevalent among the detachments in Lower Oowa towards the end of March; and during the succeeding month, the troops employed in the province of Walapane became universally sufferers, either from fever or dysentery. Several of the posts in this district were abandoned in the month of May, on account of the sickness of the troops. Still, however, many insalubrious posts were occupied, and fever and dysentery prevailed to a very great degree. These diseases appeared among the troops that occupied posts formerly deemed healthy. Indeed, the men in none of the stations escaped the influence of the cause of fever; but as the exigencies of the service required a frequent interchange of troops, it became very difficult to estimate how far one district exceeded another in the endemical causes of disease. On the interior terrace, I think we may, in a very great degree, attribute the prevalence of fever and dysentery to extreme fatigue; to great and sudden transitions of temperature and varieties of weather, the men being often long under the influence of the sun by day, and much exposed to the cold chilly dews of night; to frequently walking and sleeping in wet clothes, to the scantiness and bad qualities of provisions; to frequent long fasting; depressing moral impressions; to hardships of various kinds; and to great privations of the ordinary comforts belonging to the condition of a soldier. The endurance of these hardships eventually debilitated the constitution of the men, thereby augmenting their sensibility to the influence of the causes of endemic fever, which perhaps abound more or less in some seasons or states of weather, in all tropical, and particularly in all uncultivated jungly countries, where the temperature of the atmosphere, in the shade, ranges between 80° and 90° of the thermometer. [Marshall 1821].

As a practitioner of medical topography and a pioneer in military medical statistics in England, Marshall found that in one European contingent of 254 stationed in Wellassa provincial outpost in eastern Ceylon from July 12 to October 20, 1818, 252 fell ill with fever and 79 of them died. He noted important differences in the prevalence of fever among different troops.

While fever was making such ravages among the Europeans at this post, a detachment of Caffries, consisting of about 60 individuals, continued healthy. The indigenous inhabitants of Vellasse suffered much by fever during the endemic (sic). It was impossible however, to ascertain the extent [Marshall 1821].

According to Marshall, endemic fevers of the island fell under two broad categories: remittent and intermittent. In Marshall's 1812 characterisation of remittent fever, Uragoda (1987) found the first elaborate and accurate account of the clinical symptoms of malaria.

The following are the leading symptoms of remittent fever: loss of appetite, listlessness, dorsal pains, alternate sensation of heat and cold; to these symptoms succeed ardent heat over the whole body, headache, thirst, anxious breathing, white tongue, uneasiness in the epigastrium, sometimes a full quick pulse, nausea and in some instances vomiting. After a longer or shorter period, fever remits commonly with a moistness of the skin. For the most part, a remission supervenes within 24 hours after the accession of the fever. The forenoon is the ordinary period when the violence of the symptoms abates. After a few hours' remission, the febrile symptoms recur, often with increased violence. In this manner, exacerbations and remissions succeed each other [Marshall 1821, quoted in Uragoda 1987: 218-19].

Based on his understanding of the medical topography in the island, Marshal made the important observation that the incidence of remittent fever was high near swamps and inundated grounds [Uragoda 1987: 219].

John Davy, who was the military surgeon attached to the British troops in Ceylon during 1818-19 and a contemporary of Marshall, wrote in *"An Account of the Interior of Ceylon"* published in 1821, that "Fever is the most common disease, of any severity, to which the newly arrived are subject. It commonly arises from imprudent exposure to the sun or some acts of intemperance". Davy further noted:

Intermittent and remittent fever are commonly, and there is reason to believe, justly considered as varieties only of the same disease. The former most frequently attacks the natives; the latter Europeans. It is worthy of remark, that though remittent fever rarely terminates in ague, in case of relapse ague mostly succeeds it; so that it is not usual for the same individual to experience two attacks of the disease, excepting after an interval of several years [Davy 1821: 366].

Concern for understanding the various types of fever affecting Europeans and natives, and different parts of the country, is evident in early colonial writings on the subject. Regarding the treatments for different types of fever, Davy offered the following suggestions:

As the diseases vary in different instances, so must the mode of treatment required vary; and till the peculiarities of the endemic are ascertained, the medical practitioner cannot prescribe with too much caution. Generally I saw great advantage derived from blood-letting in remittent fever; and the beneficial effects of a large dose of opium combined with aperients medicine immediately after blood-letting, was often very remarkable. To venasection, purgative, opium, and in convalescent stage to bark, I trust chiefly for the cure of the disease. The remedies which appeared to me most effectual in the cure of intermittent fever were aperients, opium, blue-pill and bark, either given separately or in combination, according to circumstances [Davy 1821: 365-66].

The bark referred to is cinchona, indicating its widespread use as a cure for fever in the colonial medicine of the time.

For the colonial medical establishment as well as the colonial military and civil administration, understanding the geographical distribution of fevers, their seasonal variations, their possible causes and the possible means of averting and controlling them became important to establish colonial rule on a firm footing. This is indeed the challenge faced by practitioners of "medical topography" [Rankine 1839]. In one of the earliest British reports on endemic fever in the island, dated June 6, 1803, Thomas Christie, Superintendent of Hospitals, explained that the Sinhalese called it 'kala una' (forest fever) and that it originated from marshy ground over which lay decaying vegetable matter

which by the generation and extrication of foul and inflammable air, is known to vitiate the atmosphere so highly, particularly in situations where the miasmata cannot be dispelled by the sun or wind, that a disease of the greatest malignancy is often produced by even a few hours exposure to its influence [quoted in Pieris 1950: 297-98].

It is interesting that in this early record, an attempt was made to combine local knowledge about the illness with prevailing European notions of fever caused by foul air from the surroundings.

European travellers to the interior parts of Ceylon gradually adopted various strategies to minimise their exposure to endemic fevers. For instance, Samuel Daniell, a British painter involved in sketching an elephant kraal in March 1810, found "The night air in the woods occasioning intermittent fevers...To defend himself from the bad effects of his sylvan life, he smokes and lights great fires within and without his tent" [Graham quoted in Pieris 1950: 541]. As Uragoda has pointed out in his account of the history of medicine in Sri Lanka, this may have been an effective means of driving away the mosquitoes, including carriers of malaria parasites, at a time when the role of the mosquito in transmission of the disease was not known.

In a curious reference to malaria in his account of Ceylon dated 1858, Emerson Tennent, reported:

In traversing districts, suspected of malaria, experience has dictated certain precautions, which, with ordinary prudence and firmness, serve to neutralise the risk – retiring punctually at sunset, generous diet, moderate stimulants and daily use of quinine both before and after exposure. These, and the precaution, at whatever sacrifice of comfort, to sleep under mosquito curtain, have been proved in long journeys to be valuable prophylactic against fever and pestilences of the jungle [1859: 75-76, quoted in Uragoda 1987: 223].

This account clearly indicates that at least 30 years before the role of the mosquito in malaria transmission had been established scientifically, some European travellers to Ceylon had discovered through personal experience and accumulated knowledge that mosquito curtains gave them protection against malaria.

Mapping of Fevers

In the British records from the 1840s there is a tendency towards identifying fevers by the name of the region in which they prevail. This follows a pattern that is seen in British records on India, for example, Bengal fever, Gujarati fever and Burdwan fever [Arnold 1993]. This partly reflects the tendency the British raj had to distinguish between healthy and unhealthy regions for the purposes of civil and medical administration as well as for determining investment patterns, economic policies and programmes appropriate for each region. For instance, in developing plantations in the hilly central regions of the country from the 1840s, the British clearly avoided regions of the country known for endemic fever. Thus the identification of whole regions as fever regions had the effect of reinforcing their economic and social backwardness, such regions remaining less developed for years to come. Identification of fevers by regions implied that they were closely associated with the ecological factors specific to the different regions. Davy was one of the earliest to record the diversity of local fevers.

It is astonishing how both the intermittent and remittent fever is modified and diversified by circumstances: the fever of almost every year, and season, and place, has something peculiar to mark it; in the endemic of one place or season there may be a strong tendency to delirium; in that of another to intermission and relapse, and disease of the spleen; in that of a third, to change of disease from fever to disease. [Davy 1821: 366].

Although the word "malaria" gained currency after 1870, the mapping of fevers by regions rather than by symptoms or assumed medical causes indicated that there was a lack of consensus or clarity regarding the nature and causes of the illnesses concerned.

Among the fevers identified by region, those of Nuwarakalaviya (in the north-central province), Uva (eastern province) and Kataragama (boundary between Uva and southern provinces) received special attention in the colonial records for a variety of reasons.

The term "fever of Nuwarakalaviya" was first used by A O Brodie, a British administrator in charge of the region, and subsequently mentioned in the "Manual of the North Central

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Province" compiled by Ivers (1899). Writing in 1856-58, Brodie made the following remarks:

The fever of Nuwarakalaviya is distinguished less by the violent sudden attacks than by its insidiousness and long continuance. One is never very ill, but neither is one very well; one feels a general listlessness, a sensibility to the effects of droughts which gradually debilitates one to a lamentable extent.

Situated in a vast plain which is covered with dense wood, and in which there is a multitude of neglected tanks, the place (i e, Nuwarakalaviya) is certainly no sanitarium, but still I think that during nine months of the year it is fully as healthy as most stations. The unhealthy season lasts from the beginning of December until the end of February, and during this portion of the year the establishments are allowed to remove elsewhere. As the jungle round the station becomes cleared away, and as the place becomes more healthy, there will probably be no occasion for an annual interruption of public business (Brodie 1858:38).

This accounts draws a connection between the local ecology (neglected tanks, droughts) and endemic fever on the one hand and fever and certain (undesirable) human attributes characteristic of the region and the colonial subject (listlessness, debility) on the other. The fever season corresponding to the north-east monsoon in the area has been clearly and correctly identified and a method for dealing with it evolved for the benefit of the British establishment in the area (move elsewhere, presumably to healthier resort areas such as Nuwara Eliya and Kandy).

The government agents for Nuwarakalaviya repeatedly noted in their annual reports and diaries the unhealthy condition of the district due to the widespread prevalence of fever, cholera and 'parangi' (yaws). Of these, parangi and cholera were seen as diseases introduced by the Portuguese colonisers Indian estate coolies passing through the area, respectively. Malaria fever, however, was clearly recognised to be indigenous to the area as implied by the term "Fever of Nuwarakalaviya". Ivers described it as the "disease par excellence" of the district (1899: 2).

The fever of Uva was of much concern to the British raj because it had a devastating effect on the British troops engaged in suppressing the 1818 rebellion. W G Ondaatjie, the colonial assistant surgeon for Badulla district, wrote in 1856-58:

Intermittent fever, or ague is endemic in Wellawaya and Wellassa, which have a sandy and barren soil, and where wholesome water is scarce. The disease is become so common with the wretched inhabitants of these localities, that they consider themselves subjected only to temporary inconvenience during the paroxysm, and when that has passed off they betake themselves to their usual avocations. Many of them have enlarged spleen as a consequence of protracted suffering from ague, and present the peculiar exsanguinous appearance which is characteristic of the disease [Ondaatjie 1856-58: 29].

This is a typical example of what Arnold calls "colonising the body", where the colonial subjects are identified as inherently fragile, febrile and disease-prone due to the pathogenic environment in which they live. Protracted suffering is manifested in the physical form of enlarged spleens.

In these accounts, the mapping of fevers coincides with certain stereotypical characterisations of the native people, their constitutions, temperaments and behaviours seen as a cumulative outcome of long-term exposure to fevers. Although some of the reports refer to a build-up of immunity against fevers among the local people because of long-term residence in the affected regions [Ivers 1899], a greater emphasis is placed on the debilitating effects of fevers, which sapped vitality with their frequent attacks.

Side by side with the mapping of fevers was an effort to identify and evaluate local remedies for fevers, a recognition of the possible uses of herbal therapies at a time western medicine was looking for more effective therapies. For instance, Ondaatjie, who was the assistant colonial surgeon in Uva, reported in 1861 that after extensive studies he found the local herb dummella (Trichasanthes arcumerine) to be an effective remedy for fever and that it contained one of the active ingredients of the cinchona bark (1856-58).

Unlike agues and fevers of the earlier era, where the focus was actually on fever attacks suffered by the Europeans, localised fevers primarily referred to endemic fever affecting indigenous populations in given areas of the country. As already noted, the concept of localised fevers also defined the colonial subjects who were constantly exposed to a harmful environment and, thereby, deprived of the vitality and energy needed for effective social and economic functioning. Arnold pointed to a similar process in operation in colonial Bengal.

Since it was the lethal combination of heat and humidity and the hot, moist air's capacity to hold poisonous, disease-generating 'miasma' in suspension that appeared to make tropical regions so deadly, Bengal's jungles, creeks, and marshes, its hot and humid climate, and the great variations in temperature between and within seasons seemed to provide an almost archetypal example of the savage effects a hostile environment could have on human constitution. Small wonder (it was reasoned) that severe and malignant fevers, acute liver complaints, dysentery and diarrhoea were to be found everywhere in Bengal and in such deadly profusion [Arnold 1993: 33].

More hegemonic views about the pathogenic environment of the tropics and the constitution of the tropical man, however, came with further advances in tropical medicine.

Search for Vectors and Parasites

The terms "malaria" and "malaria fever" occur in colonial writings on Ceylon from the 1860s onwards but they did not replace the names of localised fevers until after 1900. The establishment of a civil medical department in 1858 was important in that it began to monitor reported illnesses, including malaria and other fevers [Sivalingam 1960]. The modern scientific discovery of the mode of transmission of malaria between 1880 and 1900 led to a gradual reassessment of the prevailing notions of fevers. In 1899, Dr A Perry reported in the annual report of the Civil Medical Department, "There is a distinct connection between outbreaks of fever and rains, which favours latest ideas with regard to malaria and mosquitoes" [quoted in Sivalingam 1960: 93]. In 1905, Perry divided the country into two zones, eastern and western, for establishing linkages between the north-east and south-west monsoon rains and the spread of malaria, foreshadowing more detailed analysis of malaria epidemiology in the country in subsequent years [Rustomjee 1944]. In 1911, an antimalaria campaign began in Kurunagala and in 1913, S P James and S T Gunasekera incriminated the Anopheles culicifacies as the malaria vector in Ceylon [Carter, Rustomjee and Sarvanamuttu

1927; Rustomjee 1944]. This, in turn, led to adoption of antilarval operations on a limited scale in selected regions.

The new scientific discoveries related to malaria, however, were not received with great enthusiasm by all. From a much publicised debate instigated by Sir Henry Blake, the governor of Ceylon, in 1905, it is evident that some of the colonial administrators had considerable respect for the indigenous knowledge about malaria. In his address to the Ceylon branch of the Royal Asiatic Society in 1905, Blake announced that the transmission of malaria by mosquitoes was known in the Ayurveda tradition long before it was established through recent scientific discoveries. He declared in typical orientalist style,

The question to be asked is: Are we merely recovering the crumbs of knowledge that fell from the table of the long-buried east? A short time ago, government instituted an inquiry into the incidence of malarial fever at Mutwal, and during the enquiry I was surprised to see a communication from the secretary of the Ceylon Native Medical Association mentioning that in old books the mosquito was mentioned as one of the means of propagating malarial fever. I was so struck that I made further enquiries and found that in the medical works of Charaka, Susruta and other ancient Sinhalese writers, it was mentioned that there were 67 kinds of mosquitoes, and further that there were four kinds of malarial fever caused by the bite of these mosquitoes ... So that, as a matter of fact, recent discoveries are only re-discoveries [Blake quoted in Uragoda 1987: 221].

Subsequently Blake elaborated his view in a presentation made to the Ceylon branch of the British Medical Association, where he presented some passages from Susruta in English, having got them translated by leading Sanskrit scholars in the country, including Hikkaduwe Sri Sumangala [Uragoda 1987: 221]. Blake received wide acclaim from oriental scholars as well as some medical practitioners in the country for drawing attention to an important body of ancient wisdom. An English surgeon brought this to the notice of the *Lancet*. A thorough re-examination of the relevant medical text by a Sanskrit scholar of German origin revealed that the passage in question possibly referred to some other complications attributed to insect bites, and not malaria as such. Sir Ronald Ross himself dismissed any prior knowledge of a connection between insects and malaria.

Of the various localised fevers identified by the British raj, the one that involved a full scientific investigation was Kataragama fever, which became the subject of an official investigation carried out by Henry F Carter, the government malariologist, in 1925 [Carter 1926]. The investigation was triggered by an outbreak of fever among estate workers in Uva province, who had been on an annual pilgrimage to Kataragama, on the southern tip of the island. Among those who instigated the investigation were the planters of Uva who were obviously concerned about a fall in productivity. The team led by Carter was to determine the nature and cause of infection (if it was malaria or some other type of fever such as sand fly fever) and recommend strategies for addressing the problem [Carter 1926]. After a series of entomological and epidemiological investigations conducted at the Kataragama pilgrimage site, covering resident and visitor populations, the investigators concluded that "the disease in question is malaria, and that it is, to a large extent, acquired at Kataragama". In their 'Report on Kataragama Fever: Its Nature,

Causes and Control' (1925), the investigators revealed that the Katargama festival served as an occasion for the transmission of malaria from the resident population to the visitor population. Malaria vectors and parasites were present in the locality and the influx of a non-immune population from the rest of Ceylon, combined with the effects of long journeys on foot, lack of proper accommodation and the "devitalising" aspects of the festival itself, contributed to transmission of the disease. Referring to the pilgrims, Carter reported,

... cases were observed in which rigours of the journey were reflected in the more or less exhausted state of the new arrivals ... extraordinary acts indulged in by many of the pilgrims, especially those of the coolly class – in what may be the performance of ceremonial rites or the fulfilment of vows must involve a serious expenditure of nervous and physical energy. Many of the acts undoubtedly produced considerable pain and are usually undertaken after the devotee ... has developed a condition approaching hysteria and frenzy; and at their conclusion the pilgrim not infrequently appears to be in a state of partial or complete prostration (1925: 4).

The preventive measures proposed included shortening the duration of the festival or changing its dates (the festival season coincided with the drought season, facilitating vector breeding in nearby water sources, including the sacred Manik river), clearing the jungle, providing more accommodation facilities, controlling mosquito breeding and monitoring human malaria carriers, most of whom happened to be residents of the pilgrimage centre.

Generic Label 'Malaria'

The investigation pointed to a process by which localised fevers were gradually subsumed under the generic label "malaria". Following the scientific discoveries about the disease, the measures taken for their control were all along scientific lines [Silva 1991, 1994]. By the 1930s and certainly by the DDT era, we do not hear of any local fevers or any local terms such as kala una, indicating a hegemonic triumph of western medicine over all pre-existing knowledge about endemic fevers and their control. In the same way that the Blake debate eventually confirmed the validity of scientific knowledge over indigenous knowledge on the question of what caused malaria, investigations into the Kataragama fever pointed to the manner in which local rituals, in spite of their mass appeal and the healing properties they were assumed to have, may have unwittingly contributed to disease transmission. This is a clear example of what Arnold described in the following terms:

India's pathogenic environment has been stretched to include social and cultural idiosyncrasies as well as climatic and topographical phenomena, though the distinction between the two was often blurred [Arnold 1993: 42].

Apart from subsuming what was formerly recognised as Kataragama fever within the scientific discourse of malaria, the investigation found that a vastly popular ritual and connected practices such as performing acts of penance were intrinsically connected to the pathogenic environment that gave rise to malaria and contributed to its annual transmission from endemic to non-endemic populations [Silva 1991, 1994].

In summary, going by colonial records, malaria had a complex genealogy in British Ceylon. In the early period of colonial contact, agues and fevers were identified as a common problem,

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particularly harmful to the interests of the coloniser, who was trying to discover and conquer new territory. To some extent, colonisation was also seen as a means and an opportunity to identify, explore and learn about any effective local remedies for dealing with the problem. In the subsequent era of stabilising colonial rule, "medical topography", "gazetteers" and other colonial records were used to map fevers in the colonised landscape, in ways that evolved a dual economy, a pattern of social class mobilisation and a political system that favoured healthy regions over those that had endemic fever [Rankine 1839; Arnold 1993, 1996; Packard 2001; Boyd 1975]. The emergence of tropical medicine as a powerful by-product of colonial medicine led to the development of a uniform disease category called "malaria", which subsumed previous localised and disparate fevers and confirmed the status of the colonial subject as a victim of natural forces and ritual processes as well as a reservoir of infection.

The human body had already been colonised, to some extent, by prevailing notions of agues and fevers (e g, remittent versus intermittent) and enlarged spleens among long-term sufferers of malaria. But its identification as a potential vehicle for the propagation of the malaria parasite, which multiplied in the blood stream of affected humans, and the powerful conception of humans as reservoirs of infection contributed to the role of tropical medicine as "one of the most confident expressions of British political and cultural hegemony" in the colony (ibid). It added to the process of defining the colonial subject and colonising the human body as a necessary outcome of the rise of tropical medicine. The new scientific discoveries on the mode of transmission of malaria further reinforced the already existing view in colonial writings that endemic fevers led to loss of vitality, inefficiency and a lethargic outlook on life among the affected populations. The debilitating and devitalising effects of malaria were further affirmed through the discovery of the life cycle of the parasite in the human body. This, in turn, reinforced the view that malaria was not just another illness in the tropics but a major obstacle to social and economic development. The shift from localised fevers to malaria and the new scientific breakthroughs that informed the malaria discourse from 1900 onwards served to reinforce the definition of the colonial subject as disease-prone, unenergetic and devoid of agency. Therefore, the discoveries in tropical medicine shaped not just anti-malaria strategies, culminating in the DDT era, but also social and economic development policies, addressing poverty, malnutrition and other pressing human problems in the affected tropical areas.

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Reproductive Health among Youth in Bihar and Jharkhand

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