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**Tropical Governance:
Managing Health in Monsoon Asia, 1908-1938**

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The Asia Research Institute (ARI) was established as a university-level institute in July 2001 as one of the strategic initiatives of the National University of Singapore (NUS). The mission of the Institute is to provide a world-class focus and resource for research on the Asian region, located at one of its communications hubs. ARI engages the social sciences broadly defined, and especially interdisciplinary frontiers between and beyond disciplines. Through frequent provision of short-term research appointments it seeks to be a place of encounters between the region and the world. Within NUS it works particularly with the Faculty of Arts and Social Sciences, Business, Law and Design, to support conferences, lectures, and graduate study at the highest level.

This essay seeks to present a “connected history”¹ of monsoon Asia² for a period of time when it is often assumed that the states and empires of the region existed in virtual isolation from one another or were locked in bitter conflict. In trying to construct a “connected history” of eastern Eurasia through the medium of tropical medicine, the essay expands on current interest in the role of international organizations in making the modern world,³ and in particular the part played by international health organizations in addressing issues common to the Asian tropics as a whole.⁴ The discussion has three main components: first, the disease beriberi, principally caused by a deficiency of vitamin B1 (thiamine) and identified by the early twentieth century with diets consisting of heavily milled and highly polished white rice; second, the Far Eastern Association of Tropical Medicine (FEATM), a transnational organization which held a series of congresses across monsoon Asia between 1910 and 1938 and took up beriberi as one of its principal concerns; and, third, the ways in which the FEATM and “the beriberi problem” inform the ideology and practice of “tropical governance.”

Use of the term “tropical governance” builds on scholarly ideas of the tropics as a conceptual, not merely physical, space and the ways in which the designation “tropical” served as a Western way of defining something culturally alien to, as well as environmentally distinctive from the perceived normality of Europe and the northern temperate zone.⁵ External representations of the tropics grew in importance as Euro-American imperialism reached its height in the late nineteenth and early twentieth centuries, acquiring sufficient explanatory momentum and interventionist force not just to inform the rhetoric of colonialism but also to shape many of its scientific, technical and administrative practices. Although even ardent advocates and committed practitioners often found difficulty in justifying “tropical medicine” as a scientific specialty, in practice it formed one of the principal mechanisms by which imperial intervention in the tropics was effected and valorized.⁶ Despite the many personal and professional rivalries it occasioned, tropical medicine helped emphasize the shared tasks European, American and Asian regimes saw themselves facing in their approach to the exploitation and management of the tropics. “Tropical governance” describes this shared sense of purpose: it also allows for the inclusion not only of diverse colonial regimes but also of such influential intra-governmental and non-governmental organizations as the Far Eastern Association of Tropical Medicine (1908), the Rockefeller Foundation’s International Health Board (1914), and the League of Nations International Health Organization (1923).

¹ Sanjay Subrahmanyam, “Connected Histories: Notes Towards a Reconfiguration of Early Modern Eurasia,” *Modern Asian Studies*, 1997, 31: 735-62.

² For the utility of this expression, see V. D. Wickizer and M. K. Bennett, *The Rice Economy of Monsoon Asia* (Stanford: Stanford University Press, 1941), pp. 1-4.

³ Akira Iriye, *Global Community: The Role of International Organizations in the Making of the Contemporary World* (Berkeley: University of California Press, 2002).

⁴ For the later history, see Sunil S. Amrith, *Decolonizing International Health: India and Southeast Asia, 1930-65* (Basingstoke: Palgrave, 2006).

⁵ David Arnold, “Introduction: Tropical Medicine before Manson,” in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine*, ed. David Arnold (Amsterdam: Rodopi, 1996), pp. 5-10.

⁶ C. D. de Langen and A. Lichtenstein, *A Clinical Text-Book of Tropical Medicine* (Batavia: G. Kolff, 1936), p. iii; Wilbur A. Sawyer, “Medicine as a Social Instrument: Tropical Medicine,” *New England Journal of Medicine*, 1951, 244: 217-24.

TROPICAL GOVERNANCE

Ideas of tropical governance had a particular bearing on the way in which the “tropical Orient” came to be conceptualized and administered between the 1890s and the outbreak of World War II. The period saw heightened recognition of the tropics as a common problem among European powers in Asia as well as by other colonizing powers – the Japanese after their annexation of Taiwan in 1895 and the United States following its occupation of the Philippines in 1898. The scramble to occupy territories across monsoon Asia fuelled imperial rivalry but it also fostered recognition of a need for the exchange and dissemination of scientific, medical and technical ideas, information, practices and experiences.

The “problem of the tropics” encompassed several different but interconnected concerns. Among the most central of these was race – both as a question of how could imperial races could preserve their physical and mental well-being in the seemingly hostile environment of the tropics and how the health, labor power and reproductive capabilities of “tropical races” could best be managed in the interests of economic productivity, military strength and political authority. To a large degree, the tropical medicine of the early twentieth century was race medicine, grounded in the perceived needs and characteristics of specific racial groups.⁷ It should be noted, though, that in the medical discourse of the period “race” was commonly seen in “performative” rather than “essentialist” terms,⁸ less concerned with seemingly immutable biological characteristics and more with social practices and cultural traits – what one American military doctor in the Philippines termed “racial taste and custom.”⁹ It was indicative of this cultural rather than biological understanding of race that W. L. Braddon’s influential study of beriberi in Malaya made no reference to the physical characteristics of the races involved – Chinese, Tamils, and Malays – but focused instead on their different patterns of rice consumption to account for the prevalence of the disease among the Chinese, who ate milled white rice, and its absence among Malays and Tamils who ate hand-pounded and parboiled rice respectively.¹⁰ Partly because race was seen in this behavioral way, much of the sanitary and developmental discourse of the period was predicated on the possibility of change or concerned the need to mobilize medical and sanitary knowledge as part of an active program of change. Authors wrote with apparent optimism about the “regeneration” of tropical races just as they described, more pessimistically, the likely “degeneration” of white races in the tropics.

Apart from race, and the importance attached to immigration and “labor efficiency,”¹¹ many other aspects of tropical management were addressed – manipulating the physical environment in ways conducive to health and economic exploitation; managing reproduction to create healthier future generations; addressing the quality as well as quantity of food available; and overseeing institutions like prisons, hospitals and asylums whose confined

⁷ On the centrality of race, see Aldo Castellani and Albert J. Chambers, *Manual of Tropical Medicine* (3rd edition, New York: William Wood, 1920), ch. 2.

⁸ James S. Duncan, *In the Shadow of the Tropics: Climate, Race and Biopower in Nineteenth Century Ceylon* (Aldershot: Ashgate, 2007), p. 14.

⁹ Weston P. Chamberlain, “The Eradication of Beriberi from the Philippine (Native) Scouts by Means of a Simple Change in their Dietary,” *Philippine Journal of Science*, 1911, 6: 145.

¹⁰ W. Leonard Braddon, *The Cause and Prevention of Beri-Beri* (London: Rebman, 1907), pp. 150-98.

¹¹ Lenore Manderson, *Sickness and the State: Health and Illness in Colonial Malaya, 1870-1940* (Cambridge: Cambridge University Press, 1996), pp. 90-92.

populations seemed to present peculiar problems for tropical health and sanitation. Especially in its early years, the meetings of the FEATM provide many examples of these objectives and intentions. Addressing the association's second congress at Hong Kong in January 1912, the governor Sir Frederick Lugard (an administrator more familiar with the African than the Asian tropics) took a broad view of the responsibilities and rewards of tropical governance. He declared that the "progress of the world, of civilization, and of all that ennobles the human race," lay chiefly "in the hands and the energies of the races that inhabit the temperate zones," whether in Europe, Asia or America. These "progressive races" were increasingly reliant on the products of the tropics, but the tropics could never be developed without "external assistance." He continued:

though this development of trade in the tropics is ... a necessity thrust upon the races of the temperate zones, by the law of progress it can be raised above the sordid level of mere material benefit by the recognition of responsibility towards the peoples of the tropics, to whom in return for material products we should bring higher standards of material comfort, and above all higher standards of morality, and the benefits which science has conferred on humanity.¹²

When the governor-general of French Indo-China, opened the FEATM congress at Saigon eighteen months later, he too spoke of the good of humanity, the "regeneration" of tropical races, the need to tame the "splendid but treacherous" tropics and to free them from their "magnificent but sterile" virginity by conquering the myriad evils – from leprosy and plague to beriberi and malaria – that constantly threatened to swamp civilization in the tropics.¹³

But the clearest statement of the problem of the tropics came from American doctors in the Philippines, where a new and confident ethos of sanitary intervention and improvement had been introduced. At the association's first congress at Manila in March 1910, one of the most significant papers presented was that by Victor Heiser, director of public health in the Philippines and later, from 1915, as "director for the East," a leading figure in the Rockefeller Foundation's International Health Board (IHB).¹⁴ Although Heiser's paper concerned "unsolved health problems" in the Philippines, in effect it addressed a far wider constituency. He spoke of

a poverty-stricken people with a poor physical inheritance, a people strongly imbued with superstitions and habits the antithesis of the simplest health doctrines and practices, a people lacking ambition productively to till the fertile soil, a people the masses of whom are apparently content in their ignorance and poverty and resigned to and uncomplaining of their many ailments.¹⁵

¹² *Far Eastern Association of Tropical Medicine: Transactions of the Second Biennial Congress held at Hongkong 1912*, ed. Francis Clark (Hong Kong: Norontha, n.d.), p. 3.

¹³ *Far Eastern Association of Tropical Medicine: Comptes Rendus des Travaux du Troisième Congrès Biennal tenu à Saigon 1913* (Saigon: A. Portail, 1914), pp. 2-3.

¹⁴ Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines* (Durham: Duke University Press, 2006), pp. 69-73; Victor Heiser, *An American Doctor's Odyssey: Adventures in Forty-Five Countries* (New York: W. W. Norton, 1936).

¹⁵ Victor Heiser, "Unsolved Health Problems Peculiar to the Philippines," *Philippine Journal of Science*, 1910, 5: 171.

To this Heiser added the “handicaps” of poor transport and communications, the inconvenient multiplicity of languages spoken in the Philippines, the lack of trained medical personnel, and the limits of state funding. The task, as he saw it, was how to transform Filipinos “from the weak and feeble race we have found them into the strong, healthy, and enduring people that they yet may become... [and so] lay the foundations for the successful future of the country.”¹⁶ This doubtless represented Heiser’s personal beliefs but it was understood by other delegates at Manila as corresponding to their own “Herculean task,” just as the American sanitary regime in the Philippines was widely acknowledged by visitors from other Asian territories as having “worked miracles” and provided a model for tropic-wide emulation.¹⁷ Hong Kong’s medical officer went so far as to claim that there was “no other example in the history of the world where such effective measures have been taken to improve the sanitary condition of the subject races” as in the Philippines under American rule.¹⁸

Heiser carried into his subsequent role as the IHB’s roaming representative in Asia, and as a prominent figure in the FEATM for almost its entire duration, the unshaken conviction view that American sanitary reform in the Philippines had transformed (or had the capacity to transform) the outlook of colonial health officers across monsoon Asia and provided a suitable template for interventionist action against the diseases that blighted the region as a whole. As he reflected on a visit to Java in May 1916,

America’s entrance into the Orient has been a tremendous stimulation to other countries in promoting educational and health measures among the masses. Until America came it was very generally held throughout the East that efforts to help the native would prove futile.¹⁹

Having overseen dietary reform at the Cuilon leper asylum in the Philippines in 1911-12, where the substitution of unmilled for milled rice had check mortality from the disease, Heiser brought to the campaign against beriberi both the strength of his personal conviction and the evangelical faith of the Rockefeller Foundation that such a disease so wasteful of human life and labor could and should be eradicated.²⁰

¹⁶ Heiser, “Unsolved Health Problems” (n. 15), p. 177.

¹⁷ H. Campbell Highet, “Discussion on the Paper, ‘Unsolved Health Problems,’” *Philippine Journal of Science*, 1910, 5: 243-44.

¹⁸ J. M. Atkinson, “Discussion on the Paper,” (n. 17), p. 244.

¹⁹ “Itinerary of Doctor Victor G. Heiser,” Batavia, 20 May 1916, Rockefeller Archive Center (RAC), Tarrytown, New York. Heiser further noted: “the East looks to the Philippines for leadership in beriberi”: “Itinerary,” Manila, 22 August 1916, RAC. In 1914 Wickliffe Rose, director of the International Health Board, put beriberi second in his list of IHB priorities: W. Rose, “Projects to be Undertaken by the Director for the Far East during the Coming Year”: RG 5.2, series 600, box 54, folder 341, RAC.

²⁰ Victor G. Heiser, “Memorandum with Respect to Beriberi in the Orient,” 30 September 1915, RG 5.2, series 600, box 54, folder 342, RAC. On the “imperialism” of the IHB, see E. Richard Brown, “Public Health in Imperialism: Early Rockefeller Programs at Home and Abroad,” *American Journal of Public Health*, 1976, 66: 897-903.

THE BERIBERI PROBLEM

Beriberi was not a new disease. It was described in medieval Chinese and Japanese medical texts under the term *kakké* (“leg disease”) and European accounts were given by Dutch and English physicians in the East Indies from the mid-seventeenth century onwards.²¹ But for all its antiquity, beriberi appeared in many respects to be a modern disease, having become increasingly widespread across monsoon Asia in the late nineteenth and early twentieth centuries. It is now known that beriberi is a nutrition-deficiency disease caused by a lack of thiamine or vitamin B1 in the diet. The disease attacks the nervous system, causing lassitude and a loss of sensation and control in the limbs, especially in the legs and feet (hence the “sheep-like gait” from which the disease was said to derive its name). It takes a variety of forms – principally “wet beriberi” in which severe edema occurs and “dry beriberi” in which the limbs and body became thin and etiolated. Although decades into the twentieth century, disagreement over the essential symptoms of the disease remained a continuing cause of diagnostic confusion, authorities agreed that, unless treated, “true” beriberi resulted in worsening paralysis and eventually in heart failure and death.²²

Several factors combined to make beriberi a “modern” disease. The first of these was the dramatic growth in mechanized rice-milling from the 1880s onwards. Instead of rice being hand-pounded and consumed as required, rice was processed in steam-driven or electrically powered mills. Along with the outer husk, milling removed the inner skin of the rice grain (the pericarp): the grain was then further buffeted to enhance its clean, white appearance. In removing the thiamin contained in the pericarp, milling exposed consumers whose diet consisted almost entirely of white rice to the risk of beriberi. Where hand-pounding rice left 50 percent of the pericarp intact, mechanized processing left virtual none. Rice polishings, including the vital nutrients removed by milling, were thrown away or used as animal feed. The full extent of rice milling across Asia is difficult to determine as many mills were too small to attract official enumeration, but in British Burma alone the number of mills rose from 73 in 1899 to 216 in 1914 and 666 by 1939.²³ Early mills were located at ports like Rangoon or Saigon, but increasingly, in Burma, Thailand, and India, as demand for white rice grew, they spread inland to small towns and villages. In many areas hand-pounding virtually ceased – an illustration of how technological change could profoundly influence work regimes, diets and health. Milling also fuelled a revolution in taste. By the 1930s, no one, it seems, who could afford it wanted to eat hand-pounded rice. White rice was more prestigious and often, as imported “broken rice,” cheaper.²⁴ It became a matter of desire, of cultural identity and national self-esteem, to eat white rice. Modernity lay in a bowl of shimmering, fragrant, polished white rice.²⁵

²¹ Edward B. Vedder, *Beriberi* (London: John Bale, Sons and Danielsson, 1913), pp. 1-9.

²² For the nature and scientific investigation of beriberi, see Kenneth J. Carpenter, *Beriberi, White Rice, and Vitamin B: A Disease, A Cause, and a Cure* (Berkeley: University of California Press, 2000).

²³ Siok-Hwa Cheng, *The Rice Industry of Burma, 1852-1940* (Kuala Lumpur: University of Malaya Press, 1968), p. 78.

²⁴ W. B. Aykroyd, B. G. Krishnan, R. Passmore and A. R. Sundararajan, *The Rice Problem in India* (Calcutta: Thacker, Spink & Co., 1940), p. 67.

²⁵ Emiko Ohnuki-Tierney, *Rice as Self* (Princeton: Princeton University Press, 1993).

The rise of the rice-mill and the cultural transformation it spawned was not the only reason for in the “modern” spread of beriberi. A second factor was the growth of the rice-trade. Rice-milling reduced the bulk of raw paddy by 35 percent, making rice more economical to transport and less likely to deteriorate when stored and shipped. With the growth of rice exports from Burma, Thailand and Vietnam and rice imports into the Philippines, Indonesia and India, the intra-regional trade in milled rice expanded enormously – and with it beriberi. The value of rice exports and their importance to Asian economies partly explains why the problem of beriberi was so difficult to tackle: there were too many vested interests involved.²⁶ On the one hand, labor productivity (the “economic efficiency” to which Heiser alluded)²⁷ required curbs on white rice consumption; on the other, rice-mill owners, grain merchants and their governments adamantly opposed any restrictions on the trade. As one commentator observed, “the problem of nutrition” presented by beriberi touched on “contradictions inherent in the capitalist mode of production.”²⁸

Third, because of its relative cheapness, ready availability and wide cultural acceptability, milled rice became the principal – even exclusive – diet of social groups associated with “modern” occupations and institutions – prisoners, asylum inmates, hostel students, soldiers, sailors, migrant laborers, plantation and mine workers. Beriberi spread not through contagion but through the replication of similar institutions and workforces across the region and through the dietary practices that accompanied them. The Japanese navy was one of the first workforces to be hit. So severe was the disease in the 1870s and 1880s that the imperial naval authorities were forced to investigate the disease. Attributing the cause to nitrogen deficiency, Kanehiro Takaki found a pragmatic solution to the problem by reducing the rice content of sailors’ diets and increasing consumption of other cereals and vegetables.²⁹

The Dutch, suffering high rates of sickness and mortality among their colonial troops as well as in overcrowded prisons in Java and Sumatra, also took up the investigation of the disease: the research conducted by Christiaan Eijkman in Batavia between 1888 and 1896, using polyneuritis in chickens as an analogue for human beriberi, established milled rice as the likely cause of both diseases.³⁰ It ultimately earned its author the Nobel prize for physiology, but the international response to Eijkman’s work was at the time far from favorable and the Dutch government in Batavia was forced to retreat from its initial response of banning white rice in state institutions.³¹ Outbreaks of beriberi continued to occur among prisoners, asylum inmates, and laborers in Hong Kong, Saigon, and Singapore, prompting further research but without any consensus as to the cause or treatment of the disease emerging.

²⁶ In the 1930s Vietnam exported more than a billion francs’ worth of rice, equivalent to nearly half its export trade: Charles Robequain, *The Economic Development of French Indo-China* (London: Oxford University Press, 1944), pp. 276, 310. On the pressure exerted by merchants in Siam, where 80 percent of rice was exported, see H. R. O’Brien, Bangkok, to W. A. Sawyer, Singapore, 25 August 1923, RG 5.2, series 617, box 56, folder 360, RAC.

²⁷ Heiser, “Memorandum” (n. 20).

²⁸ N. Gangulee, *Health and Nutrition in India* (London: Faber and Faber, 1939), p. 22.

²⁹ *Review of the Preventive Measures Taken Against Ka’ke in the Imperial Navy* (Tokyo, 1890).

³⁰ Carpenter, *Beriberi* (n. 22), ch. 3.

³¹ B. Scheube, *The Diseases of Warm Countries: A Handbook for Medical Men* (London: John Bale, Sons and Danielsson, 1903), pp. 193-96.

However, in ways that expose the limits of colonial governance, the scale of the disease and its demographic impact were difficult to determine. Statistical data from hospital admissions in cities like Singapore and Hong Kong or from urban jails and asylums, gave little indication as to how widespread beriberi might be among the population at large. Some epidemiological studies ranked beriberi among the leading causes of morbidity and mortality in Asia. Braddon in Malaya argued in 1907 that among a population of 1.25 million, there were over 150,000 cases and 30,000 deaths a year from beriberi. Over twenty years the total mortality, he believed, was around 100,000. Advancing the financial case for eradication, he claimed that the annual cost to the government through hospital treatment amounted to £10,000 and the economic consequences of the death or incapacity of thousands of laborers, principally in the tin and rubber industries, he put at over \$1 million a year.³² In the Philippines, where American researchers identified infantile beriberi as a major cause of death, mortality was reported to be around 12,000 to 20,000 a year by the 1930s.³³

Calculations based on cities where beriberi was prevalent fuelled claims that millions of people across Asia suffered and died from the disease. Edward Vedder of the US Army Medical Corps reckoned in 1913 that, since Hong Kong had 10,000 cases in a population of 350,000, “it may well be imagined that millions of cases must occur among the remainder of China’s teeming population.”³⁴ In that same year, Heiser stated that beriberi claimed 100,000 lives a year in “the Orient,” making it as serious a health threat as cholera or plague.³⁵ A decade later, in 1923, W. A. Sawyer, Heiser’s deputy, called beriberi “a huge public health problem... The effective control of beriberi in the Orient promises to be of great benefit to vast populations.”³⁶ Such expressions of alarm were not confined to Europeans and Americans. At the FEATM’s Tokyo congress in 1925 a Japanese researcher, Kenta Omori, remarked: “there is no other disease so important socially as beri-beri. It attacks young people during the most productive period of life... It is time to establish the etiology of the disease and completely prevent it.”³⁷

But, even without more reliable data, research studies and accumulating statistical evidence seemed to underscore the essentially “Oriental” and tropical nature of beriberi – at precisely the moment when tropical medicine was being established by Patrick Manson and others as an imperially vital and professionally distinct branch of modern medicine.³⁸ Yet one should be wary of too readily accepting that beriberi was necessarily tropical or even primarily Asian.

³² Braddon, *Cause and Prevention* (n. 10), pp. 1-5.

³³ League of Nations Health Organization, *Report of the Philippines* (Geneva: League of Nations, 1937), pp. 20-21. On beriberi in the Philippines, see Ken De Bevoise, *Agents of Apocalypse: Epidemic Disease in the Colonial Philippines* (Princeton: Princeton University Press, 1995), ch.5.

³⁴ Vedder, *Beriberi* (n. 21), p. 15.

³⁵ Victor Heiser, “Beri-Beri,” *Comptes Rendu... Saigon 1913*, (n. 13), p. 371. The figure of 100,000 deaths and 500,000 cases of sickness was also cited in support of IHB involvement: Rose, “Projects” (n. 19).

³⁶ W. A. Sawyer, “Advantages of Nation-Wide and Inter-National Organization for Disease Control, with Special Reference to Hookworm Disease and Beriberi,” *Far Eastern Association of Tropical Medicine: Transactions of the Fifth Biennial Congress held at Singapore, 1923*, ed. A. L. Hoops and J. W. Scharff (London: John Bale, Sons and Danielsson, 1924), p. 192.

³⁷ Kenta Omori, “Studies on the Cause and Treatment of Beri-Beri in Japan,” *Far Eastern Association of Tropical Medicine: Transactions of the Sixth Biennial Congress Held at Tokyo, 1925* (Tokyo: Kyorinsha Medical Publishing Co., 1925), 1: 203.

³⁸ Douglas M. Haynes, *Imperial Medicine: Patrick Manson and the Conquest of Tropical Disease* (Philadelphia: University of Pennsylvania Press, 2001).

Its occurrence in the Japanese navy (and in the army during the Russo-Japanese war of 1905 when 200,000 Japanese soldiers developed beriberi)³⁹ might alone question an exclusively tropical provenance, but for many in the IHB “the Orient” and “the tropics” were largely interchangeable concepts.⁴⁰ By contrast, an article in the *Lancet* in 1909 began: “Cases of beriberi are by no means uncommon in Glasgow.”⁴¹ The author was partly alluding to the disease among Indian *lascars* (sailors) arriving on British ships (and fed on Burmese milled rice) but he went on to describe an Icelandic sailor whose poor shipboard diet had contributed to the onset of symptoms apparently identical to those observed in the East. Indeed, beriberi, while not exactly global, had a wide distribution: it was endemic in nineteenth-century Brazil, where it was investigated by the “Tropicalista” school of medicine,⁴² and French commentators remarked on its presence in Africa (Senegal and Madagascar) as well as its absence from parts of Indo-China.⁴³ Scandinavian sailors were so prone to “shipboard beriberi” that in 1902 the Norwegian government ordered an investigation into a disease whose outlandish name seemed already to have marked it out for exoticism.⁴⁴

But the claims of Europe, Africa and the Americas were overwhelmed by the primacy of research conducted in the Asian tropics. By the time Manson compiled his textbook on the “diseases of warm climates” in 1898, beriberi was widely regarded as one of the principal tropical diseases, Manson himself believing it to be a disease of hot, humid and crowded tropical places.⁴⁵ As the drawings in the first edition of his *Manual* (and the many case studies published at the time) suggest, beriberi was principally identified with the Chinese, who, as city-dwellers, mine-workers and “coolie” laborers, were understood to be its main sufferers.⁴⁶ The extent to which beriberi had been captured by the second decade of the twentieth century for tropical Asia, especially Southeast Asia,⁴⁷ provides one explanation why it became so central a concern of the FEATM.

³⁹ Gorosaku Shibayama, “Some Observations Concerning Beriberi,” *Philippine Journal of Science*, 1910, 5: 123.

⁴⁰ W. Rose, “Notes on Medical Needs in the Orient,” 1 July 1915, RG 5.2, series 600, box 54, folder 341, RAC.

⁴¹ T. K. Munro, “A Case of Ship Beriberi,” *Lancet*, 20 February 1909, p. 529.

⁴² Julyan G. Peard, *Race, Place, and Medicine: The Idea of the Tropics in Nineteenth-Century Brazilian Medicine* (Durham: Duke University Press, 1999), pp. 51-63.

⁴³ (French Beriberi Commission), “Rapport sur le Bériberi,” *Bulletin de la Société de Pathologie Exotique*, 1911, 4: 577-84.

⁴⁴ The Norwegian commission called beriberi “the oriental name given to a multiple neurosis ... due to a toxin [caused] by tainted (stale) vegetable or animal food.” Editorial, “Is Beriberi Caused by Rice?,” *Lancet*, 8 May 1909, p. 1334. Braddon, *Cause and Prevention* (n. 10), pp. 457-66, denied this was true beriberi since it lacked the characteristic paralysis of the lower limbs.

⁴⁵ Patrick Manson, *Tropical Diseases: A Manual of the Diseases of Warm Climates* (New York, 1898), pp. 221-46.

⁴⁶ E.g., William Fletcher, “Rice and Beri-Beri,” *Journal of Tropical Medicine and Hygiene*, 1909, 12: 127-35, a study based on Chinese inmates of the Kuala Lumpur mental asylum.

⁴⁷ This is not to suggest that no original or significant research was conducted elsewhere: see W. R. Aykroyd, “Beriberi and Other Food-Deficiency Diseases in Newfoundland and Labrador,” *Journal of Hygiene*, 1930, 30: 357-86, discussed in Anne Hardy, “Beriberi, Vitamin B1 and World Food Policy, 1925-1970,” *Medical History*, 1995, 39: 63-65.

The rapid progress of beriberi research also accounts for this. Following pioneering studies in Japan and the Dutch East Indies before 1900, the next stage in the investigation of the disease occurred in a remarkably short period between 1908 and 1912, principally through research in Southeast Asia. Building on Braddon's earlier work, Henry Fraser and A. T. Stanton of the Institute for Medical Research at Kuala Lumpur in the Federated Malay States sought to establish an irrefutable link with milled rice. Beriberi, they reported in 1910, "is a disorder of nutrition, and as it occurs in this country [Malaya] is associated with a diet in which white rice is the principal constituent." White rice "makes default in respect of some substance or substances essential for the maintenance of the normal nutrition of nervous tissues." The prevention of beriberi could be achieved "by substituting for the ordinary white rice a rice in which the polishing process has been omitted or carried out to a minimal extent, or by the addition to a white rice of articles rich in those substances in which such white rice now makes default." One source was rice polishings.⁴⁸

Through conference papers and journal articles, Fraser and Stanton's findings were rapidly disseminated in Europe and Asia. As Fraser told the FEATM at Manila in 1910, "our researches have conclusively shown that beriberi can be prevented by the use of unpolished rice and as surely produced by the use of highly polished rice."⁴⁹ Their work paved the way for the investigation of the specific vitamin whose absence was responsible for beriberi. Although it took several years before vitamin B1 (thiamine) was conclusively identified,⁵⁰ by 1914 the longstanding problem of the etiology of beriberi appeared to have been solved. In actuality, though, the controversy was far from over. To understand why, we need to turn to the FEATM.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE

For thirty years, from 1908 to 1938, the FEATM provided a platform for research on and in the tropics, a forum for professional exchanges across a wide range of medical, sanitary and public health issues. According to its aims and objectives,⁵¹ the association sought to promote science and medicine in the "Far East," to unite the region's medical profession into "one compact organization," to develop and diffuse scientific knowledge, to promote friendly discourse between "scientific men" (there were few women delegates), to raise the standards of medical education, and to enlighten public opinion about the prevention of disease. In the three decades of its existence, the FEATM held ten international congresses distributed across monsoon Asia: in addition to Manila, Hong Kong and Saigon before 1914, the association met between the wars at Batavia, Singapore, Tokyo, Calcutta, Bangkok, Nanking

⁴⁸ H. Fraser and A. T. Stanton, "The Etiology of Beri-Beri," *Transactions of the Society of Tropical Medicine and Hygiene*, 1910, 3: 266-67, also in *Report on the First Biennial Meeting of the Far Eastern Association of Tropical Medicine held at Manila, March 1910*, ed. A. Hooton (Bombay: Government Central Press, 1910), appendix 2, pp. 13-16.

⁴⁹ Henry Fraser, "Discussions on the Papers," *Philippine Journal of Science*, 1910, 5: 141.

⁵⁰ Carpenter, *Beriberi* (n. 22), chs 7, 8.

⁵¹ *A Report of the Fifth Congress of the Far Eastern Association of Tropical Medicine, held in Malaya, September 3-17, 1923*, ed. J. W. Scharff (Singapore: Government Printing Office, 1923), p. 24.

and Hanoi.⁵² At their height in the mid-1920s, the congresses attracted as many as five hundred delegates from more than twenty countries and colonial dependencies from India to Japan as well as occasional observers from Queensland and Cuba. The Rockefeller Foundation sent its own delegates, usually Heiser and his deputy Sawyer. Most delegates were government representatives, giving the association a “semi-official nature.”⁵³

Opened by a governor-general or high-ranking official, the congresses were important state events. When the FEATM met at Tokyo in October 1925 delegates were addressed by the Japanese prime minister and took tea with the emperor.⁵⁴ With visits arranged to hospitals, medical schools, and sewage-treatment works, the congresses provided propaganda opportunities for the hosts; they also catered to recreational needs and laid on visits to tourist sites. But many delegates and members were not officials, and holding congresses at such places as Tokyo and Calcutta allowed local doctors and health workers to present papers and participate in discussions. The dual nature of the FEATM – partly official, partly not – was its strength, enabling informal contacts across imperial and national boundaries, but also its weakness, for it lacked a permanent organization, secure funding and the collective clout needed to give practical effect to the measures proposed. One of Heiser’s frustrated ambitions was to turn the association into an international assembly in which delegates, armed with the authority of their respective governments, would be able to make binding decisions on international health policy.⁵⁵

The initiative for the creation of FEATM in March 1908 came from the US medical and sanitary administration in the Philippines. But its pan-tropical role was partly anticipated by an international meeting called by the British at Bombay in February 1909, which several American military doctors from the Philippines attended and where beriberi research was one of the issues taken up for discussion.⁵⁶ Many of the papers presented at Manila in 1910 and Hong Kong in 1912 reflected the association’s initial orientation – how the white races could survive in the tropics (“The Relative Resistance of Blondes and Brunettes to the Harmful Influences of a Tropical Climate,” or “The Care of Children in the Tropics,” where “children” automatically meant white children). Or they discussed how “subject races” could best be managed in the interests of their own health or estate labor protected from malaria or typhoid.⁵⁷ The externality of this perception – white men looking in on, and down upon, tropical races and places – was something the FEATM never entirely shed but it became tempered over time with increased Asian participation.

⁵² The closest contemporary parallel to the FEATM was the Institute of Pacific Relations, established at Honolulu in 1925, which held a series of biennial conference around the Pacific before moving to New York in the 1930s; but the differences in membership, organization, and outlook are also striking: Tomoko Akami, *Internationalizing the Pacific: The United States, Japan and the Institute of Pacific Relations in War and Peace, 1919-45* (London: Routledge, 2002).

⁵³ John G. Grant, “The 6th Congress of the Far Eastern Association of Tropical Medicine,” RG 5.2, series 600, box 54, folder 341, RAC.

⁵⁴ *Report of the Sixth Congress of the Far Eastern Association of Tropical Medicine, Tokyo, Japan, October 11-31, 1925* (n. p. d.), p. 17.

⁵⁵ Heiser, “Itinerary,” Batavia, 18 May 1916, RAC.

⁵⁶ *Transactions of the Bombay Medical Congress, 1909*, ed. W. E. Jennings (Bombay: Bennett, Coleman, 1909), pp. 266-78.

⁵⁷ *Report on the First Biennial Meeting* (n. 48), appendix 1; *Transactions of the Second Biennial Congress* (n. 12), pp. 215-51.

Although the initiative came from the Americans, despite the continuing role of Heiser and the Rockefeller Foundation the FEATM was never an exclusively, or even after 1910 a predominantly, American enterprise. The first congresses drew delegates from across monsoon Asia, though French Indo-China did not join until 1913. After the war the association was revived by the Dutch, who saw themselves as pioneers of tropical medicine.⁵⁸ The greatest shift in the association's composition and outlook came in 1925 when the congress met in Tokyo, where a majority of the papers presented were by Asian doctors and researchers.⁵⁹ With the bacteriologist S. Kitasato in the chair, the opportunity was duly taken to celebrate Japan's achievements in medical research.⁶⁰

Although many different health and sanitation issues were taken up by the association beriberi dominated its proceedings from the outset. It was a disease that occurred throughout the region covered by the FEATM, the "Far East" of its title virtually coterminous with the world's principal rice-producing and rice-consuming societies. But, a second reason why beriberi figured so prominently in the FEATM's deliberations related to timing: it was precisely in 1908-1910, at the very time the association came into being, that the breakthrough in the understanding of beriberi was made and when regimes across the region were pursuing beriberi research. Although many of the leading research papers on the subject were also published in Europe, the initial findings of Braddon, Fraser and Stanton in Malay, as later of Robert McCarrison in India, circulated rapidly in the region – not least through the FEATM's congresses. The regional distribution of beriberi also seemed to make the association a fitting agency for combating the disease. As Heiser remarked in 1911:

The advances made during the past year in placing the etiology of beriberi upon a scientific basis have now proceeded sufficiently to warrant the inference that prophylactic medicine has the knowledge at its command to place this scourge among the preventable diseases.⁶¹

In the opinion of Heiser, who already spoke of "eradication," the papers presented to the Manila congress by Fraser and Stanton, and by researchers from the Philippine Medical School, offered "a rational method" for the prevention and cure of beriberi.⁶² So convinced had the American medical and sanitary establishment in the Philippines become of the milled rice-beriberi equation that in May 1910 the governor-general banned the use of polished rice in all state institutions. At the Manila congress, Francis Clark, Hong Kong's chief medical officer, moved a resolution stating that there was now "sufficient evidence" to show that "beriberi is associated with the continuous consumption of white (polished) rice as a staple article of diet" and urging regional governments to take note of this connection. He believed

⁵⁸ L. S. von Roemer, *Historical Sketches: An Introduction to the Fourth Congress of the Far Eastern Association of Tropical Medicine to be held at Batavia from 6th to 13th August 1921* (Batavia: Javasche Boekhandel en Drukkerij, 1921), ch. 5.

⁵⁹ At the previous congress, the Chinese delegates proposed that "tropical medicine" be dropped from the association's title on the grounds that many of the diseases and health issues under discussion were not confined to the tropics. The proposal was defeated by Euro-American delegates for whom the concept of "tropical medicine" remained crucial: *Report of the Fifth Congress* (n. 51), pp. 8, 11.

⁶⁰ *Report of the Sixth Congress* (n. 54), pp. 20-21.

⁶¹ Victor G. Heiser, "Practical Experiences with Beriberi and Unpolished Rice in the Philippines," *Philippine Journal of Science*, 1911, 6: 299.

⁶² Heiser, "Practical Experiences" (n. 61), p. 299.

the resolution would “enable us to take early steps to protect the natives under our care from a disease which is responsible for much suffering and many deaths.”⁶³

This was a seminal moment. The resolution, or variants of it affirming that beriberi was a “disorder of nutrition” principally caused by “a diet of which over-milled rice forms the staple,”⁶⁴ was repeated at subsequent congresses at Hong Kong (1912), Saigon (1913), Batavia (1921) and Singapore (1923). At the Saigon congress Heiser went further, calling for an international agreement to tax white rice, so as to drive it out of the market place, leaving it only within the reach of those who were rich enough to afford it (and who were unlikely to be over-dependent on a rice diet). He supported this proposal by claiming that “the solution of the beri-beri problem would probably save more human lives and at the same time be of greater economical advantage than any one health measure proposed in modern times.”⁶⁵

At Batavia eight years later Heiser recommended the setting up of a beriberi committee, of which he became chair. Again citing the authority of Fraser and Stanton’s pre-war research, he proposed that the association’s delegates should approach their respective governments in order to impress upon them the urgent need to legislate against milled rice.⁶⁶ Since the phosphorous pentoxide content of milled rice was believed to provide a reliable guide to its vitamin content, it was now thought possible to state the precise degree of milling acceptable (i.e., not less than 0.5 percent of phosphorus pentoxide should remain after milling). The conviction that beriberi could be eradicated by “drastic” measures was reinforced by the comparison made by Sawyer between beriberi and the International Health Board’s campaign against hookworm disease, though the analogy between a disease accidentally incurred through consuming a highly desired food staple and one transmitted through parasites and human excrement failed to persuade most delegates.⁶⁷

But the FEATM’s apparent determination to tackle beriberi through international action soon faltered. When attempts were made in the Philippines and elsewhere to persuade rice-millers to reduce the degree of milling, and so preserve part of the pericarp and its vitamin content, they refused, claiming that polished rice was what their customers wanted. Governments across the region grew nervous at the suggestion that they tax the rice trade and penalize poor consumers: there were fears of popular unrest as well as economic loss.⁶⁸ In the Philippines, still under American control, propaganda to dissuade people from eating white rice had seemingly little effect (a failure that further convinced Heiser that legislation to prohibit highly milled rice was an immediate necessity and could not wait until after educational efforts had had an effect).⁶⁹ Meanwhile, the number of rice mills continued to grow

⁶³ Francis Clark, “Discussion” (n. 49), p. 144.

⁶⁴ *Report of the Fifth Congress* (n. 51), p. 13.

⁶⁵ *Comptes Rendu ...du Troisième Congrès* (n. 13), p. 372. Heiser’s proposal was modeled on a bill submitted to Philippines legislature for a tax of 5 cents per kilo but never passed: Charles N. Leach, Singapore, to W. A. Sawyer, 2 August 1923, RG 5, box 20, folder 122, RAC.

⁶⁶ *Far Eastern Association of Tropical Medicine: Transactions of the Fourth Congress, held at Weltevreden, Batavia, 1921* (Weltevreden: Javasche Boekhandel en Drukkerij, 1922), 2: 356.

⁶⁷ Sawyer, “Advantages,” (n. 36), pp. 183-92. On the IHB’s hookworm campaign, see John Farley, *Bilharzia: A History of Imperial Tropical Medicine* (Cambridge: Cambridge University Press, 1991), ch. 5.

⁶⁸ Gangulee, *Health* (n. 28), p. 136; Carl Ten Broeck, “Report on the 5th Congress of the Far Eastern Association of Tropical Medicine,” 7 February 1924, RG 5.2, series 600, box 54, folder 341, RAC.

⁶⁹ Heiser, “Beriberi” (n. 35), pp. 371-72.

throughout the region and more and more people consumed polished rice: the modernity of rice-mill technology and white-rice consumption was in head-on conflict with modern medical science, and, in this clash of competing modernities, science appeared to be losing out.

Amidst growing controversy, the FEATM congress scheduled for Singapore in September 1923 appeared increasingly crucial. Both the association's secretary, J. W. Scharff (Singapore's health officer) and the governor of the Straits Settlements tried to mobilize support for collective action, asking that delegates be given the authority to decide on international action over beriberi if the congress favored it, but they elicited little positive response. Governments either claimed that beriberi was not a problem in their own country or for political and economic reasons declined to support intervention.⁷⁰ At the congress itself the French delegate from Indo-China helped veto action by observing that "Any international regulation would cause a profound disturbance to agriculture and commerce" throughout the region.⁷¹ Such was the reaction against international action at Singapore that even Stanton (who ten years earlier had joined Fraser in observing that "political and commercial interests have too long been allowed to control the situation"),⁷² now urged caution, arguing that increased taxes would hurt the poor and trigger "widespread discontent." "Education and propaganda methods" would, he hoped, "be sufficient."⁷³

Moreover, the science connecting white rice to beriberi, which to men like Fraser, Heiser and Vedder, seemed conclusive, was almost from the start subjected to skeptical scrutiny: the FEATM served as a platform for both advocates and opponents of the white rice, "avitaminosis" theory. The French, who (like the Japanese) organized a beriberi commission of their own in the wake of the 1910 Manila resolution, asserted that beriberi could not unequivocally be identified with white rice nor with polyneuritis in chickens: the disease could be found among people who did not eat milled rice and might result from an as yet undiscovered toxin absorbed by rice after milling. In the main they adhered to this broadly Pasteurian position throughout the 1920s – perhaps not surprisingly since most of the delegates from French Indo-China came from the Pasteur Institutes there.⁷⁴ Although at Singapore, and at Tokyo two years later, the Americans, Dutch and British appeared generally convinced of what was by now understood as the vitamin-deficiency or "avitaminosis" explanation for beriberi, scientific opinion did not simply divide along national or imperial lines. For instance, J. W. D. Megaw from

⁷⁰ Letter from J. W. Scharff, 30 April 1923, RG 5 1.2, series 600, box 174, folder 2250, RAC; Governor, Strait Settlements, to State Department, Washington, 29 March 1923 and reply 23 June 1923, L/E/7/1153: 829, India Office Records (IOR), British Library, London.

⁷¹ F. H. Guérin, *Report of the Fifth Congress* (n. 51), p. 35

⁷² *Comptes Rendu ...du Troisième Congrès* (n. 13), p. 364.

⁷³ *Report of the Fifth Congress* (n. 51), p. 42.

⁷⁴ (French Beriberi Commission), "Rapport" (n. 43); Noel Bernard, "Recherches sur le Bériberi," *Far Eastern Association of Tropical Medicine: Transactions of the Fifth Biennial Congress held at Singapore, 1923*, ed. A. L. Hoops and J. W. Scharff (London: John Bale, Sons and Danielsson, 1924), pp. 193-204. French participation in the FEATM was more influential than sometimes suggested: cf. Anne Marie Moulin, "The Pasteur Institutes between the Two World Wars: The Transformation of the International Sanitary Order," *International Health Organisations and Movements, 1918-1939*, ed. Paul Weindling (Cambridge: Cambridge University Press, 1995), p. 257.

British India also questioned the white rice explanation, arguing that beriberi only occurred when rice was stale, damp or had been badly stored.⁷⁵ Heiser ridiculed the “toxi-infection” views of Megaw and the French but was forced to recognize the force of their opposition: “To obtain the united action of a group of doctors on anything,” he noted sourly, “is the most difficult of tasks.”⁷⁶

But there were also more substantial scientific objections. In 1924, in response to the FEATM resolutions (and acting on behalf of a government still staunchly attached to laissez-faire in the grain market), McCarrison argued that before any legislation against the over-milling of rice was approved it was necessary to “be sure that its application would be attended with the desired results.” Beriberi, he pointed out, had been present in parts of the Madras Presidency long before mechanized milling began and was still endemic in the same areas. Accordingly “The statement that ‘beri-beri appears when decorticated rice is used for any length of time’ does not always apply in India.”⁷⁷ Similarly taking the view that the beriberi problem was “not yet settled and many different points remain to be investigated,”⁷⁸ the Japanese also returned to their laboratories. Without explicitly challenging the vitamin-deficiency explanation, they mounted a defense of white rice, claiming it was “more digestible and better utilized in the body than unpolished rice.”⁷⁹ A Japanese delegate at the Tokyo congress ended his review of beriberi research in Japan by remarking: “Who can say that the theories of intoxication and infection have entirely failed?”⁸⁰

While such scientific uncertainty remained as to the cause of beriberi, many delegates argued, drastic measures to curb the production, sale and export of milled rice were inappropriate and impractical. But it was the cultural objection to banning or taxing white rice that seemed most conclusive. As Japanese delegates told the Singapore congress, “The taste of the Japanese people for rice has been fostered and refined through [the] ages of its long history... people like polished rather than under-milled rice in our country, because under-milled rice is of unsavoury taste.” Even if the over-milling did remove “essential food factors,” it would “be not so difficult to make up a deficiency by improved methods of cooking of other foods taken with rice.” But under-milled rice could not easily be substituted for white rice. “Such change

⁷⁵ J. W. D. Megaw, “The Beriberi Problem,” *Transactions of the Fifth Biennial Congress* (n. 74), pp. 218-33. Cf. K. Codell Carter, “The Germ Theory, Beriberi, and the Deficiency Theory of Disease,” *Medical History*, 1977, 21: 119-36.

⁷⁶ Victor G. Heiser, “Diaries,” Tokyo, 12, 14, 16 October 1925, RG 12.1, RAC.

⁷⁷ Robert McCarrison and Roland V. Norris, *The Relationship of Rice to Beri-Beri in India* (Calcutta: Thacker, Spink & Co., 1924), pp. 4, 33: summarized in *Far Eastern Association of Tropical Medicine: Transactions of the Sixth Biennial Congress held at Tokyo, 1925* (Tokyo: Kyorinsha Medical Publishing Co., 1925), 1: 169-75.

⁷⁸ Koichi Sugimoto, “Studies on the Digestibility and Utilization of Rice of Different Grades of Polishing,” in *Progress of the Science of Nutrition in Japan*, ed. Tadasu Saiki (Geneva: League of Nations, 1926), p. 87.

⁷⁹ Taro Higuchi et al., “The Relationship between the Chemical Composition of Rice and its Different Grades of Polishing,” in *Progress* (n. 78), p. 295.

⁸⁰ Akira Fujinami, “Historical Review of Research on Kakke in Japan,” *Transactions of the Sixth Biennial Congress* (n. 77), 1: 17.

of taste of a nation is indeed of a serious nature.”⁸¹ The Thai delegation similarly referred to “an increasing aversion from coloured rice, due in part to the prejudice of colour, and a real and growing demand for white rice which is more palatable and more easily prepared.” He, too, opposed interference in the rice trade “unless it is an inevitable necessity to do so.”⁸² Apart from Heiser (who did not abandon the idea until 1930),⁸³ only the Filipino delegation continued to call for international action.

In the end the FEATM at Singapore took the view that for the present an international convention to control beriberi was an unattainable goal. Instead it urged governments to pursue their own research in the hope that a consensus would eventually emerge.⁸⁴ C. D. de Langen of the Dutch East Indies summed up the prevailing mood when he observed two years later at Tokyo that there were “great difficulties” in trying to impose a policy. “Very little can be done internationally – perhaps nothing at all; local conditions and possibilities are the factors which in this case weigh heaviest in the balance.”⁸⁵ By the time the congress met at Calcutta in December 1927 it was generally accepted that “interest in this problem is slacking.”⁸⁶

DID THE FAR EASTERN ASSOCIATION FAIL?

This inability to translate science into social action was seen by some observers as sounding the death-knell of a once promising international organization. After 1923 the FEATM drops out of most published accounts of beriberi, remembered only for its earlier heroic intervention.⁸⁷ Coverage of the congresses in British and American medical journals virtually ceased at this point. In a kind of farewell, one of the American delegates to the Singapore congress deplored its failure to achieve a coordinated policy over beriberi and criticized its descent into “relatively aimless discussions.” Moreover, he complained, many of the papers presented by Asian delegates were poorly delivered, their English wasn’t good and they were hard to understand.⁸⁸ In short: why bother?

It would, though, be a mistake to see 1923 as the end of the FEATM or of its effective engagement with beriberi. Although the association was increasingly vexed by internal squabbles (for instance, as to whether the 1930 congress should be held in China) and troubled by financial and logistical difficulties (which led it to shift from biennial to triennial meetings after 1927), the association met another five times after the Singapore congress and

⁸¹ *Report of the Fifth Congress* (n. 51), p. 36.

⁸² *Report of the Fifth Congress* (n. 51), p. 40.

⁸³ Heiser, “Diaries,” Bangkok, 13 December 1930 (n. 76).

⁸⁴ *Report of the Fifth Congress* (n. 51), p. 43.

⁸⁵ C. D. de Langen, “The International Control of Beri-Beri,” *Transactions of the Sixth Biennial Congress* (n. 77), 1: 85.

⁸⁶ O. Deggeller, FEATM general-secretary, 18 November 1927, L/E/7/1504, IOR. Deggeller raised another possibility – that beriberi had “ceased to be a problem because of the better nutrition of the Eastern countries, like in the D[utch] E[ast] Indies, where this illness is noted less and less frequently.”

⁸⁷ Carpenter’s discussion of the FEATM, for example, ceases with the 1912 congress: Carpenter, *Beriberi* (n. 23), pp. 95-96.

⁸⁸ Frank G. Haughwout and H. H. Wade, “The Fifth Congress of the Far Eastern Association of Tropical Medicine,” *American Journal of Tropical Medicine*, 1924, 4: 234-37.

continued to attract large numbers of delegates and extensive local press coverage. The 1925 Tokyo congress, the first outside a colonial capital, marked a partial move away from earlier Euro-American predominance. Although suspicious of Japanese ambitions in hosting the congress, Lien-Teh Wu, leader of the Chinese delegation, thought it important for nationalist reasons for his countrymen to attend the congress in strength (of the 80 or so outsiders at Tokyo, about 25 came from China).⁸⁹ When Wu stood up at the Calcutta congress two years later to give a vote of thanks and saw arrayed before him the British medical officers in all the pomp and grandeur of their knighthoods and dress uniforms he thought it important to praise Indians' contributions to modern science and literature.⁹⁰ While it was demonstrable untrue for the director-general of the IMS to claim in his presidential address that "Race, religion, colour and sect form no barriers where scientific medicine is concerned,"⁹¹ it was nonetheless rare for an international organization in the 1920s and 1930s to be so open to Asian participation.

Although the appetite for interventionism had waned by the mid-1920s, beriberi did not cease to be a significant item on the FEATM agenda. Research on the subject continued to be reported and discussed at congresses, as did accounts of educational measures to improve public awareness of nutrition, including the dietetic dangers of white rice.⁹² As war loomed closer in the East, beriberi assumed a new significance. Among several papers on beriberi presented to the last congress at Hanoi in November 1938 were two by a researcher from Singapore on the incidence and treatment of the disease among the Chinese refugees in Shanghai following the Japanese assault on the city in August 1937.⁹³

Had the FEATM failed? Certainly it had been unable to enforce – or even unanimously endorse – the kind of top-down, international interventionist policy that Heiser had advocated, but that failure was less the association's fault than a consequence of the extreme reluctance of regional governments to support legislation and taxation. On the other hand, in passing its widely publicized 1910 resolution explicitly linking beriberi with white rice, the association did a great deal to draw public and government attention to the nature and urgency of the issue. Indeed, the very failure to establish and enforce an international policy on milled rice and beriberi highlighted the need for a very different, far less provocative, approach and reflected a growing shift in tropical governance away from drastic state interventionism of the kind that had characterized campaigns across the tropical world against plague, cholera,

⁸⁹ Lien-Teh Wu, *Plague-Fighter: The Autobiography of a Modern Chinese Physician* (Cambridge: W. Heffer and Sons, 1959), p. 531.

⁹⁰ *Ibid.*, p. 534.

⁹¹ T. H. Symons, *Report of the Seventh Congress of the Far Eastern Association of Tropical Medicine, December 5th-10th-24th 1927* (Calcutta: Government of India Press, 1929), p. 41.

⁹² John Lewis Rosedale, "The Education of School Teachers in Nutrition," *Far Eastern Association of Tropical Medicine: Transactions of the Ninth Congress held in Nanking, China, October 2-8, 1934* (Nanking: National Health Administration, 1935), 1: 799-805; Yong Huar Chutima, "Siam: Human Physical Data and Nutrition," *Comptes-Rendus du Dixième Congrès, Hanoi, 26 Novembre-2 Décembre 1938* (Hanoi: Imprimerie d'Extreme-Orient, 1938), 1: 409-49.

⁹³ H. C. Hou, "Beriberi and its Treatment with Vitamin B," *Comptes-Rendus du Dixième Congrès* (n. 92), 1: 529-42; *idem.*, "Chinese Dietary Standards and Some Dietary Problems among War Refugees," 1: 553-68.

sleeping sickness and malaria during the 1890s and 1900s.⁹⁴ Faced with widespread opposition and failure, governments turned their attention instead to policies that relied on local action to educate the public in modern hygiene and to appeal to their self-interested desire for better health and improved living conditions. The government of Ceylon identified this change when it observed in 1937 that: “Public health has passed from the period when police methods were used to one when persuasion and cooperation are the watchwords of successful achievement.” It dated its own transition from policing to persuasion to 1926, when health education and propaganda units were formed to work in rural Ceylon.⁹⁵

The government of the Dutch East Indies took a similar line. In part this arose from its “ethical policy” of attending to the social and welfare needs of the indigenous population, but it was also in keeping with a new belief in the value of rural hygiene and village reconstruction in the 1930s.⁹⁶ In its memorandum to the League of Nations Health Organization in 1937 it stressed the importance of working “through the medium of persons of their own race” to educate the people and conduct health and nutrition propaganda in schools.⁹⁷ Charts were prepared in the vernacular showing the nutritional value of different foods: children were required to study these, read the accompanying guide and grow vegetables in their school gardens.

The people must be instructed in the enormous importance of a well-planted compound and the need for introducing sufficient variety into the daily diet. They should know which of the products of their own fields are good foodstuffs, as well as knowing which are ... deficient in proteins and fats. Furthermore, the closest attention must be given to well-spread information concerning the preparation of various dishes...⁹⁸

There was a further reason why radical action against milled rice appeared unnecessary. As soon as it was realized, around 1910-12, that rice polishings could provide protection against beriberi, preparations made from rice bran, known as *tiki-tiki* in the Philippines, began to be manufactured and distributed. In the Philippines the Bureau of Science pioneered an extract in syrup form in 1913: this was distributed free and, even with 10,000 bottles a year produced, demand outstripped supply.⁹⁹ In the Dutch East Indies, government laboratories at

⁹⁴ David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley: University of California Press, 1993), ch. 5; Maryinez Lyons, “Sleeping Sickness Epidemics and Public Health in the Belgian Congo,” in *Imperial Medicine and Indigenous Societies*, ed. David Arnold (Manchester: Manchester University Press, 1988), pp. 105-24; Reynaldo C. Ileto, “Cholera and the Origins of the American Sanitary Order in the Philippines,” in *ibid.*, pp. 125-48.

⁹⁵ League of Nations Health Organization, *Report on Health Organization in Ceylon* (Geneva: League of Nations, 1937), p. 33.

⁹⁶ A. P. den Hartog, “Towards Improving Public Nutrition: Nutritional Policy in Indonesia Before Independence,” *Dutch Medicine in the Malay Archipelago, 1816-1942*, ed. G. M. van Heteren, A. de Knecht-van Eekelen and M. J. D. Poulissen (Amsterdam: Rodopi, 1989), pp. 106-07; J. L. Hydrick, *Intensive Rural Hygiene Work and Public Health Education of the Public Health Service of Netherlands India* (Batavia: Batavia-Centrum, 1937).

⁹⁷ League of Nations Health Organization, *Report of the Netherlands Indies* (Geneva: League of Nations, 1937), p. 139.

⁹⁸ League, *Report of the Netherlands Indies* (n. 97), p. 139

⁹⁹ S. V. del Rosario and L. Lopez Rizal, “The Prophylaxis and Cure of Infantile Beriberi by Administration of Tiki-tiki Extract,” *Transactions of the Fourth Biennial Congress* (n. 66), 1: 211-23.

Weltevreden in Java began manufacturing vitamin B tablets – by 1928 more than 1.5 million were produced annually.¹⁰⁰ In Malaya, Stanton was impressed by the radical transformation the introduction of bran extract made to the prevention and treatment of beriberi. “The remedy,” he reported in 1923, “has obtained a considerable reputation among certain classes of Chinese labour and this has been of assistance in spreading knowledge of the disease among those classes.” It was now rare to see the “disastrous after-effects of beriberi in the form of paralysis and debility, which were formerly so conspicuous in our hospitals.” It was partly for this reason that he now believed a policy of taxing white rice was “open to weighty objections.”¹⁰¹ Coupled with reductions in the intake of white rice in prisons and other state institutions and among plantation and mine-workers, governments throughout the region were beginning to feel even by the mid-1920s that the beriberi problem was being effectively overcome. Such at times complacent views need to be treated with caution for the incidence of beriberi remained high in many places – from rural Burma to industrial China¹⁰² – but the growing sense that beriberi was no longer as great a threat as it had earlier appeared reduced the pressure on FEATM delegates to support an unpopular interventionist policy. Exactly how beriberi was caused (the question of “theory” that had divided delegates in the 1920s) no longer appeared to be the operative issue: pragmatically by the 1930s governments across the region, including the French in Indo-China, recognized that much could now be done by dietary change and food supplements.¹⁰³

There is one final significant factor in the association’s changing relationship with the beriberi problem. The FEATM had been in the forefront of regarding beriberi as a tropical disease, one that reflected the “racial” characteristics of Asian populations. But by the 1930s the race/place idioms of imperial tropical medicine were being challenged by growing emphasis upon the universal nature of nutrition deficiency diseases caused by poverty and ignorance. Although papers presented at FEATM congresses in the mid-1930s showed some recognition of this new public health perspective, the association as a whole seemed slow to embrace it. Other organizations more readily embraced the new universalism, especially the League of Nations Health Organization.

In the years immediately following its founding in 1923, the Health Organization had shown scant interest in health issues affecting Asia and the Pacific. The absence of the United States from its membership further curtailed its activities outside Europe while, conversely, one of the FEATM’s strengths was that it remained open to American participation and, following its exit from the League in 1933, Japan’s. But the Health Organization’s interest in quarantine issues, in malaria and nutrition, led it inexorably from Europe into Asia.¹⁰⁴ In 1923 there had been talk of making the FEATM the League’s eastern agent with a permanent base at Singapore,¹⁰⁵ but as the association faltered the League stole its mantle.¹⁰⁶ In 1937 the Health

¹⁰⁰ Heiser, “Diaries,” Weltevreden, 18 February 1928 (n. 76).

¹⁰¹ A. T. Stanton, “The Control of Beriberi in the Far East,” *Transactions of the Fifth Biennial Congress* (n. 74), p. 180.

¹⁰² Judith L. Richell, *Disease and Demography in Colonial Burma* (Singapore: NUS Press, 2006), ch. 6; Hardy, “Beriberi” (n. 47), p. 68.

¹⁰³ League of Nations Health Organization, *Report of French Indo-China* (Geneva: League of Nations, 1937), p. 93.

¹⁰⁴ Martin David Dubin, “The League of Nations Health Organisation,” in *International Health Organisations* (n. 74), ch. 4.

¹⁰⁵ F. Norman White, *The Prevalence of Epidemic Disease and Port Health Organization and Procedure in the Far East* (Geneva: League of Nations, 1923), pp. 41-44.

Organization convened an intergovernmental conference on rural hygiene in Far Eastern countries at Bandung in Java.¹⁰⁷

Able to command the respect and participation of regional governments in ways the FEATM no longer could, the Health Organization called on countries from India to Japan to prepare surveys of their current health conditions with particular reference to nutrition. Their reports give some indication of the extent to which beriberi was still prevalent in several countries (notably the Philippines),¹⁰⁸ but also how governments were seeking to educate their subjects on balanced diets. In its resolutions the conference paid tribute to the earlier role of the FEATM and went some way towards acknowledging that the issues surrounding beriberi were cultural as well as economic. Like the FEATM before it, the Bandung conference condemned the spread of rice-mills and growing use of heavily milled rice. However, guided by its nutrition experts (who included W. R. Aykroyd, McCarrison's successor at India's Nutrition Research Laboratories), the conference also drew attention to the global problem of poverty and under-nutrition. Rather than attempt to resurrect an internationalist policy, it urged regional governments to make a "thorough investigation of the nutritional, commercial, economic and psychological aspects of the problem," and set up their own nutrition committees to monitor the situation.¹⁰⁹

CONCLUSION

The thirty-year career of the FEATM is of interest for two main reasons. First, the longevity of its involvement with "the beriberi problem" demonstrates the importance that for several decades attached to this disease among the imperial powers and regional states of "tropical Asia." It further shows the failure of the scientific evidence adduced in support of the white rice, vitamin-deficiency explanation, to command universal support among medical experts in the region or to impel governments to adopt a coordinated interventionist policy against milled rice as the putative cause of the disease. Instead, several less confrontational local strategies were employed. Second, the FEATM shows the extent to which, despite national and imperial rivalries, and particularly in the wake of the American occupation of the Philippines, there existed a shared sense of the need for consultation and the exchange of public health expertise in central issues concerning tropical governance. If in some respects by the 1930s the FEATM appeared increasingly antiquated and rooted in an era of imperial tropical medicine, in others it seemed a significant harbinger of regional cooperation and of Asian participation in the international health programs of the post-war years.

¹⁰⁶ This was not unopposed. Heiser in particular believed that the Health Organization was unpopular in Asia and its grasp of regional health issues superficial: Heiser, "Diaries," Calcutta, 4 December 1927, Bangkok, 11 December 1930 (n. 76).

¹⁰⁷ League of Nations Health Organization, *Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene: Report by the Preparatory Committee* (Geneva: League of Nations, 1937): one of the members of the preparatory committee was de Langen, previously a leading figure in the FEATM.

¹⁰⁸ League, *Report of the Philippines* (n. 34), pp. 20-24.

¹⁰⁹ League of Nations Health Organization, *Report of the Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene Held at Bandoeng (Java), 1937* (Geneva: League of Nations, 1937), pp. 67-68. On the conference's significance, see Amrith, *Decolonizing International Health* (n. 4), pp. 36-42.