

Yaws and Syphilis: Forgotten Diseases of Asia-Pacific

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On October 14, 1935, Dr. Thomas Bourne Turner wrote to Dr. Wilbur Sawyer within the International Health Division (IHD) of the Rockefeller Foundation:

Yaws and syphilis are the two principal representatives of the group of diseases caused by spirochetal organisms. The great prevalence of yaws in the tropics and of syphilis throughout the world make the two diseases together one of the major afflictions of mankind, but more than that they are diseases the responsibility for the control of which falls almost wholly upon persons engaged in the field of public health. In a broad sense, therefore, contributions to the problem of their control by the International Health Division would seem to be peculiarly appropriate.”¹

A year later, yaws research within the IHD ceased, but Turner headed IHD-funded research concerning immunity to syphilis in his laboratory at Johns Hopkins School of Hygiene.² By the mid-twentieth century, both these diseases, would seem to be under control, and no longer of pressing significance on global research agendas. By the end of the century, yaws and syphilis were neglected and forgotten diseases.³ My research at the Rockefeller Archive Center (RAC)⁴ investigated the pivotal period from the 1920s to the 1940s when health practitioners and scientists in the Rockefeller Foundation were confident that they could alleviate, and probably eradicate, serious but little understood diseases such as yaws. During these decades, the IHD, and its predecessor before 1927, the International Health Bureau (IHB), embarked upon transferring the Foundation’s early successes in public health from the southern United States, notably with hookworm and sanitation campaigns, to overseas.⁵ In 1916, the IHB had succeeded the International Health Commission (IHC), founded in 1913. The original mission of the IHC drove the IHB/IHD: the “promotion of public sanitation and the spread of knowledge of scientific medicine”.⁶ Yaws became an add-on to that mission, although syphilis and its links to yaws in tropical countries never quite assumed the attention Turner demanded. But the

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diseases are entwined, often confused, and worthy of in-depth investigation. My research at RAC formed part of my wider project on the history of yaws and syphilis, but unlike Turner and Sawyer's principal focus on the Caribbean, I sought to concentrate on the vast Asia-Pacific region. My aim is to tackle this history longitudinally and across cultures to look at changing discourse, theories and practices regarding treatments for these diseases and socio-cultural perceptions, especially in relation to causation, symptoms and consequences. These significant diseases have had a huge global impact but have not been investigated together by historians. The Asia-Pacific region is rarely mentioned in publications on syphilis or yaws.⁷

This report summarises my research at RAC — research that is still a work in progress. RAC is a key archive in the history of yaws and syphilis, perfect for understanding the global expansion of public health measures taken to combat these diseases. The archive provides only part of the bigger picture through the IHB and IHD's holdings during the 1920s-1930s; the country files, field officers' reports and diaries, and correspondence that were of great value to my project. My findings from RAC need to be contextualized against my future research at other sites, in order to widen the timeframe of the study. Nevertheless because of the volume of relevant material at RAC, I concentrated mainly on yaws, and on the Pacific Islands, rather than following the original intention of investigating both yaws and syphilis in Asia-Pacific. I did however, consult connected and comparable records on the International Health Board (IHB) and International Health Division's (IHD) work on treponemal diseases and tropical medicine outside the Pacific, especially in the Caribbean.

A Western Solution to an Ancient Disease

Yaws is an ancient disease that has profoundly affected populations in tropical regions.⁸ The disease did not reach outside these zones.⁹ Syphilis is also a centuries-old disease but in contrast to yaws, has global reach. Yaws was endemic to much of the Pacific Islands before European contact, but syphilis was introduced by early Europeans and other migrants.¹⁰ While both yaws and syphilis were visible diseases,

it was syphilis which evoked local and global fear, shame and moral condemnation. Yaws never had the same extent of public scrutiny.

Despite extensive yaws control and eradication campaigns, in which the IHD played a crucial role before World War II, yaws still affects people in some isolated parts of Asia-Pacific.¹¹ Syphilis, like yaws is now effectively treated with antibiotics, but has not been eradicated and the disease appears to be having a resurgence in parts of Asia-Pacific.¹² Both diseases have long caused immense suffering and mortality throughout the world, and although clearly significant in the Pacific, yaws and syphilis remain forgotten diseases.

The suffering, and the similarity between yaws and syphilis, grabbed the attention of Victor Heiser, IHB's Director for the East, in the early twentieth century. Heiser toured New Zealand and Fiji during 1915-16. He was struck by how the secondary and tertiary manifestations of yaws on indigenous Fijians were very similar to syphilis:

The havoc created among adults is almost incredible. Deformities due to extensive ulceration of the legs, arms, hands and feet are responsible for many cripples. Diseases of the bones, internal organs and some forms of insanity are attributed to yaws.¹³

In the tertiary stage yaws could cause extreme facial disfiguration, that was known as *gangosa*.¹⁴ The Rockefeller archive contains several other accounts of the severe physical impact of yaws in other parts of the Pacific, including the Ellice Islands (Tuvalu),¹⁵ where Dr. Duncan Macpherson described a disease that was “so debilitating, so unsightly, and frequently so productive of deformity,” that some patients could be hospitalized for periods of two to four years.

During the following two decades after Heiser's trip, the IHB, and later, the IHD were at the forefront of an expansive yaws control and eradication campaign in the Pacific with programs at various times in Fiji, Western Samoa (Samoa), Tonga, Cook Islands, the British Protectorate of the Solomon Islands (Solomon Islands), New Hebrides (Vanuatu), Gilbert Islands (Kiribati) and the Ellice Islands (Tuvalu).

As Heiser remarked, one of the striking features of yaws was the similarity with syphilis. Both diseases are treponemal and caused by spiral-shaped bacteria or spirochaetes; yaws by *Treponema pallidum pertenue*, a subspecies of *Treponema pallidum pallidum*, which causes syphilis. Treponemal diseases were confused by early observers and explorers in the Pacific, and later by scientists and doctors. The similarities between yaws and syphilis went much deeper and were more extensive than just symptoms and visible deformities. Both diseases caused immense suffering and morbidity, but the impact of yaws could be staggering because it was far more common than syphilis in the colonial Pacific. Dr. Sylvester Maxwell Lambert argued that yaws was responsible for miscarriage, lowered birth rates and infant mortality among the “Pacific Races”.¹⁶ Like syphilis, yaws inflicted serious disabilities and rendered populations unhealthy and susceptible to mortality.

The economic impact of yaws probably offered the most convincing rationale for colonial governments and employers to support yaws work in Pacific territories. Dr. Hetherington and Dr. Steenson presented this argument in 1928 for choosing Malaita Province as an “exclusive field of operations” within the British Solomon Islands Protectorate.¹⁷ They argued that “the Malaita man is of first importance to the protectorate”, as Malaitans, who were considered ‘good workers’, provided almost all of the plantation labor. Lambert reported in 1925, that yaws was the most prevalent disease in the New Hebrides after malaria and hookworm disease, and,

the greatest apparent cause of economic loss... A big percentage of the labor forces hobble out to the fields, crippled by yaws of the feet and yaws’ ulcer of the legs, or are so bad that they must be kept near the quarters, cutting copra, so that they do not have to walk.¹⁸

Lambert was the Rockefeller Foundation’s Director for the South Pacific, where he was proactive in public health work from 1918 to 1939.¹⁹ As his autobiography, *A Yankee Doctor in Paradise* depicts, he was a larger than life character.²⁰ Much of the substance of this book can be traced in RAC (and in Lambert’s records in the Special Collections Archives of the University of California at San Diego). Like many field officers, Lambert wrote copious reports and took many photographs. His extensive correspondence with IHB/IHD’s Directors (Wickliffe Rose, Heiser, Frederick Russell and Sawyer) reveals his prickly nature and why he was considered somewhat

of a ‘wild card’. He compiled several reports, many that were reworked for government publications and for journals. But his original reports and correspondence reveal more clearly how Lambert was a white man of his era, reflected in discourse that refers to primitive people or natives, that readers of later generations might regard as racist, and paternalistic. For example, within Lambert’s photographs, sits the colonial doctor during the 1925 Solomon Islands’ expedition, with his caption: “After long days work, harassed constantly by natives surrounding light flies, I pull my chair to edge of ravine where no crowd intercepts breeze and there’s no body smell.”²¹ His lengthy quasi-anthropological report — “Back to the Beginning” — of his voyage in 1930 to the Polynesian outliers of Rennell and Bellona in Solomon Islands, looked back to an imagined dawn of civilization.²² The preface introduces the “inhabitants of these comparatively unknown islands of Rennell and Bellona...the finest physical specimens of the pure Polynesian race now living, and without doubt the most primitive.” The welcoming people of Rennell were the “handsomest”, in contrast to the “belligerent appearance of the men” on Bellona. Lambert was enchanted on Rennell by the “daughters of Eve, although wholly unschooled in civilizations artful ways, knew how to use them,” especially an almost naked and exceedingly pretty girl with “plump breasts”, a “striking picture of aboriginal pulchritude.”²³ Yet within this racy account, as in many reports submitted to the IHB/IHD, lies valuable data on the health of Pacific peoples. Lambert did construct an essentialised Pacific but he also brought the health concerns of unknown people to the Rockefeller Foundation’s headquarters at a time when the Pacific was envisioned by Europeans as tiny islands in a faraway sea.²⁴ Lambert offered a new European gaze into life, health and disease on small islands, too often subsumed within the bigger picture that preoccupied the Rockefeller Foundation. There is no doubt, that these ‘intrepid’ voyages and journeys by Lambert and other field officers, and moreover the health programmes carried out in what Europeans considered highly trying environments, extended the IHD’s public health mission and the development of tropical medicine throughout the Pacific Islands.

Hookworm, and not yaws, was the primary gateway through which the Rockefeller Foundation entered the Pacific. This direction followed on the successful model of the Rockefeller Sanitary Commission in the southern United States, whereby treatment programs opened the way for greater inculcation and acceptance of public

health measures. Rose, IHB's Director from 1913 to 1922, sought to apply this example globally. The British colonies in the West Indies and the Pacific Islands were identified as ideal sites where the philanthropic and bold public health programmes envisioned by Rose could take root. Thus Heiser embarked upon an exploratory tour of the South Pacific during 1915-16. In 1917, under the auspices of Rockefeller's Commission for the Orient, Dr G.P. Paul began a hookworm treatment program in Fiji, in collaboration with the colonial government.

After Lambert's demonstrated success organising the hookworm campaign in Papua in 1920, he was given responsibility to head the hookworm program in Fiji and to develop similar campaigns in other Pacific territories. His brief eventually widened to include yaws, sanitation and soil control, and embraced several other territories in the South Pacific, through building upon the structure of the Western Pacific High Commission (Tonga, Gilbert and Ellice Islands, Solomon Islands, New Hebrides)²⁵ and other colonial links, particularly with New Zealand's territories in Cook Islands, Samoa and Niue. Yaws work was a new direction for the Rockefeller Foundation's health program, in contrast to other tropical locations where hookworm was the main focus. This proved to be a significant inroad for the expansion of colonial public health in the Pacific. As historian Annie Stuart emphasised, yaws treatments with arsenical drugs were curative only, and could not offer the bigger and longer-term impact of developing sanitation that hookworm control promised. But Pacific peoples visibly suffered from yaws, whereas hookworm was a far more hidden disease, of which there was limited knowledge within Pacific health systems. Moreover, yaws drugs had quick and evident results:

This apparently miraculous cure proved a huge propaganda boost for western medicine... Yaws treatment had the potential to overturn indigenous understandings of ill health and disease in a way that hookworm treatment could not. Often western medicine was accepted as suitable only for "European diseases", but the magic efficacy of the "needle" in a condition defined as "indigenous" blurred this categorisation, opening possibilities for greater acceptance of European treatment."²⁶

As Dr. Macpherson reported, "the natives in the Ellice have no fear of the 'needle' and great faith in its efficacy."²⁷

Beyond Numbers

Lambert's quarterly and annual reports to the IHD provided quantitative detail into the numbers and demographics of people infected with yaws, the number of injections, success rates, costs, and number of personnel in the yaws campaigns within several Pacific countries. I have yet to collate and analyse these figures. It will be more beneficial to set the RAC data within the longer framework of yaws campaigns because these did not end with the IHD's programs in the Pacific, and my project covers the longer development of mass treatment and eradication campaigns of treponemal diseases. RAC's archives document the early programs, especially on small islands and in diverse sites. Field officers were required to gather not only statistical data, but also to write a diary. These accounts provide a rich source of descriptive and often personal detail. Dr. K. R. Steenson wrote particularly insightful and descriptive entries of his posting to Solomon Islands during 1928-9. He carried out medical inspections and gave thousands of neosalvarsan injections, as well as health lectures. The conditions were often arduous, with relentless rain and no suitable shelter, and with medical supplies failing to arrive by boat. Steenson carried out systematic yaws surveys, but also located sufferers on his exploratory treks. And people came to him, as news of his 'cure' spread:

I had no sooner started to examine then I seemed to see thousands of people arriving from all directions. I undoubtedly did the biggest, best and most enjoyable day's work that I have done since I arrived in South Pacific.²⁸

The primary data also reveals how quantitative data does not always present a precise record, especially within mobile communities. For example, *malaga* ('movement' by groups of people for special events) in Western Samoa made it difficult for outsiders to locate subjects and record an accurate yaws census.²⁹ While field officers and doctors astutely and proudly clocked up the tallies of injections given, they were cognisant of and usually somewhat empathetic to local cultures and political sensitivities, both in the field, and for Lambert, at the state and regional levels. The IHD tackled public health issues on a global level through collaboration with local governments. Public health was inherently political and the IHD became

embroiled within colonial agendas during an era when the Pacific was dominated by colonial powers. These were also decades when discontent, indigenous agency and resistance was asserted to varying degrees within Pacific colonies. At the same time as the British and New Zealand colonial governments in the Pacific were entering into partnerships with the Rockefeller Foundation to extend health regulation and provision, there were instances of opposition to health measures that were identified with unpopular regimes. Such discontent was particularly evident in Western Samoa where the New Zealand administration had little support in the aftermath of the devastating 1918 influenza pandemic.³⁰ A successful yaws treatment program was considered one means to restore some confidence in Western public health. However, public health suffered serious setbacks during the late 1920s when many Samoans boycotted the government and tax payments, while the administration withdrew ‘free’ health care as punishment.³¹ The state violently confronted Samoan nationalists, who were known as the Mau.³² This political context sheds light on why the New Zealand government agreed in 1931 to Lambert’s proposals for another yaws campaign and to cooperate with the South Pacific Health Service. While the public rationale for this project was the recrudescence of hookworm and yaws in Western Samoa, and Lambert’s assurance that a new public health program would produce permanent results, he also alluded within correspondence that the Rockefeller Foundation could be a “mediative agency” to bring government and the Mau into “working harmony again”. This political goal of the yaws and hookworm campaigns was endorsed by Samoa’s Chief Medical Officer, Dr. Ernest Hunt.³³

Impact

Regardless of the cultural and political complexities, as documented within Lambert’s quarterly and annual reports, correspondence, and government and scientific publications, the Rockefeller Foundation’s yaws work via the Western Pacific Health Service and the South Pacific Health Service had a significant impact on Pacific populations. This was despite the majority of IHD’s budget for disease control and eradication and research being allocated to hookworm, yellow fever and malaria. With the remaining funds, yaws was only one disease among many others. Yaws however was a prominent focus of the Rockefeller Foundation’s work in the

South Pacific. The sheer number of people impacted by this work was quite remarkable, given the low budget, limited personnel and haphazard medical supplies available. Work was frequently in challenging environments and hard-to-reach and scattered sites. Population numbers in the Pacific Islands were much smaller than the Rockefeller Foundation encountered in other locations, such as in Asia. Many Pacific peoples had very limited contact with white people, and even less experience with their medicine. Local political issues also had to be negotiated, such as in Western Samoa, but when the mobile yaws units were in full swing, the reach was impressive; for example, between 1923- 1926, 75,000 yaws injections were administered within Western Samoa's population of around 38,003 (in 1926).³⁴ The credit for these tallies did not just lie with the Rockefeller Foundation, but with New Zealand's Department of Health and the cooperation of Samoan people.

Lambert astutely made sure that the IHD knew of the achievements within the field and how this promoted the Rockefeller Foundation's mission. He reminded Heiser in 1931 that the investment of relatively small funds from the Foundation in the Pacific has returned the biggest kind of dividends when measured by the standard of its motto "to promote the well being of mankind throughout the world."³⁵ He placed this global mission in the Pacific context, by arguing that public health campaigns, administered through benevolent colonial regimes, could save doomed races:

But the value of health work in the South Pacific should not be measured by the number of the latrines or the number of yaws or hookworm treatments, or their cost. Rather, the problem is one of helping the Polynesian and Melanesian races which had been believed to be doomed to extinction until within the last thirty years when more humanitarian principles of government of native races came into practice, to adjust their culture to modern civilization.³⁶

Lambert equally stressed to Heiser that when public health campaigns demonstrated impact through decreased morbidity and healthier bodies among colonized populations, the appeal was not only to government but also to commerce and Christian missions. Major-General Sir George Richardson, the New Zealand Administrator for Western Samoa, hoped that hookworm and yaws campaigns, and public health education would increase numbers of the "Samoan race", because the labor shortage (and restrictions and opposition to the continued importation of

indentured labor) impeded the territory's economic development.³⁷ In Solomon Islands, Gordon White's medical work was cited by Senior District Commissioner, J. C. Barley as evidence of how the yaws and hookworm campaign had decreased illness and increased productivity, which was of great benefit to Levers' plantations. Barley also reiterated how the extension of public health, specifically yaws and hookworm campaigns, could be a 'handmaiden of empire',

it is beyond dispute that the work which it has accomplished amongst the suffering natives of the British Solomon Islands represents one of the greatest returns which the British administration has found itself able to go to the native people of the Protectorate in justification of it is having assumed control of their destiny and welfare.³⁸

Barley's sentiments followed in the aftermath of a bloody confrontation in late 1927 between colonial forces and Kwaio people on the island of Malaita.³⁹ This was also a pivotal area for yaws control in Solomon Islands because it was a source of labor supply, and also where a very high percentage of the population was infected with yaws. Dr. Hetherington and Dr. Steenson considered that the yaws and hookworm campaign had a beneficial effect and civilizing influence on the "Malaitaman's mental attitude" towards government.⁴⁰

Yaws campaigns were also complicated within the condominium of the New Hebrides, where there were British, French and joint administrations. Lambert reported that "through the inertia of British and French officialdom the interests of the Native are being sacrificed."⁴¹ The political and cultural dynamics between Pacific communities and the Rockefeller Foundation's yaws and health programs will be further interrogated in my future research.

Political and social issues are crucial to understanding why yaws had a resurgence within those countries where there had been impressive yaws control and indications that the disease was being eliminated. By the early 1930s epidemiological surveys and Kahn testing in Western Samoa confirmed worldwide medical studies that mass treatment alone did not eradicate yaws. Multiple and follow-up doses of arsenicals were required — a task that was problematic within scattered, mobile, and sometimes uncooperative populations in the Pacific. Research in Samoa with Kahn

tests that screened for yaws, “destroy the fond illusion that yaws is a mild disease which a few injections cure.”⁴²

Turner’s interest in the yaws campaign in Samoa, indicated how the links with the IHD’s research programs were a lesser known, but important, impact of the yaws work in the Pacific. Much of this effort was experimental or ad hoc, when field officers responded to immediate and local contingencies. The question of whether or not yaws conferred immunity to syphilis had long plagued venereologists and other scientists. In 1917 Samuel Darling of the IHB urged Heiser to ask Dr. Lynch, Fiji’s Chief Medical Officer, if Fijian soldiers who had been exposed to syphilis while serving in Europe during World War I had contracted the disease. Some who were sexually active became infected with gonorrhea, but not syphilis.⁴³ Turner’s memorandum to Sawyer, quoted at the beginning of my research report, shows that by the 1930s immunity to syphilis was again an important issue within the IHD’s and Turner’s research.

When the IHD’s scientific directors approved funding in 1932 for yaws and hookworm control in Western Samoa, they made it clear that a research component was also expected.⁴⁴ Suggestions included research into the results of previous yaws treatments, how any knowledge revealed from this was applied, tests relating to drug choices, ways that drugs were administered to recipients, and research into better methods of treatment. IHD hoped that its contribution to the Pacific might result in new knowledge that could be applied elsewhere to deal more effectively with the yaws problem.⁴⁵ Heiser pointed out to Lambert that there had been no thorough test to ascertain whether treatment for yaws actually cured the disease as indicated by negative reactions with Kahn or Wasserman tests: “You have a big opportunity to try this out and your work in Samoa and perhaps even in other islands. Hope you will assemble data on sufficiently large scale.”⁴⁶ Lambert could soon enthusiastically report on the assiduous research undertaken by Hunt, the local director of the yaws campaign and the bacteriologist, Partridge. Both men were,

doing it out of pure desire to obtain practical knowledge of end results for arsenical treatment of yaws, of which the world stock or knowledge is very meagre. In hot Samoa, with their scanty equipment, dealing with simple natives who have no inducement to submit to repeated extractions

of blood for Kahns, it represents a colossal undertaking. This department is deeply grateful to these two men that the suggestion that a few Kahns would be valuable has developed into such an undertaking which may bring out information for all the yaws world.⁴⁷

Turner, who headed the Yaws Commission in Jamaica,⁴⁸ wanted to develop comparative studies on yaws in the Caribbean and the Pacific. This aligned with Lambert's interests. He suggested to Heiser that the correlation between the environment and yaws in the Pacific warranted investigation.⁴⁹ Heiser also consulted with Turner who suggested that Lambert reported on the incidence of yaws in relation to rainfall and altitude.⁵⁰ Little is known about scientific collaboration (including sending samples of flies from the Pacific to Turner's laboratory) between the South Pacific and IHD headquarters, and the comparative interest in the Caribbean and the Pacific. It fitted in with Russell's vision that the IHD should research the best treatment methods, and that these should link with IHD research elsewhere.⁵¹

Aftermath

Turner's quotation at the beginning of my research report was timely, because within a decade the wonder drug of penicillin would revolutionise the treatment of yaws and syphilis. Yaws again resurfaced in much of the Pacific after World War II. This time, the yaws control and eradication campaigns fell to new national and multinational public health bodies, rather than to the Rockefeller Foundation. By 1951 the International Health Division was subsumed into the Foundation's Division of Medicine and Public Health. The final large-scale yaws programs within the Pacific came under the World Health Organisation, which collaborated with the South Pacific Commission and national medical services. The success of implementing this campaign, in part, was the legacy of the Rockefeller Foundation and of Lambert's relentless efforts to consolidate a centralised health service in the region.⁵² Yaws inoculations and follow-ups during the late 1950s relied heavily upon regional medical practitioners trained at the Central Medical School in Suva. Lambert had played an important role in obtaining Rockefeller Foundation support for strengthening the school during the late 1920s and 1930s. As yaws was eradicated

throughout much, but not all, of the Pacific, the prevalence of syphilis increased after the 1960s, especially in Fiji, Solomon Islands and Papua New Guinea. Yaws continued to reappear in parts of Papua New Guinea, Vanuatu and Solomon Islands, despite mass eradication campaigns during the 1950s-1960s. Today Papua New Guinea and Solomon Islands have the second-highest rates of yaws in the world, after Ghana.⁵³ Syphilis remains a significant cause of morbidity and mortality, including stillbirth, in the Pacific, with an estimated 53,825 infected pregnant women in 2008.⁵⁴

I am most appreciative of having the opportunity to conduct research during 2017 at the Rockefeller Archives Center. My future research and publications will add to an understanding of the part that the Rockefeller Foundation has had in the campaign to control, treat and eradicate yaws in the Pacific and elsewhere. RAC's records also offered insight into the development of tropical medicine and how culture and politics were entwined with the development of public health in the Pacific. The research opened many questions for me, and as this brief report indicates, I am still in the process of analysing and checking the data, for my bigger research project into the history of yaws and syphilis.

¹ Rockefeller Archive Center (RAC), Rockefeller Foundation (RF) Record Group (RG) 100U, Box 113, Folder 1051.

² John Farley, *To Cast Out Disease: A History of the International Health Division of the Rockefeller Foundation*, (New York and Oxford: Oxford University Press, 2004), pp. 190-3.

³ J. C. Salazar and N. J. Bennett, 2014. "Endemic Treponematoses Including Yaws and Other Spirochaetes," in J. Farrar, ed., *Manson's Tropical Diseases*, 23rd ed., (Philadelphia: Elsevier), pp. 421-432.

⁴ My sincere thanks to the staff of the Rockefeller Archive Center, especially Lee Hiltzik and Tom Rosenbaum, and to RAC for an archive research grant, and to the Stout Research Centre of New Zealand Studies at Victoria University of Wellington, New Zealand, for a fellowship during 2018 that provided support to begin writing up some of this project.

⁵ See Farley, *To Cast Out Disease*.

⁶ "The Rockefeller Foundation, Resolutions Establishing the International Health Commission", June 27, 1913, RAC, RF, RG 3.1, Series 900, Box 18, Folder 129.

⁷ Histories of syphilis generally overlook the Pacific and much of Asia. See J. D. Oriel, *The Scars of Venus: A History of Venereology*, (London: Springer-Verlag, 1994); Monika

Pietrzak-Franger, *Syphilis in Victorian Literature and Culture. Medicine, Knowledge and the Spectacle of Victorian Invisibility*, (Cham, Switzerland: Palgrave Macmillan, 2017); C. Quétel, *History of Syphilis*, (Cambridge: Polity Press, 1990). Syphilis in Hawai'i is discussed in Seth Archer, *Sharks Upon the Land : Colonialism, Indigenous Health, and Culture in Hawai'i, 1778-1855*, (Cambridge, New York: Cambridge University Press, 2018). Kathleen Paugh, "Yaws, Syphilis, Sexuality, and the Circulation of Medical Knowledge in the British Caribbean and the Atlantic World," *Bulletin of the History of Medicine*, 88, 2014, pp. 225-252 examined sexuality, yaws and syphilis but focused on the 18th and early 19th century Caribbean, Africa and Atlantic worlds.

⁸ For a review see Oriol Mitjà, Michael Marks, et al., "Global Epidemiology of Yaws: A Systematic Review," *Lancet Global Health*, 3(6), 2015 June, pp. e324–331.

⁹ Although Sir Patrick Manson referred to an outbreak of "sibbens" in Scotland in 1769 as yaws. See Philip Henry Manson-Bahr, "Yaws," *British Journal of Venereal Diseases*, 4(1), 1928, p. 45.

¹⁰ John Miles, *Infectious Diseases: Colonising the Pacific?* (Dunedin: University of Otago Press, 1997); I. Van der Sluis, "The Treponematoses of Tahiti: Its Origin and Evolution: A Study of the Sources," PhD thesis, Universiteit van Amsterdam, 1969; P. E. C. Manson-Bahr, "Fijian Syphilis," *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 48(3), 1954, pp. 242–246.

¹¹ See e.g., Corrine Capuano and Masayo Ozaki, "Yaws in the Western Pacific Region: A Review of the Literature," *Journal of Tropical Medicine*, vol. 2011, Article ID 642832, 2011, 15 pp. <https://doi.org/10.1155/2011/642832>.

¹² K. Verma, "P3.086. Changing Patterns of Syphilis in Asia-Pacific," *Sexually Transmitted Infections*, 89, 2013, A174. doi:<http://dx.doi.org/helicon.vuw.ac.nz/10.1136/sextrans-2013-051184.0545>

¹³ RAC, RF, RG 5, Series 1.2, (International Health Board/Division, Correspondence on Projects, Fiji (419), Box 31, Folder 490. Examples of similar descriptions include Philip Harper, "Yaws as a Distinct Disease in Fiji," *Transactions of the Royal Society of Tropical and Medical Hygiene*, 10(6), 1917, p. 15; Sylvester M. Lambert, "Yaws in the South Pacific," *American Journal of Tropical Medicine and Hygiene*, 1–9(6), 1929, pp. 429–437.

¹⁴ G. W. A. Lynch, "Yaws and Syphilis." *Transactions of the Royal Society of Tropical and Medical Hygiene*, 10(6), 1917, p. 117.

¹⁵ Colonial terms are given for Pacific territories, with the present post-colonial name in brackets.

¹⁶ S. Lambert, 1924, "Health Survey of Western Samoa", Special Reports – Samoa, 1916-1925, RAC, RF, RG 5, Series 2/245, Box 22, Folder 134; Lambert, "Yaws in the South Pacific."

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- ¹⁷ Western Pacific Health Service, Annual Report (typescript), RAC, RF, RG.5.3, Series 419, Box 161, Folder 1977, p. 192.
- ¹⁸ S. M. Lambert, "Health Survey of the New Hebrides with Special Reference to Hookworm Disease", RAC, RF, RG 5, Series 2/419, Box 40, Folder 241, p.26.
- ¹⁹ See Annie Stuart, "We are all Hybrid Here: The Rockefeller Foundation, Sylvester Lambert, and Health Work in the Colonial South Pacific," *Health and History* 8(1), 2006, pp. 56-79. Also, Annie Stuart, "Parasites Lost? The Rockefeller Foundation and the Expansion of Health Services in the Colonial South Pacific, 1913-1939," PhD thesis, University of Canterbury, 2002.
- ²⁰ S. M. Lambert, *A Yankee Doctor in Paradise*, (Boston: Little, Brown and Company, 1941).
- ²¹ RAC, RF, Photographs, Series 472, subseries 472.5J S, Box 129, Folder 2473.
- ²² S. Lambert and William Ross Lee, " 'Back to the Beginning' , A Narrative of the Experiences of Doctor Sylvester M. Lambert on the South Pacific Islands of Rennell and Bellona, 1932", RAC, RF, RG 1.1, Series 419, Folder 1. A revised version of this typescript was published in S. Lambert, "Health Survey of Rennell and Bellona Islands," *Oceania*, 2(2), 1931, pp. 136-173. See also Lambert, *Doctor in Paradise*, pp. 110-115.
- ²³ Lambert, "Back to the Beginning", p. 31.
- ²⁴ Epeli Hau'ofa, "Our Sea of Islands", in Eric Waddell, Vijay Naidu and Epeli Hau'ofa (eds) *A New Oceania. Rediscovering our Sea of Islands*, (Suva: University of the South Pacific/Beake House, 1993), pp. 2-16.
- ²⁵ The Western Pacific High Commission was a British colonial body overseeing several territories and colonies in the western South Pacific from 1877-1976. It was based in Suva, with the Governor of Fiji, serving *ex officio* as High Commissioner until 1952, and thereafter administered from Fiji and Solomon Islands.
- ²⁶ Stuart, "Parasites Lost?", pp. 171-2.
- ²⁷ Macpherson (during residency at Johns Hopkins University, School of Hygiene and Public Health) to Heiser, October 9, 1933, RAC, RF, RG 1.1, Series 417, Box 1, Folder 4.
- ²⁸ RAC, RF, RG 2 - 1929, STE-1, K. R. Steenson, K. R. "Solomon Islands - Diary Notes", April 30, 1929, page 56.
- ²⁹ "Western Pacific Health Service, Yaws Campaign in Western Samoa, 1932-33" report by Dr. Ernest Hunt, March 15, 1933, RAC, RF, RG 5, Series 3/419, Box 162, Folder 1985.
- ³⁰ John Ryan McLane, Paradise Locked: The 1918 Influenza Pandemic in American Samoa, *Sites. A Journal of Anthropology and Cultural Studies*, 10(2), 2013, pp. 30-51.
- ³¹ Lambert to Heiser, September 25, 1930, RAC, RF, RG1.1, "Soil sanitation, hookworm and yaws", RG 1.1, Series 417, Box 1, Folder 1.

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- ³² During a demonstration on December 28, 1929 several Samoans were killed by military police. See Michael Field, *Mau: Samoa's Struggle Against New Zealand Oppression*, (Wellington: Reed Publishing, 1984).
- ³³ RAC, RF, RG 1.1, Series 417, Box 1, Folder 2.
- ³⁴ Lambert to Heiser, July 28, 1932. RAC, RF, RG 1.1, "Soil sanitation, hookworm and yaws", RG 1.1, Series 417, Box 1.
- ³⁵ Lambert to Heiser, July 23, 1931, RAC, RF, RG 1.1, Series 417, Box 1.
- ³⁶ "1931 Soil sanitation, hookworm and yaws", RAC, RF, RG 1.1, Series 417, Box 1, Folder 1.
- ³⁷ Richardson, New Zealand Administrator to Heiser, September 3, 1924 "Central Medical School 1924-5", RAC, RF, , RG 1.1, Series 419 L, Box 1, Folder 6.
- ³⁸ Memorandum on yaws and hookworm campaign of the British Solomon Islands Protectorate by senior District Commissioner, J. C. Barley to Western Pacific High Commissioner, November 1933, RAC, RF RG 1.1, Series 417, Box 1, Folder 4.
- ³⁹ Roger M. Keesing and Peter Corris. *Lightning Meets the West Wind: The Malaita Massacre*. Melbourne: Oxford University Press, 1980.
- ⁴⁰ Western Pacific Health Service, Annual Report (typescript), 1928, RAC, RF, RG.5.3, Series 419, Box 161, Folder 1977.
- ⁴¹ "South Pacific Islands Report 1927", January 10, 1928, RAC, RF, RG 5, Series 3/419H, Box 162, Folder 1988.
- ⁴² "Report on Western Samoa Yaws Campaign 1932-4", by Hunt and Lambert, RAC, RF, RG 1.1, Series 417, Box 1, Folder 7; Turner to Russell, January 8, 1935, RG 1.1, Series 417, Box 1, Folder 6. Khan tests were also used to screen for syphilis but these tests were not always accurate for determining the presence of yaws or syphilis.
- ⁴³ 11 October 1917, RAC, RF, RG 5, Series 2/419, Box 40, Folder 242.
- ⁴⁴ "1931 Soil sanitation, hookworm and yaws", RAC, RF, RG 1.1, Series 417, Box 1, Folder 1.
- ⁴⁵ "1931 Soil sanitation, hookworm and yaws", RAC, RF, RG 1.1, Series 417, Box 1, Folder 1.
- ⁴⁶ August 18, 1932, "1932 Soil sanitation, hookworm and yaws", RAC, RF, RG 1.1, Series 417, Box 1.
- ⁴⁷ "South Pacific Islands Cooperative Program, Report for the 1st quarter -1933", RAC, RF, RG 5, Series 3, Box 161, Folder 1962.
- ⁴⁸ See e.g., Thomas B. Turner, George M. Saunders, H. M. Johnston, *Report of the Jamaica Yaws Commission for 1932* (Kingston: Government Printer, 1934), RAC, RF, RG 1.1, Series 473U, Box 11, Folder 137.
- ⁴⁹ Lambert to Heiser, 30/11/34, cited in Turner to Dr Russell January 8, 1935, "Soil sanitation, hookworm, yaws, 1936-39", RAC, RF, RG 1.1, Series 417, Box 1.
- ⁵⁰ October 31, 1934, RAC, RF, RG1.1, "Soil sanitation, hookworm, yaws, 1934", Series 417, Box 1, Folder 5.

⁵¹ Heiser, Memos, August 20, 1931 and August 21, 1931, RAC, RF, RG 1.1, Series 417, Box 1, Folder 2; Heiser memo, "Final conference with Dr S.M. Lambert preparatory to his returning to the South Pacific", October 27, 1931: APS/VHP, "Memos 1930-31."

⁵² Eg., Memo by Lambert, July 30, 1926, RAC, RF, RG 5, Series 2/419, Box 40, Folder 240.

⁵³ O, Mitjà, M. Marks, "Global Epidemiology of Yaws: A Systematic Review," *Lancet Global Health* 3, 2015, pp. 324–331

⁵⁴ L. Newman L. et al., 2013. 'Global Estimates of Syphilis in Pregnancy and Associated Adverse Outcomes,' *PLoS Medicine*, 10, 2008.