Maki Maro
Tuberculosis in the Cook Islands

A social history 1896 - 1975

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Abstract

Between 1955 and 1975 the Cook Islands medical service launched an all out campaign against tuberculosis (TB). The purpose of this study was to explore the anti-TB campaign in the Cook Islands from the time the planning began for a ‘full frontal attack’ on TB, just prior to World War Two; concluding in 1975 when TB rates had dropped dramatically. It investigates the complexities of working with high TB infection rates within a colonial setting beset by problems relating to physical isolation, communication and travel, political and economic issues, alongside a lack of human resources.

In addition to eleven interviews with medical personnel or patients historically involved with TB this study also included an examination of TB-related files from the Cook Islands administration, the New Zealand Department of Island Territories and the New Zealand Department of Health, held in the Cook Islands Archives and Archives New Zealand in Wellington.

The thesis adopts a chronological approach. The history of the Cook Islands administration and medical services from 1896 until 1945 are investigated to provide understanding and important background information pertinent to the eventual anti-TB campaign. The years of Dr Tom Davis’ influence from 1945-51 provide an insight into the influence of a motivated individual on the medical service. From 1952 until 1975 the planning, implementation and ongoing difficulties and modification of the anti-TB campaign are examined.

This thesis contributes to the history of TB and public health in the Cook Islands and internationally. It reveals the importance of the medical service developing constructive relationships with community, national and international organisations. The thesis highlights the influence of key motivated individuals and the need for a culturally appropriate and responsive multifaceted approach to public health that adapts to change.

Dedication

I would like to dedicate this thesis to my grandmother Amy Aldridge who never had the opportunity to go to college but nevertheless was well educated by her life experiences. She taught me to work hard, to believe in myself and to never give up. She lived life to the full and never let an opportunity pass her by. Nana was an inspirational woman and an incredible role model who made me believe that I am special. The finest gift anyone can receive.

// Meitaki Maata

This year I have had the honour and privilege of being part of a dynamic team and I have so many people to thank for the incredible academic, physical and emotional support I have received.

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I am indebted to the New Zealand Health Research Council for the sponsorship they granted me as part of the Transnationalism in Pacific Health Through the Lens of Tuberculosis project of which this study is part. Sincere thanks also goes to my employer, the Cook Islands Ministry of Health, for granting me a years leave, and especially to Ana File who has eased my work load considerably and more than capably filled my role. Also the Ministry of Health statistics department for the time and effort they went to uncover archival Cook Islands TB information, thank you.

I also appreciated the helpful efforts and support of staff at the archives I visited in Wellington, Rarotonga and the Cook Islands Parliamentary Library. Special thanks also to Philip Abela at the University of Auckland library for answering my many questions. Briar Sefton for creating the maps in this study, thank you. Meitaki maata has to go to Jean Mason, from the Cook Islands Library and Museum, for her supply of photos.

Philippa, you provided me with much needed laughter and friendship while also being completely amazing with excel and word. The work you completed for the CD, while being extremely useful for me, I am sure, will be useful to other scholars. Sagaa, your quiet support was always appreciated as was Laura's skill at proofreading.

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I really enjoyed spending time with former TB health professionals and patients whom I interviewed for this project. You gave generously of your time, and memories, and I thank you for your contributions, they have provided a different essence to this study, as your stories brought the Administration files alive.

To those friends who provided me with a bed, a bike, a car, furniture or any of the other myriad of things one needs when living away from home, I cannot thank you all enough. My dear friends Helene, Gaylene, and Guida, who read numerous chapters, provided me with coffee, food, or wine, and listened to me through days that were up, and sometimes down; thank you. To Dad (Bryan), for being so painstakingly thorough and providing editing skills, and Mum (Jeanette) who is always there for me; thank you.

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Meitaki maata e kia manuia.

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AJHR	Appendices to the Journals of the House of Representatives
AMO	Assistant Medical Officer
ANZ	Archives New Zealand Wellington
BCG	Bacillus Calmette Guerin vaccination
CIA	Cook Islands Archives
CIMP	Cook Islands Maori Practitioner
CMO	Chief Medical Officer
DOT	Directly Observable Treatment
INH	Isoniazid
MMR	Mass Miniature Radiography
NCD	Non Communicable Disease
PAS	Para-aminosalicylic acid
SPC	Secretariat of the Pacific Community formerly the South Pacific Commission
TB	Tuberculosis
WHO	World Health Organisation

Maori

Ariki	Chief
Au Vaine	Women's committee
Kainga	Family
Kikau	Coconut frond
Maki maro	Tuberculosis, literally drying illness
Pakeha	European
Tapu	Sacred
Tohunga	Traditional Maori healer (New Zealand)
Ta'unga	Experts in Maori medicine
Totovene	Sweet
Tuoro	Black Rock
Tutaka	Health inspection
Vaka	Tribal district

Maps

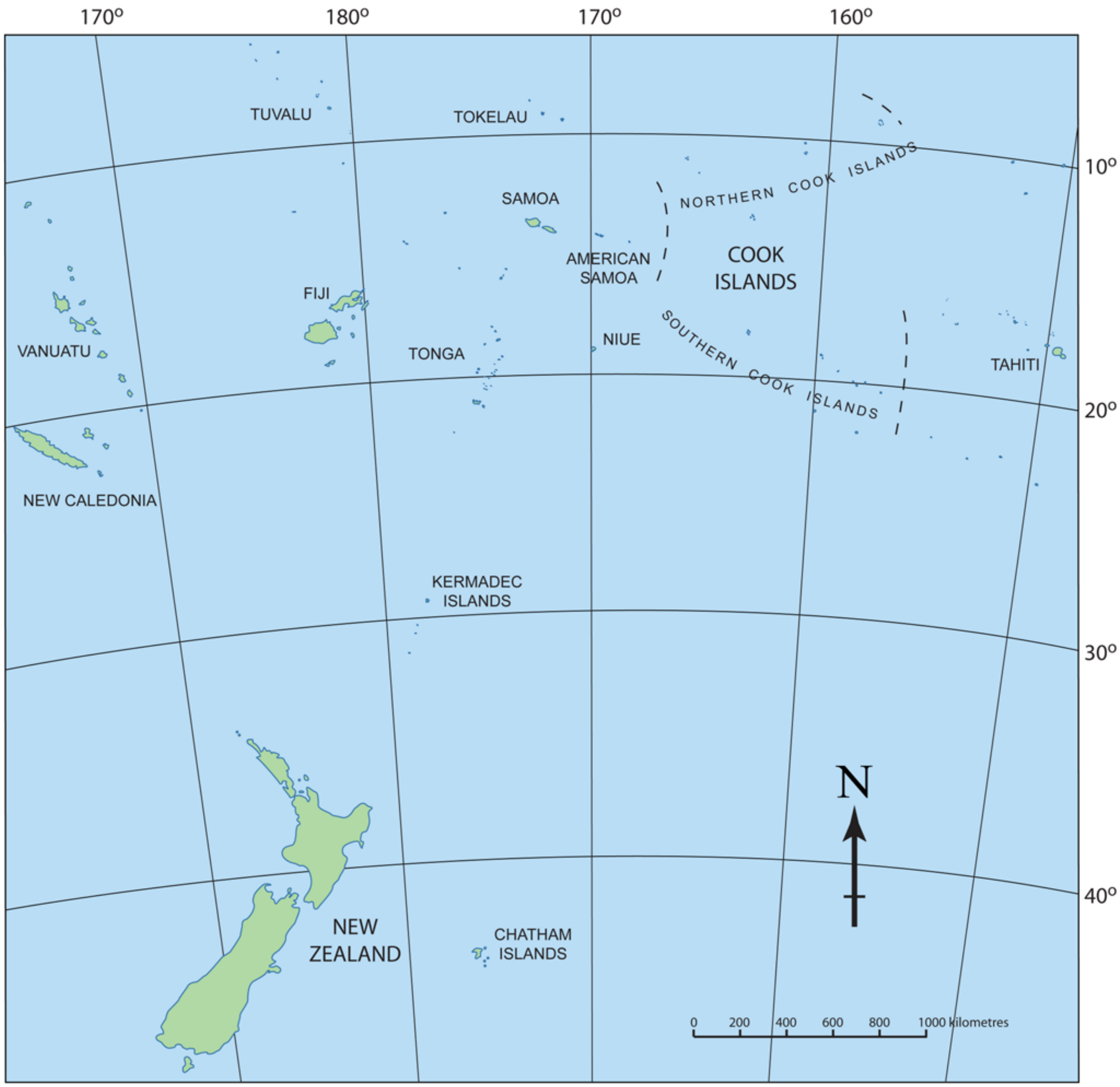

Figure 1. **The Cook Islands in Relation to New Zealand.**[1]

[1] Maps created by Briar Sefton.

Figure 2. **The Cook Islands.**

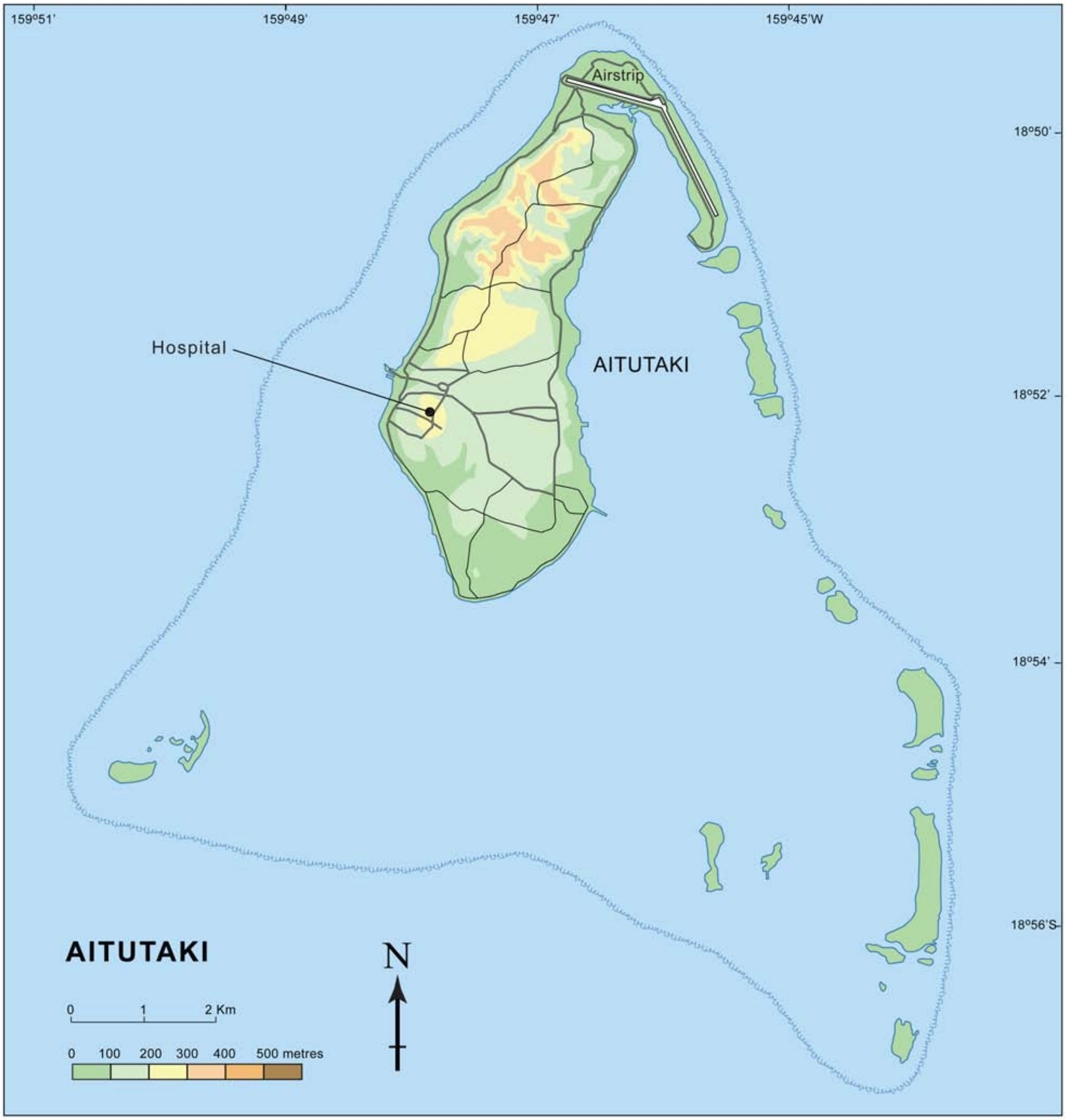

Figure 3. **Aitutaki.**

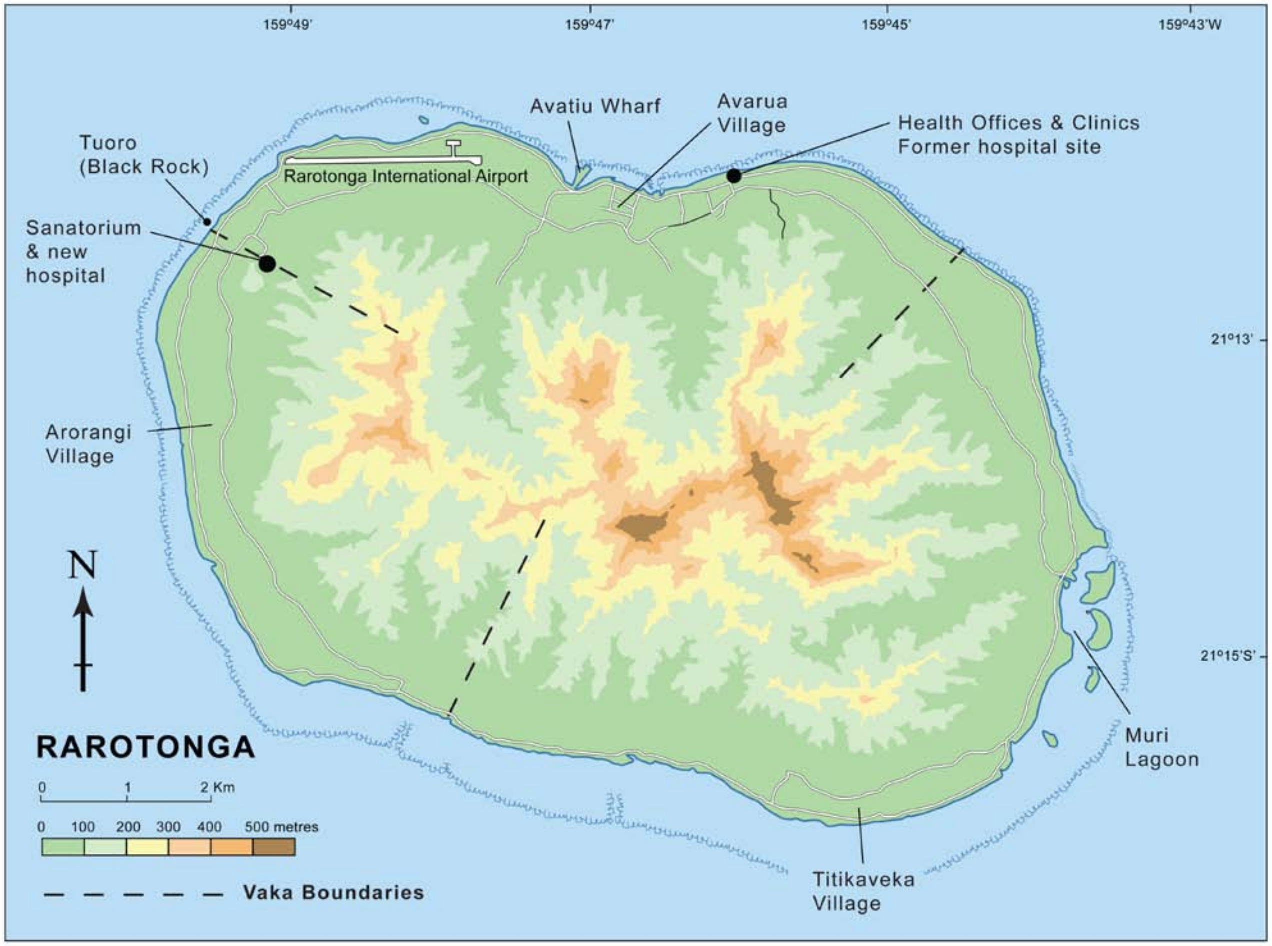

Figure 4. **Rarotonga.**

Introduction

The history of tuberculosis (TB) in the Cook Islands in the twentieth century is a tale of the complexities and struggle faced by the Cook Islands administration and medical service during colonial periods up to, and beyond, the time of independence. The story comprises many attempts to overcome these barriers by creative problem-solving which created some successes against a disease that is currently an issue worldwide.[2]

This study explores the anti-TB campaigns in the Cook Islands from just prior to World War II until the mid 1970s, with an exploration into the history relating to TB preceding this date. It investigates the complexities of treatment and control of TB within a colonial setting beset by problems relating to physical isolation, communication and travel, political and economic issues, alongside a lack of human resources. Such issues are familiar to most Pacific and other developing nations. By 1975 the Cook Islands new TB cases for the year had reduced to eleven, whereas a decade before it had been over one hundred. This signalled that TB was no longer the major health concern and the focus of the Cook Islands medical services moved to Non-Communicable Diseases. Despite the challenges of an ad hoc approach, the anti-TB campaign ultimately proved successful as the Cook Islands now boasts a very low prevalence of TB with no cases for 2006, and only one in 2007, within a population of 14,000 residents (Figure 5).[3] Through this study I seek to discover the key aspects of the successful interventions, by examining not just medical interventions but also the social contexts that

[2] World Health Organisation, *Global Report* 2009; available at: http://www.who.int/tb/publications/global_report/2009/pdf/key_points_en.pdf (4th May 2009)
[3] Cook Islands Ministry of Health, 2009, Tuberculosis Register held at Public Health; Government of the Cook Islands, *Cook Islands Statistics Office* 2009; available at: http://www.stats.gov.ck/Statistics/Demography/popn_estimate.htm (22 September 2009); Secretariat of the Pacific Community Tuberculosis Control Section, *Tuberculosis Surveillance in the Pacific Island Countries and Territories*, Noumea, New Caledonia, 2009, p.38.; Auckland Regional Public Health Service, Tuvalu TB Awareness Programme Handbook, 2009. The Auckland Regional Public Health Service has different statistics to those of the Cook Islands Ministry of Health as seen in figure 5.

may have made an impact. Through this analysis I hope to offer some insights into what may be useful for other communities.

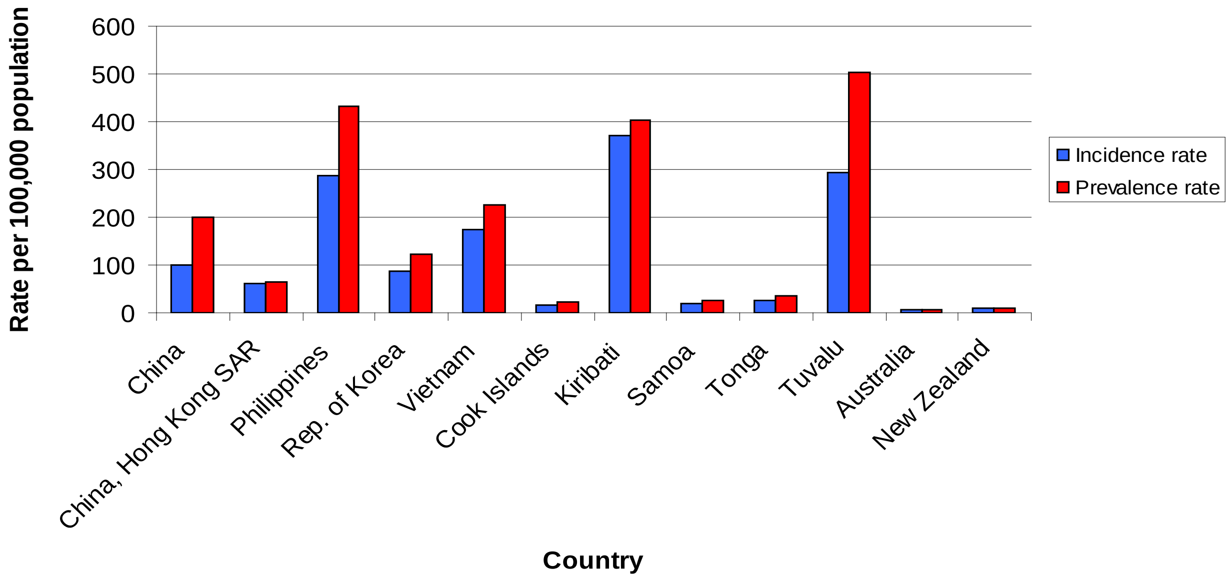

Figure 5. **TB Rates, Selected Countries, Western Pacific Region, 2006.**[4]

The Cook Islands are in the South Pacific Ocean, north east of New Zealand, between French Polynesia and Fiji (Figure 1.) Although the Cook Islands flag shows a circle of 15 stars, all identical in size and linked in circular harmony, in reality the Cook Islands fall into two groups spread over 2.2 million square kilometres of ocean (Figure 2). The northern group comprises Pukapuka, Nassau, Suwarrow, Rakahanga, Manihiki, and Tongareva (also known as Penrhyn) and are coral atolls or sunken volcanoes. The much larger southern group is made up of Palmerston, Manuae, and Takutea, which are coral atolls, and Mangaia, Atiu, Mauke, and Mitiaro, which are raised atolls. Aitutaki is part-volcanic and part-atoll (Figure 3) and Rarotonga is a high volcanic island (Figure 4). All of the islands lie in tropical latitudes, between 9 and 23 degrees south of the equator, with Rarotonga being the largest island and the site of the capital, Avarua. The huge distances between the northern and southern islands

[4] Auckland Regional Public Health Service, *Tuvalu TB Awareness Programme Handbook*, 2009.

create extreme difficulties with transportation. Except in Pukapuka, the most north-west island whose people are closely related to Samoa, settlement is believed to have originated about two thousand years ago, with Rarotonga itself, according to oral history, serving as a starting point for migration to New Zealand.[5]

Early TB

Although it is not known exactly when TB was first encountered by Cook Islanders, it is 'generally agreed that it is likely to have been brought to the islands by European sailors and / or missionaries'.[6] Missionaries recorded the deaths of four people from 'consumption', as TB was known at the time, in 1835 only 14 years after the arrival of the first missionaries. By the end of the nineteenth century TB was a major cause of morbidity and death in the Cook Islands.[7] Patients with chronic pulmonary TB, with their cough, fever, loss of energy and weight, and bleeding from the lungs, became common among Cook Islanders with the country losing many people to what is known locally as *maki maro*, a disease that withered or dried up its victims.[8]

First Surveys

The scale of the problem of TB in the Cook Islands would not be measured until scientific procedures were developed towards the middle of the twentieth century but early observers noted that the disease was widespread. Dr O. W. Andrews of the H.M.S. *Ringdove* made a quick survey of Rarotonga in 1893 and stated that

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[5]Richard Gilson, *The Cook Islands 1820-1950*, ed., Ron Crocombe, Wellington, 1980, pp.2-19.; Raeburn Lange, 'A History of Health and Ill-Health in the Cook Islands', Thesis (PhD) University of Otago, 1982, pp.2-4.; Jeffrey Sissons, *Nation and Destination: Creating Cook Islands Identity*, Suva, 1999, pp.11-2.; R. G. Crocombe, *Land Tenure in the Cook Islands* Oxford, 1964, pp.16-24.

[6] South Pacific Commission Research Council, First meeting, Research programme, Report of the health committee, R.C.1/Com.H/1/Rev.1, Appendix IV, 3rd May 1949, CI 6/1/1.

[7] Lange, p.129. Gilson, p.20.

[8] This name is still used today (interview Kathy Koteka and others, Rarotonga, June 2009); see also Lange, p.133.

> Tuberculosis phthisis is the main serious complaint which the British Agent, Mr Moss, says is fast increasing. The number of deaths from phthisis in 1892 was 135 and the population was 6,750 giving the death rate of 20 per thousand... (and) that scrofula was common.[9]

TB was often known as *phthisis* (meaning to waste or melt away) or *scrofula* (tuberculosis of the lymph nodes in the neck) at this time although these were all different manifestations of TB.

Sir Maui Pomare, New Zealand's first Maori doctor and later Minister of Health, did a health survey of the Cook Islands in 1906 and in his report to the Chief Health Officer of New Zealand, Dr J. M. Mason, he commented that TB, 'although not alarming, is to be feared, as I have seen many cases' but he did not report any accurate figures. He suggested that 'shelter-sheds on some mountain peak will have to be erected someday, and segregation of afflicted ones attempted if we are going to do any good'.[10] In 1925 Dr Sylvester Lambert, Director of the Rockefeller Foundation's health programmes in the Pacific, reported, 'I did not see so much clinical Tuberculosis as I expected'.[11] Yet in 1926 TB accounted for 39.5% of Rarotongan deaths, and the Chief Medical Officer, Dr Ellison, considered TB 'alarmingly prevalent'.[12]

Mortality was the only measure used at the time as there were no acceptable epidemiological statistics available. Observations continued with statements made such as 'there are some

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[9] Cited in Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 1949 – 1956, CI 6/1/6, New Zealand Department of Health, Archives NZ, Wellington, (ANZ) p.8.; South Pacific Commission, Tuberculosis in the Cook Islands, 5th August 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ; see also Gilson, p.77.

[10] Lambert, 1923 Health Survey, CI 6/1/6, p.7, Cook Islands Archives, (CIA); Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 13/12/1949 – 6/11/1956, CI 6/1/6, p.8, ANZ.

[11] Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 1949 – 1956, CI 6/1/6, p.8 ANZ.

[12] Lange, p.312.

grounds for hoping that the disease is slowly being eliminated from Rarotonga as the younger generation appear fairly free from the disease' in 1933, and that the 'scourge of the island' was responsible for the death rate, said to be 3.6 per thousand in 1936.[13] How this figure was arrived at is unknown but when compared to New Zealand Maori TB death rate of 4 per thousand for 1936 the death rates are similar.[14] It had also been noted in a study of New Zealand East Coast Maori TB death rates, that 86 percent of deaths from TB were not notified, so the New Zealand Maori TB death rate, as well as the Cook Islands TB death rates, may have been much higher.[15] Reporting and recognising these health issues was one thing, but treating them another, as few resources were available for treatment other than isolation, good nutrition and rest, the standard 'treatment' of the era worldwide.

Sources

Oral

Although TB is no longer a problem in the Cook Islands, my investigation shows that the sometimes tragic memories of TB are just below the surface. I conducted eleven interviews with medical practitioners, nurses, public health professionals, a politician and patients to support the archival sources I have investigated, and to provide an individual perspective. Most interviews were obtained through the snowball method generated by personal referral. Ethics approval (MEC08/07076) was gained from the Multi-region Ethics Committee of the Health and Disability Ethics Committees by the University of Auckland 'Transnationalism in Pacific health through the lens of TB' project of which this research is a part.

[13] Lange, p.313.
[14] Catherine Finn, "the Maori Problem'? : A Political Ecology of Tuberculosis among Maori in Aotearoa/New Zealand between 1918 and 1945', Thesis (MA--Anthropology) University of Auckland, 2006, p.45.
[15] H. B. Turbott and Health New Zealand. Dept. of, *Tuberculosis in the Maori, East Coast, New Zealand*, Wellington, 1935, p.37.

In this study the oral interviews offer a different perspective on activities recorded in archives. Insights and personal experiences from the interviews are shared at relevant points where the memories enlighten the policy or practice being discussed.

Written

In addition to these interviews this study is based on the examination of TB-related files from the Cook Islands administration, the New Zealand Department of Island Territories and the New Zealand Department of Health, that were held in the Cook Islands Archives and Archives New Zealand in Wellington. Other primary sources consulted were Cook Island Parliamentary papers, Cook Islands Ministry of Health tuberculosis registers and folders and the Appendices to the Journals of the House of Representatives. Newspapers were also viewed to ascertain press coverage.

New Zealand historian Raeburn Lange has carefully and comprehensively examined the social, environmental, and cultural factors influencing Cook Islanders' susceptibility to disease from 1820 to 1946 in his thesis: '*A History of Health and Ill-health in the Cook Islands*'.[16] His thesis lays the groundwork of and had a strong influence on this study, which builds on his work both chronologically and thematically. Dr Tom Davis wrote two books about his experiences of being a doctor to the Cook Islands and his reflections also provide information on the medical service.[17] He also provides a perspective no administrative papers could provide, one of a New Zealand trained Cook Island doctor serving his country. He was often caught between the expatriate community's expectations and those of his fellow countrymen and his writings share the complexities of these moments.

[16] Lange.
[17] Tom Davis, *Island Boy : An Autobiography*, Suva : Auckland, 1992.; Tom Davis and Lydia Davis, *Doctor to the Islands*, London, 1955.

Difficulties with Sources

Even though TB was for a long time a source of anxiety in the Cook Islands it sometimes proved difficult to obtain factual and reliable information about the incidence of the disease. There have been a variety of 'statistics' collated in reports or other archival documents but many are incomplete in range and detail, and in some cases they cannot be accepted at face value for lack of adequate evidence. Philippa Blackmore has collated some of this material as part of the larger project on 'Transnational Pacific Health' and it provides vital information for the study. One of the rewards and challenges of this research has been the opportunity to bring together this material in a coherent form and to thus make it available for others to read.

The value of numbers is directly proportional to the observer's access to good information and the accuracy of diagnoses, which in turn are dependant on clinical and scientific skills, the availability of laboratory and X-ray equipment, the comprehensiveness of record keeping, case finding, contact tracing and so on. Therefore figures and tables are presented and commented on when necessary. An example of some of the difficulties created by the records available to me is presented below in Figure 6.[18] When I saw the figures for the number of cases of TB presented in the Annual report for 1974 and 1975, they seemed not to correlate to what had been the trend up until this point. Therefore I decided to investigate them more thoroughly. An anomaly arose when, in the annual reports for years 1964-1970, the numbers of new cases given agrees with those in Table 22; however, for years 1971-73 they do not. The respective annual report figures are lower, which leaves confusion as to whether Table 22 (which is a multiyear table compiled in the annual report of 1974 and 1975) is actually 'new cases' or 'all cases'. The text of the report seems to suggest they are new cases, although the text says the

[18]Table 22, Legislative Assembly of the Cook Islands, 1974, Vol. 1, Legislative Assembly Paper No. 7, Report on the Health Department, Cook Islands Parliament, Rarotonga.; Table 22, Legislative Assembly of the Cook Islands, 1975, Vol. 1, Legislative Assembly Paper No. 7, Report on the Health Department, Cook Islands Parliament, Rarotonga.; Cook Islands Public Health TB register.

numbers are falling which the figures in Table 22 do not show. On investigation into other documents from the Cook Islands Public Health Tuberculosis Register I tentatively concluded that Table 22 is probably *all cases* for 1971-1975, but before those years they were *new cases*. Even assuming the data for 1971-1975 represent all cases of TB, the figures still do not correspond with the narrative. Therefore the data in Table 22 is unreliable from 1971, when the TB rates appear to have made a substantial rise, and I question whether in fact they did, as other documents suggest otherwise.

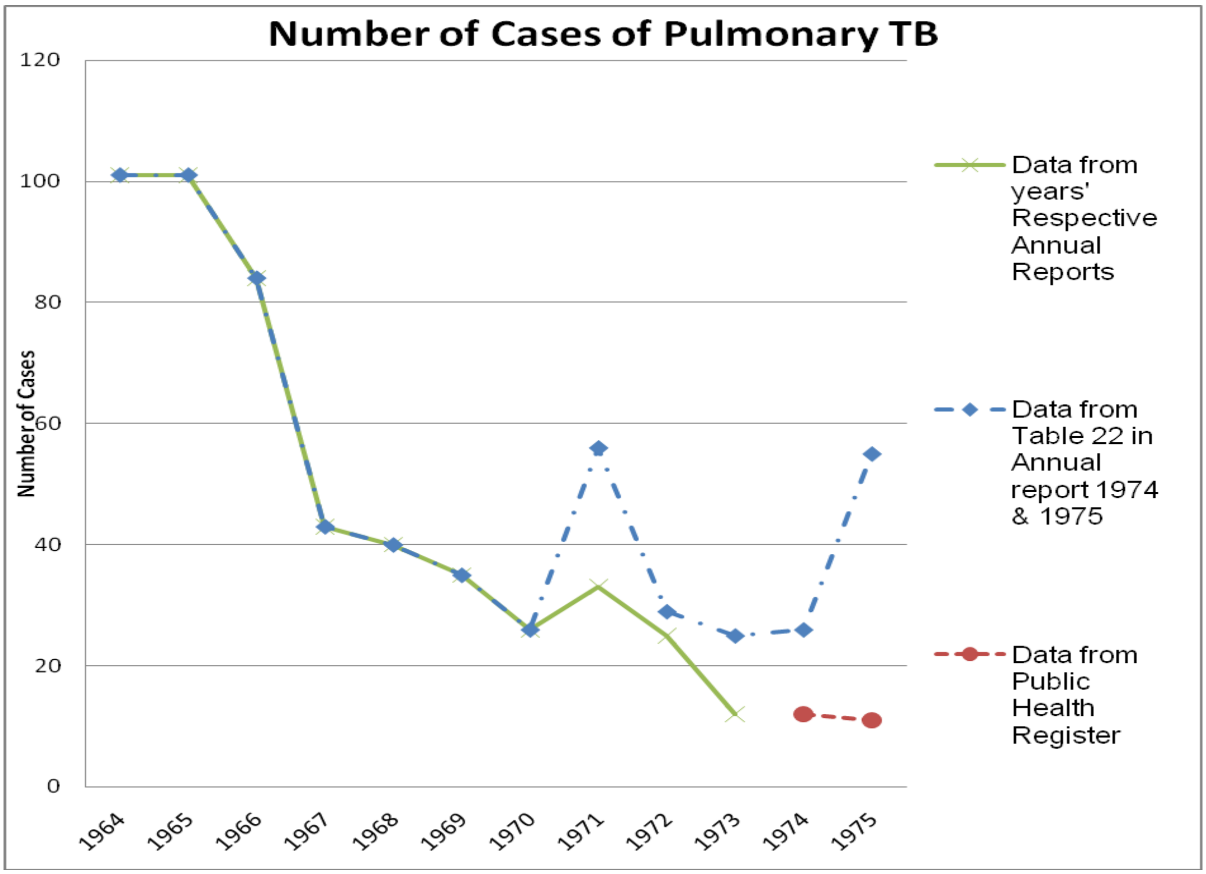

Figure 6. **Number of Cases of Pulmonary TB 1964 – 75.**

Other anomalies presented themselves with conflicting reports on the same topic. An example of this is in the 1967 annual report which says that 'the sanatorium was closed in June 1966' but the following years collates how many patients were treated in the sanatorium during the year.[19] Consequently I have attempted to verify any data that appears as inconsistent though this has not always been possible.

Themes

TB had in the past affected many people, the hospital is still today called ‘the san’ by some older people, and the road to the hospital is called Sanatorium Road (see Figure 7). These two examples illustrate how TB has been a pervasive influence on Cook Islanders lives. Shirley Lindenbaum describes this as being socially sedimented, i.e. TB and its history leave material traces in the Cook Islands.[20] Everyone I spoke with had recollections about how TB was handled in the community, with the resonant theme being how important relationships were in the treatment of TB. Although those I spoke to did not feel there was significant discrimination towards people living with TB, there were some examples. For example friends might not visit after a patient returned home from the sanatorium. Or someone may not have been given a job before the boss had checked with a doctor, if it was known that they had been sick, although the applicant would not necessarily know that they were being checked up

[19] Legislative Assembly of the Cook Islands, 1967-1969, Report on the Health Department, Cook Islands Parliament, Rarotonga.
[20] Shirley Lindenbaum and Margaret M. Lock, *Knowledge, Power, and Practice : The Anthropology of Medicine and Everyday Life*, Berkeley, 1993.

on.[21]

Figure 7. **Sanatorium Road, Rarotonga, Cook Islands**

This study of TB illuminates the evolving medical service of the Cook Islands, with relation to TB and under the wing of New Zealand. The strongly influencing attitudes and values of the New Zealand Department of Island Territories and the New Zealand Department of Health working in tandem with the Cook Islands administration are illustrated. The colonial relationship of New Zealand to the Cook Islands appears in this study as both a positive influence and at other times a bureaucratic, paternalistic and dominating power. However if the Cook Islands had not been colonised by New Zealand it is questionable whether they would have had such a comprehensive TB campaign. Other countries in the Pacific were not so fortunate and a few have high TB rates to this day. Even other countries, such as Niue and

[21] Interview Vereara Maeva Taripo, Tamarua Herman, Rarotonga, 2009. These instances both happened when a person had been told by their doctors that they were no longer infectious.

Tokelau which were also colonised by New Zealand, did not have some of the same benefits as the Cook Islands, for example they had to ask to use the Cook Islands Mass Miniature Radiation (MMR) unit as they never had their own. The views of the mostly New Zealand Chief Medical Officers (CMOs) sometimes showed racist tendencies and I often found it difficult when reading about the 'natives' in the Administration reports. At the same time it was clear that they were also sympathetic to the needs of Cook Islanders. However, it could be said that at times they accepted problems as simply ones of 'the tropics' and therefore that nothing could be done when in fact there were solutions to be found.

These ideas were challenges, however by a Cook Island doctor, Dr Tom Davis, who was Assistant Medical Officer (AMO) for the first time in the 1940s. There was also some scepticism about New Zealand's role in the Cook Islands by those outside of the Cook Islands.[22] The *Auckland Star* ran a series of eleven articles in 1956 significantly challenging the Department of Island Territories and whether what it was doing that was positive for the Cook Islands.[23] The Cook Islands has also been influenced by other regional or international organisations such as the South Pacific Commission (SPC), later to become known as the Secretariat of the Pacific Community, and the World Health Organisation (WHO), who were involved in the campaigns at different times. Therefore the history of TB control in the Cook Islands is essentially a transnational story. One that is not just local, or even bilateral, with New Zealand but one that involves the larger Pacific Region.

Chapter One describes TB, and gives an overview of its history and the responses to the disease as seen in the western world, but mainly in New Zealand as influenced by Britain. Chapter Two explores the Cook Islands medical service and its administration while focussing

[22] Dick Scott, *Years of the Pooh-Bah; a Cook Islands History*, Auckland, 1991.
[23] *Auckland Star*, May, 1956.

on the colonial medical service, its challenges and some of the grass roots health organisations that continue to this day and that were involved in the TB campaign of the late 1950s. Chapter Three examines the influence of the first New Zealand-trained Cook Island doctor, Tom Davis, when he returned to the Cook Islands. It shows how one determined person can influence and determine a country's future course and get the medical service to a point where it is ready to undergo a full scale anti-TB campaign. Chapter Four covers the details involved in the planning and preparation of the anti-tuberculosis campaigns and traces how these were implemented. The design of a particular MMR unit that was transportable across large areas of ocean and reefs, the provision of treatment and diagnosis to the Outer Islands, and the development of an effective service treating and caring for patients, all support the lowering of mortality rates attributed to TB in the Cook Islands. The ongoing campaign, set alongside the development of the Cook Islands becoming independent of New Zealand, concludes the presentation of historical material in Chapter Five. Chapter Six concludes the study with a discussion of the key themes and highlights those aspects which the evidence suggests were most important in the Cook Islands efforts against TB.

Reasons for my Involvement

I was working for the Cook Islands Ministry of Health when an email was sent to all staff about the 'Transnationalism in Pacific Health Through the Lens of TB' project and what it was hoping to achieve through its research. As it was directly involved with the Cook Islands, and about health, which I have been involved with for the last twenty five years, it tweaked my interest. I was interested in improving my research skills - especially if it focused on topics that I feel passionate about, the country I live in and the health of people. As I am the Cook Islands HIV and STI coordinator I was aware of the many links between HIV and TB, although I did not know much about TB at the time. Learning about TB and its relevance in the Cook Islands has become fascinating to me and my historical research has put many things we do at the Ministry of Health into perspective, as I now know where many of our current practices stem from. I have completed this research as a person living in the Cook Islands and am sensitive to, and aware of, many of the social and cultural features of life there.

When I first heard of the Transnational TB project I had no idea that TB rates were still so high in the rest of the Pacific and that the Cook Islands was one of a few countries in the world to have almost eliminated it. This inspired and motivated me, and I hope that in a small way, my research, along with the Transnational TB project as a whole, may support other communities trying to reduce their rates of TB, a disease that causes so much suffering. In the next section I introduce the history of TB and give an overview of how the main responses to it have changed over time.

Kia tere ki mua, me akara ki muri.[24]

To be able to look forward, you must be able to look back.

[24] Translation by James Puati.

Chapter One: Tuberculosis: The Disease and Responses

This chapter provides an overview of the history of medical treatments relating to TB which were developed throughout the western world from the nineteenth century. Its focus is on pulmonary TB, the major form of the disease.

TB has been known by different names throughout the course of history; *phthisis* (meaning to waste or melt away), *scrofula* (tuberculosis of the lymph nodes in the neck), *TB* (a shortened term), the *white plague* or *consumption*, and it has been an antagonist of humans for centuries. It most frequently involves the lungs (pulmonary TB) but can infect the kidneys, brain, gastrointestinal tract, adrenal glands, lymph nodes, bones and joints, and the eye.[25] Pulmonary TB holds the greatest risk of contagion, being passed by droplet infection when a sufferer is talking, sneezing or coughing in a confined space, with bacteria entering the body through the lungs after inhalation of the bacillus from a person with active TB disease.

Tuberculosis is a bacterial infection caused in humans by both *Mycobacterium tuberculosis (M. tuberculosis)* and the closely related bovine form (*M. bovis)*. Prior to the discovery of the bacterium by a German researcher, Robert Koch, in 1882, TB was not known to be contagious and was thought to be an inherited wasting disease arising from a person's constitutional weakness, hence the name it once had - consumption.[26] Robert Koch's discovery initiated the

[25] Katherine McCuaig, *The Weariness, the Fever, and the Fret. The Campaign against Tuberculosis in Canada, 1900-1950*, Quebec, 1999, p.5.; Thomas M. Daniel, *Captain of Death : The Story of Tuberculosis*, New York, 1997, p.11.

[26] Daniel, p.8.; Anne Hardy, *Health and Medicine in Britain since 1860*, *Social History in Perspective*, Basingstoke, England ; New York, 2001, p.25.; Michael E. Teller, *The Tuberculosis Movement : A Public Health Campaign in the Progressive Era*, New York, 1988, p.16.; Alison Searle, 'Having TB : The Experience of Pakeha', Thesis (MA Anthropology) University of Auckland, 2004, p.3.

intervention of isolating those who were infectious since if the disease was infectious, rather than inherited, it made sense to isolate those who had succumbed.

Once the bacillus had been discovered by Koch, scientists began to attempt to develop a vaccine.[27] Robert Koch claimed in 1887 to have discovered a vaccine that he called tuberculin. Tuberculin therapy was embraced by many medical practitioners as doctors and patients desired a ‘magic bullet’. Koch’s tuberculin was ultimately proven ineffective although it did prove to be valuable as a diagnostic tool. A small dose could be used in a scratch test to indicate an allergic reaction in people who had already been infected with the bacillus.[28] Tuberculin’s major liability was that it did not diagnose active TB. Later, during 1908 Charles Mantoux, a French physician, substituted the tuberculin scratch test for an injection form and this forms the basis of ‘Mantoux’ skin tests still used today.[29] Another form of tuberculin test is the ‘Heaf’ test, named after Frederick Heaf, a British physician.

In 1900 Leon C. A. Calmette, a bacteriologist, and Camille Guerin, a veterinarian, began work on developing a vaccine for TB and in 1921 gave the first BCG (Bacillus Calmette-Guerin) vaccine to a three-day-old infant whose mother had died at birth from TB.[30] Tuberculin was used in a Mantoux test to ascertain if a person had been exposed to TB or not. If the Mantoux provided no reaction it was considered negative and thus indicated that the person required a BCG vaccination. However, the vaccine initially received little support outside France and Scandinavia which had been the countries instrumental in pioneering it.[31] In 2010 the position

[27] Linda Bryder, 'We Shall Not Find Salvation in Inoculation: BCG Vaccination in Scandinavia, Britain and the USA, 1921-1960', *Social Science & Medicine*, 49, 1999, p.1158.
[28] Daniel, pp.171-6.; Bryder, p.1158.
[29] Linda Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, Oxford [Oxfordshire] New York, 1988, p.3.; Daniel, p.117.
[30] Bryder, 'We Shall Not Find Salvation in Inoculation: BCG Vaccination in Scandinavia, Britain and the USA, 1921-1960', p.1158.; Daniel, p.134.
[31] Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, p.140.; Derek A. Dow, Health New Zealand. Ministry of, and Branch New Zealand. Dept. of Internal Affairs. Historical,

of this vaccine is still contentious and although the vaccination has not shortened the TB epidemic 'BCG immunisation in children has undoubtedly reduced childhood morbidity and mortality from tuberculosis'.[32]

Contrary to earlier beliefs, TB is quite difficult to spread with only a small proportion of those exposed developing TB disease or even infection as a healthy person's immune system can usually ward off casual exposure to the infection.[33] Disease follows infection when an exposed person has poor immune function or if a healthy person receives frequent exposure to infection. Those who do develop TB disease commonly experience fatigue, weight loss, respiratory problems and/or night sweats which make diagnosis difficult as other illnesses have similar symptoms.[34] Tuberculosis left untreated can be fatal and at times, even with treatment, patients die. However many of those infected will, or can, complete their lives without developing active TB disease if their immune systems are not challenged by social stressors, including poverty, overcrowding, and / or malnutrition.[35] Having another disease that is causing the body stress can also increase the risk of TB and in the Pacific the main

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Safeguarding the Public Health : A History of the New Zealand Department of Health, Wellington [N.Z.], 1995, p.166.

[32] C. Fordham von Reyn and Alimuddin I. Zumla, 'BCG Vaccination in Children', *British Medical Journal* 337, 2008, p.1246.

[33] Charlotte A. Roberts and Jane E. Buikstra, *The Bioarchaeology of Tuberculosis : A Global View on a Reemerging Disease*, Gainesville, FL, 2003, p.11.; Daniel, p.93.; Deborah Dunsford, 'Seeking the Prize of Eradication : A Social History of Tuberculosis in New Zealand from World War Two to the 1970s', University of Auckland, 2008, p.3.; John M. Grange, 'The Global Burden of Tuberculosis,' in *Tuberculosis: An Interdisciplinary Perspective*, John D. H. Porter and John M. Grange, eds, London, 1999, p.6.

[34] Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, p.105.

[35] Linda Bryder, "If Preventable, Why Not Prevented?' : The New Zealand Response to Tuberculosis, 1901-1940,' in *A Healthy Country : Essays on the Social History of Medicine in New Zealand*, Linda Bryder, ed., Wellington, 1991, p.125.; Criena Fitzgerald, *Kissing Can Be Dangerous: The Public Health Campaigns to Prevent and Control Tuberculosis in Western Australia, 1900-1960*, Crawley, 2006, p.162.; Greta Jones, *"Captain of All These Men of Death" : The History of Tuberculosis in Nineteenth and Twentieth Century Ireland, The Wellcome Series in the History of Medicine*, Amsterdam ; New York, 2001, p.118.; Judith Raftery, *Not Part of the Public: Non-Indigenous Policies and Practices and the Health of Indigenous South Australians, 1836-1973*, South Australia, 2006, pp.61, 92.; Randall M. Packard, *White Plague, Black Labor: Tuberculosis and the Political Economy of Health and Disease in South Africa*, Los Angeles, 1989, p.146.

concern is diabetes.[36] Nevertheless, the bacillus is able to stay within the body as latent TB infection with the potential to develop into active TB at a later time if the person's immune system becomes damaged or strained, which ultimately leads to people sometimes being unaware that they have TB disease and are infectious.

Tuberculosis has been well investigated by medical researchers but social scientists and historians did not start to take an interest until the second half of the twentieth century. In 1952 Rene and Jean Dubos, microbiologists, published *The White Plague: Tuberculosis, Man, and Society*.[37] Their research focussed on the medical and scientific courses of cause, diagnosis, treatment and prevention. They also identified TB as a social disease, making links between improving socio-economic conditions and declining rates of TB. They argued that improvements to living standards, hygiene and labour conditions as well as society taking the responsibility for public health, led to a decline in the prevalence of the disease.[38] Poverty, malnutrition and overcrowding are recognised as being the principal predisposing factors for TB and improvement in these areas have often made more of an impact that medical interventions.[39]

Worldwide high TB rates have been seen amongst indigenous people, minority ethnicities, and low socio-economic status groups within the history of TB in the twentieth century. The experience of individual countries has often reflected their position regarding indigenous people within the structure of their society. American historian Randall Packard's investigation of TB among black migrant mine workers in South Africa shows clearly that

[36] J.H. Littleton, Park, J.K., 'Tuberculosis and Syndemics: Implications for Pacific Health in New Zealand', *Social Science and Medicine*, 69, 2009.
[37] Rene and Jean Dubos, *The White Plague: Tuberculosis, Man and Society*, New Brunswisk & London, 1987.
[38] ibid., p.xxxviii.; see also Dunsford, p.8.; Grange, p.12.
[39] Grange, p.13.

South Africa’s lack of focus on social programmes to improve living standards for indigenous people contributed to the failure of conventional anti-TB programmes for indigenous communities. Packard traced the origins of TB in South Africa and explored the underlying factors that dictated the way it affected social groups, dismissing the myth of racial susceptibility. He examined poverty and deprivation, poor diet and hygiene, lack of medical facilities, and living in polluted environments and showed that these factors enabled TB to thrive amongst South Africa’s indigenous population. Packard demonstrated clearly that TB is linked to political economy and social issues and argued that TB must be addressed by policy makers, not just medical personnel, if any differences in mortality rates are to be seen.[40]

While the majority of TB patients in the western world during the early nineteenth century were nursed in the home, by the middle of the century the focus started to incorporate ventilation, rest, and a special diet. Some patients were cared for in sanatoria. The first sanatorium, or isolated TB treatment centre, opened in Poland in 1859.[41] Sanatorium treatment was based on a model focussed on combinations of rest and exercise, and / or work therapy, diet, education, rehabilitation and fresh air to cure its patients; hence it was preferred to locate sanatoria on elevated sites to enable the good ventilation considered so important.[42] Prior to effective drug treatment, sanatorium treatment was the foundational care plan for most developed countries for those with early stage TB, although there were rarely enough beds for the number of patients seeking care. Those with money sought treatment and care in sanatoria sited in warmer or ‘purer’ climates, as recommended by their doctors. This became known as ‘therapeutic migration’ as people moved for the sake of their health as there was no other

[40] Packard.
[41] Daniel, p.178.
[42] Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, pp.46-69.; Stefan Grzybowski, 'Tuberculosis: 2. History of the Disease in Canada', *Canadian Medical Association*, 160, 7, 1999, p.1026.; Daniel, p.178.; Hardy, p.84.; Bryder, "If Preventable, Why Not Prevented?' : The New Zealand Response to Tuberculosis, 1901-1940,' p.112.

medical answer available.[43] Conditions were often spartan in those sanatoria that catered for the working class, as it was considered important to have conditions close to that which patients would return. The hope was that the lessons learned in the sanatoria about healthy living would continue to be acted upon when the patient was discharged, indeed for the rest of their lives, as TB could return given the right conditions.

For those who could not access a sanatorium due to a lack of funds, ‘hutments’ were developed. A hutment was a small room separated from any other building where a patient could be isolated away from their family while recovering from TB.[44] Hutments were also established alongside wards in sanatoria for those patients on the way to recovery and the home hutment also had its place within a home treatment plan, or domiciliary care, for TB. Varying types of open-air shelters were constructed where a patient could rest while having access to fresh air, and also be isolated from their families. These hutments became increasingly important as part of treatment and care plans for patients as the number of patients put pressure on sanatoria, to the point where there were waiting lists for most.

In 1901 the New Zealand Department of Public Health’s main focus was TB, with its anti-TB campaigns centred on institutional care rather than on prevention.[45] Alongside institutional care and notification of those afflicted with TB, there was also a focus on ‘healthy living’ such as household cleanliness, prohibiting spitting and community education which implied that sufferers were personally responsible for the fact that they were unwell.[46] This underlying philosophy of self-responsibility around the disease mirrored British ideology towards TB care

[43] Bryder, "If Preventable, Why Not Prevented?' : The New Zealand Response to Tuberculosis, 1901-1940,' p.114.
[44] Dunsford, p.227.
[45] Bryder, "If Preventable, Why Not Prevented?' : The New Zealand Response to Tuberculosis, 1901-1940,' p.112.
[46] ibid., p.126.

and treatment. There were many limitations with this approach such as no focus on social conditions for example housing and nutrition, there being not enough beds in sanatoria for those who needed them, there being nowhere for the chronically ill to be cared for, and the focus being on *Pakeha* (European) New Zealanders with little focus on the indigenous Maori population.[47]

Alongside sanatorium treatment, TB-specific chest surgery became popular in most western countries during the 1920s to the 1950s although there was no evidence to show that these surgeries were superior to work, or open air, therapy. Surgical and semi-surgical treatments were developed; collapse therapy or ‘artificial pneumothorax’ was devised by an Italian doctor, Carlo Forlanini. The intent was that by resting the lung by collapsing it through admitting air into the pleural cavity it would allow the lung to heal.[48] The greatest benefit of these air procedures was that the inaction of the lung meant that no sputum was produced by the patient thereby rendering them non-infectious. Another surgical procedure called ‘thoracoplasty’ was utilised when other forms of collapse therapy had proved unsuccessful. Thoracoplasty was much more invasive and involved removal of a number of ribs to achieve a permanent collapse and resting of the lung.[49] Surgery was seen as a way of ‘doing something’ for patients and it also elevated the status of doctors with the patients feeling that something concrete was being done. Nurses were also attracted to potential surgical intervention. This was seen as an added bonus as traditionally nurses had been hard to attract to sanatorium nursing due to the high level of infection of health care workers, and the monotony of the

[47] Alison Searle, 'Having TB: The Experience of Pakeha', University of Auckland, 2004, p.4.
[48] Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, p.173.; Daniel, p.197.; Dunsford, p.230.
[49] Bryder, *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, p.177.

work.[50] Surgical treatments converged with new antibiotic treatments in the 1950s and ultimately the drug therapies saw the decline of sanatorium and surgical treatment altogether.

As tuberculin could not indicate active TB, the use of X-rays for diagnosis of the extent and progress of the disease were used. X-ray was the only way to find early TB and thus utilise early treatment, but it was expensive and usually only available in the hospitals of cities or larger towns of industrialised nations.[51] X-ray required specialist training for accurate reading and interpretation. The introduction during the Second World War of miniature films to screen armed services recruits made X-ray affordable for full population screening. With increased X-rays came increased diagnosis and many countries were surprised at the higher than expected level of TB in their communities. The miniature X-ray became an important component of anti-TB campaigns as it enabled examination even in remote places. MMR units were utilised in all western countries, and often doubled as a vehicle for mobile social marketing campaigns. They were highly visible and created opportunities for discussion and information dissemination, although without a definitive cure, the X-rays only enabled earlier and more accurate identification of disease.[52]

The 1943 discovery of streptomycin by Selman Waksman introduced hope of a medical treatment to cure TB. With previous treatment for TB being long and drawn out over many years in isolation, most patients were only too keen to shorten their treatment even given that streptomycin had known side effects, such as the loss of hearing, irreversible dizziness and skin reactions. However, if it meant the difference between TB and deafness, patients would tend to choose the latter.[53] There were limitations to streptomycin, however, the most

[50] ibid., pp.178-9.
[51] McCuaig, p.68.
[52] ibid. p.189.
[53] Dunsford, pp.92, 237.

troubling being the development of a new breed of TB germs with resistance to it.[54] This meant that TB would need to be treated with two or three equally effective drugs. Jörgen Lehmann first tried para-aminosalicylic acid (PAS) as an oral TB therapy in 1944 and in the 1940s Britain's Medical Research Council demonstrated that the combination of streptomycin and PAS was more superior than either drug alone. Thioacetazone was another drug that was used in combination with PAS but never in isolation. In 1951 isoniazid (INH) was trialled and this drug became the lynchpin of drug therapy due to its effectiveness. However, wanting to avoid the creation of drug resistant TB, doctors continued to combine drugs using INH with streptomycin and PAS.[55]

Although drug treatments were proving successful, the difficulty was that the treatment was still long term. The drugs were not easy to take, and the length of treatment was a barrier to completion, as were the side effects. INH had links to liver disease; streptomycin was taken as a painful injection, while PAS tasted dreadful and was difficult to swallow.[56] The current WHO 'Directly Observable Treatment' (DOT) Strategy is an internationally devised plan to address the issue of non-compliance in taking TB medication. It involves watching the patient take their medication to ensure medications are taken in the right combination and for the correct duration to minimise the likelihood of the bacillus becoming resistant to treatment.[57]

The disease, and its treatment and care, have evolved over time as technology and knowledge of the disease has continued. In today's climate, TB is still a problem in most countries.[58] The disease has now evolved, and there are multi-drug resistant forms of TB in some countries.

[54] Daniel, pp.216-7.
[55] ibid., pp.216-7.
[56] Interview Ngapuretu Tutai Adamson, Rarotonga, 2009, Dunsford, p.237.
[57] World Health Organisation, *What Is Dots?* ; available at: http://www.searo.who.int/en/Section10/Section2097/Section2106_10678.htm (6th May 2009).
[58] Grange, p.9.

Scientists knew the emergence of drug resistant stains was a possibility from the time they developed the first chemotherapy drugs and this is why a multidrug regime was always recommended.[59] It was hoped with the developments of Mantoux, BCG, MMR and drug treatments that TB would be eliminated and many countries set this as their goal, including the Cook Islands. However it appears that the Cook Islands, in the Pacific, is one of a very few who have almost managed it.

[59] ibid., p.19.

Chapter Two: The Cook Islands Administration and Medical Services relating to TB, 1896 – 1945

The Cook Islands' colonial past is the focus of this chapter, with New Zealand as the colonial power, operating as a major influence on health services. The following discussion lays the backdrop to this thesis, providing the history of the Cook Islands administration and some understanding of the political influence on the medical service.

In 1901 the Cook Islands were annexed from the British government to New Zealand and therefore fell within the boundaries of the Dominion of New Zealand with inhabitants retaining their status as British subjects and New Zealand citizens. New Zealand inherited the Cook Islands with the islands' potential assets alongside their challenges, such as the health status of the people.[60] Provision for the Islands government was made in the Cook Islands Act 1915 under which the Resident Commissioner continued to be in charge of administration, subject to the control of the Minister of Island Territories in Wellington, New Zealand. The Resident Commissioner resided in Rarotonga and was represented on the other islands by Resident Agents. The Resident Commissioner would 'control legislation, expenditure, official staff, and justice, exercising these powers on the Outer Islands through Europeans appointed as Resident Agents'.[61] The principal administrative officer of the Government of the Cook Islands, under the control of the Resident Commissioner, was the Secretary to the Government

[60] Minister of Island Territories to the General Assembly, 31 March 1950, IT 101/1/30, ANZ.
[61] Cook Islands Annual Reports, 1949-50, IT 101/1/30, ANZ; see also Raeburn Lange, 'A History of Health and Ill-Health in the Cook Islands', Otago, 1982, p.209.; Gilson, pp.96-109.; Sissons, p.13.

with the Secretary of Island Territories being the administrative link between the Minister of Island Territories and the Resident Commissioner in Rarotonga.[62]

The Cook Islands Act 1915 established a move towards administrative managing of the Cook Islands and began to limit Cook Islanders' participation in decision making as it confined their influence to Island Councils. In each of the Outer Islands, Island Councils consisted of ex-officio and elected members, who were elected triennially. The ex-officio members comprised the Resident Commissioner, Resident Agents on the Outer Islands, together with the *Ariki* (leading chiefs) of the islands.[63] The councils were empowered to

> make by-laws for imposition of tolls, rates, dues, fees, fines, taxes and other charges, to establish village councils and to borrow money for works or services that the Council had the power to carry out, maintain, or acquire under ordinance.[64]

However, no by-law was able to become law unless assented to by the Resident Commissioner.[65]

Until 1965, when the Cook Islands became self governing and independent of New Zealand, the administration was in the hands of successive Resident Commissioners appointed by, and responsible to, the New Zealand Government[66]. The Cook Islands Director of Health was

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[62] World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.

[63] Minister of Island Territories to the General Assembly, 31 March 1950, IT 101/1/30, ANZ.; S. D. Wilson, 'The Record in the Cook Islands and Niue 1901-45,' in *New Zealand's Record in the Pacific Islands in the Twentieth Century*, Angus Ross, ed., Auckland, 1969, p.31.

[64] World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.

[65] Wilson, p.31.

[66] See Appendix 1

responsible to the Resident Commissioner and the Secretary to the Government.[67] While the New Zealand Government hoped that revenue gained from trade would pay for this administrative service, this did not eventuate and the welfare of the Cook Islands became heavily subsidised by New Zealand.[68]

Medical Services

In the first ten years of the New Zealand administration there was only one medical officer in the Cook Islands. This, alongside the limited communication available between the main island of Rarotonga and the Outer Islands, made any improvement in the medical service a huge challenge. The most prevalent diseases of this time were TB, dysentery, yaws, filariasis, venereal disease, infections of the skin, eyes and ears, intestinal infections and leprosy. The Resident Commissioner, Colonel Walter Edward Gudgeon, consequently thought that the Cook Islanders were a dying race just as the New Zealand Maori were considered at that time.[69] Consequently he felt, given his limited funds, that money would be better spent in areas other than health reform and during his time as Commissioner he made no effort to improve the small hospital in Rarotonga.

The five bed hospital, established under the British Protectorate, had opened in Rarotonga on 1 May 1896 despite the keenly held debate regarding its need and whether locals would patronise it, as it was popular knowledge that hospitals were not well-liked by 'natives'.[70] The timber hospital was subsequently demolished due to its dilapidated state and in 1911 a new, locally-funded, concrete hospital opened with additions made in 1926, 1939 and 1950 due to

[67] World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[68] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.210.;Gilson, p.96.
[69] Wilson, p.48.; Alan Moorehead, *The Fatal Impact : An Account of the Invasion of the South Pacific, 1767-1840*, Harmondsworth, 1968.
[70] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.214.

the increasing demand for beds.[71] The changing expectations of the Medical Officers and Resident Commissioners about the hospital not being used to any great extent reflected the evolving attitudes and growing acceptance of local people to the hospital.[72]

Not long after the arrival of Gudgeon as British Resident, in September 1898, a Medical Officers Act was initiated.[73] This Act set the doctors' salary, stated that the doctor would visit the Outer Islands at least twice per year, in addition to their duties in Rarotonga, and that only doctors listed in the Medical Register of New Zealand could be appointed.[74] The professional medical service in the Cook Islands consequently became a branch of New Zealand's colonial administration with all medical officers appointed by Wellington authorities. However, when they were in the Cook Islands they were responsible to the Resident Commissioner.[75] All treatment and care was free, levied from a one percent import duty as declared by the Hospital Ordinance Act of 1911 which referred to free attention for all Natives. The Cook Islands Act of 1915 formally declared that 'such medical and surgical aid and attendance as may be reasonably required and is reasonably practical' was to be provided free for all Cook Islanders.[76] Gudgeon also initiated a Public Health and Quarantine Act during the same year to 'prevent the introduction of diseases from foreign ports' which was in line with the current thought of the day for both Europeans and Cook Islanders who had an established understanding that their diseases arrived from off shore.[77]

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[71] Wilson, p.49.
[72] Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.214, 9, 38, 40-42.
[73] Graeme Whimp, 'Writing the Colony: Walter Edward Gudgeon in the Cook Islands 1898 to 1909 ', Master in Arts thesis, Victoria, 2008, p.37.
[74] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.218.
[75] ibid., p.219.
[76] ibid., p.239.
[77] ibid., p.287.

After a turbulent beginning with difficulty securing a doctor due to the lack of financial incentives, the medical services and the hospital settled into a routine.[78] However, there were still the medical requirements of the Outer Islands to consider which were challenging due to travel difficulties, lack of amenities, and lack of trained staff.[79] Travel by ship took considerable time and was weather dependent, with the southern group of islands far more accessible than the northern group.[80] It was decided in 1910 that a second medical officer was required to give their attention to the Outer Islands. Although the position was advertised it again proved difficult to find someone appropriate to fill the post due to the low salary. The post was eventually filled in 1912 by Dr A. Maclurkin, enabling an AMO to support the work being done by the CMO.[81] The young Scottish doctor had postgraduate training in tropical medicine and public health and visited most of the Outer Islands several times spending a month or more on each island.[82]

During his two year period the Outer Islands were supported to a small extent but never in a way that was satisfactory to him or other medical staff and there seemed no satisfactory answers to the problem. Various ideas were explored such as appointing doctors as Resident Agents on the Outer Islands, or purchasing a ship, but neither of these options proved viable, meaning that the Resident Agents were often relied upon to assist with medical treatment whether they were qualified or not.[83] With ongoing financial constraints, the AMO dropped to a junior post in 1931 leaving only one doctor for the whole country until 1940. This meant that ultimately medical care was left to Resident Agents if they had the skill, a few nurses, and

[78] ibid., pp.213-9.
[79] ibid., pp.220-2.
[80] To put this in perspective, in 2009, the southern group islands are 50 minutes to an hour flying time away from Rarotonga while the northern group is four hours flying time in a small 10 seater plane.
[81] Wilson, p.49.
[82] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.221.
[83] ibid., p.225.

ta'unga (local healer or doctor of Maori medicine) for Outer Islanders.[84] In the late 1940s 'dressers' were trained at the Rarotonga Hospital as a way to facilitate some medical work on the smaller islands. Their training encompassed mosquito control, dentistry and elementary medical work and by 1955 permanent medical staff, either dressers or 'Native Medical Practitioners', were stationed on all inhabited islands.[85] The problem of how to give good service to the Outer Islands still remains as population decline intensifies the difficulties of providing an adequate service to very small and isolated communities.

Service to the Outer Islands came in the form of European nurses who began to be stationed on the Outer Islands of Aitutaki and Mangaia in 1917 as a solution to the lack of local medical care.[86] Outer Island Councils were asked to contribute to half of their salary, something Rarotongans were never asked to do. The first nurse, Sister la Fontaine, was appointed to Aitutaki. She began dealing with many cases from her dispensary on the Post Office veranda or from her hospital - a thatch-roofed hut. On Mangaia Nurse McGruther was 'adored' for the thousands of patients she treated.

The success of these two nurses inspired the training of locally trained women as probationer nurses. Ani Pirangi, one of the first probationers trained, conducted herself so well on Aitutaki, then Atiu and Mauke, that she is considered to be the mother of the 'native nurse' service that became the core of Outer Islands medical care.[87] By 1936 the medical staffing in the Cook Islands was still inadequate as there was only one qualified medical officer, one matron and three European nurses, three Native Medical Practitioners and four probationer

[84] ibid., pp.223, 370.
[85] ibid., p.249. For further discussion on Native Medical Practitioners see the 'training' section below.
[86] Wilson, p.50.
[87] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.227. Scott, p.157.

nurses for a population of 12,000 scattered over 13 islands.[88] An attempt was made to address this by establishing 'cottage hospitals' in Aitutaki and Atiu and increasing the quota to be trained at the Fiji Medical School.[89] By 1945 the medical staff had increased considerably although it was still inadequate for the conditions. There were now two European medical officers, six Native Medical Practitioners, a matron and three European sisters, and twenty Cook Islands nurses and trainees.[90]

By the end of the Second World War the most difficult health problems related to the prevention of disease, rather than the provision of medical staff and facilities, with TB, filariasis, hookworm and infant disorders causing the most concern.

TB in the Cook Islands

The hospital in Rarotonga did not routinely isolate TB patients; however two outside shelters (hutments) made from pandanus or *kikau* (coconut frond) thatching, and hibiscus branches were built on the hospital premises for the accommodation of advanced cases in 1915. It was not until 1919 that discussion started regarding the building of a sanatorium on an elevated site on the north-western side of Rarotonga.[91] Long delays occurred as there was a continuing debate about the need for a sanatorium. The Public Health Department in Wellington wanted details, and needed to know where the proposed sanatorium would be built, and whether the building would only be used for natives and also how many beds were required. The Cook

[88] Wilson, p.52.Inn 1884 a native medical school was started in Suva, where a three years course of training was give to suitable Fijians. The institution was enlarged and in 1928 it became the Central Medical School, Fiji. Other Administrations in the Western Pacific co-operated with the Fiji Government in the capital and annual expenditure and the Rockefeller Foundation contributed to the capital cost. There were forty-two student in residence in 1935, two of whom were Cook Islanders.
[89] ibid.
[90] ibid., p.53.
[91] Cook Island Administration – Secretary Public Health, January – November 1920 - various correspondence., South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.315.

Islands administration suggested eight or nine beds to be used solely for natives, one doctor for the hospital and the sanatorium, and a special nurse just for the sanatorium.[92]

During the month of April of 1919, Herbert Chesson, a New Zealand District Health Officer, submitted a report to the Chief Health Officer in Wellington regarding the TB status in the Cook Islands, with his recommendations about whether a sanatorium should be built in Rarotonga.[93] Chesson reported that the adoption of European clothing and housing styles by natives in the Cook Islands underlay the growing problem of TB and that these social issues had a major impact on their health. He asserted that European style housing was not well ventilated, and that iron roofs created too much heat during the day. He felt that natives were careless about expectoration and that they should be encouraged to go back to their native style of dress and housing but if this could not be achieved, then the building of European style houses with 'the best lines for ventilation so important in the tropics' was important. In addition he suggested that there should be 'legislation combined with education' to cover the problems with overcrowding and expectoration. His recommendations give an indication of the prevailing ideas about TB treatment during this era. It could be said that, in one light, Chesson was forward-thinking in that he was proposing that the Cook Islands should have a similar standard to New Zealand rather than a pared-down medical service which was the standard practice for the Pacific. On the other hand his view on legislation, something New Zealand never instigated, was not.

[92] Cook Island Administration – Secretary Public Health, 10 February 1920, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ. It is unclear where Europeans would go if they got TB; it is presumed they would be returned to New Zealand for sanatorium treatment.
[93] Chesson – Chief Health Officer Wellington, 1 April 1920, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

Regarding the building of the suggested sanatorium, Chesson agreed that the site suggested for the building was cool and had good drainage but he also had a few concerns with it. He advised that there should be sufficient water available and that as the site was five miles away from the hospital it would need to be a separate institution with its own nurse. He also reported that the Medical Officer doubted that patients would go into it if it was erected. These issues led him to suggest a trial of native style huts on the hospital grounds that could be replicated in villages when patients were released from isolation at the hospital and to have a nurse to follow up with patients when they returned to their villages. This idea was progressive for the time and could potentially lead to a district nursing system which proved successful in New Zealand and other countries. His final recommendation was:

> if this is found to be successful, <u>then</u> the question of permanent buildings should be considered, but it must be remembered that the prejudice of the native has first to be overcome.[94]

He finished his report with an appeal that the 'matter is of very great importance and that immediate steps should be taken to deal with it'.[95]

The matter of the 'prejudice of the native' to being in a sanatorium was an issue that New Zealand medical authorities had previously faced. Lange suggests that there was a mix of factors contributing to this attitude for New Zealand Maori. Maori had experienced *Pakeha* (European) institutions as places of death, they did not want to be separated from their *whanau* (family) and their traditional spiritual notions about illness encouraged a fatalistic attitude to disease.[96] These factors could reasonably be applied to the people of the Cook Islands as doctors had found Cook Islanders suspicious of injections, and whole families camped at

[94] ibid.
[95] ibid.
[96] Raeburn Lange, *May the People Live: A History of Maori Health Development 1900-1920*, Auckland 1999, pp.35-44.; Derek A. Dow, *Maori Health & Government Policy, 1840-1940*, Wellington, 1999, pp.71, 108-10.

hospitals to stay with their admitted relative if it was within close proximity, although they often refused admission if the hospital was too far away for family to visit.[97]

While the debate continued about the details of the sanatorium in 1920, the CMO explored the possibility of using two or three beds, with payment from the Cook Islands administration, at a North Island (New Zealand) facility for their Cook Islands native TB patients.[98] The New Zealand Health Department firmly declined this as an option. Arguments given in reply stated that sending Cook Islanders to New Zealand was undesirable as 'natives do not stand a transfer from the warm climate of the Islands to the more rigorous climate of New Zealand'.[99] This response clearly indicated that the Cook Islands should treat their cases in their homeland. There were also concerns that advanced cases would be sent and that there would be transfer of the disease from patients to fellow travelers en route. James Collins, AMO, appeared frustrated in his reply to the New Zealand Health Department, stating that the hot humid climatic conditions of the Cook Islands quickly turned early cases into advanced cases, and that they were already doing as was suggested i.e. treating their patients in the Cook Islands but that they were having 'lamentable results'.[100] He reminded the New Zealand administration that they indeed did understand that sanatorium treatment was only beneficial in the initial stages and suggested that they could be relied upon not to send advanced cases to the New Zealand but to segregate them in Rarotonga. He disclosed that precedents had been set in that they had had patients go to New Zealand sanatoria whereby they had 'accrued marked benefits'. He ended with a plea for support saying that:

[97] Davis and Davis, *Doctor to the Islands*, pp.54-8.
[98] This is again explored in the 1950s.
[99] Resident Commissioner – Chief Health Officer Wellington, South Pacific Board of Health - TB San, 1922-54, 29 June 1920, H 333/13/1, ANZ.
[100] Assistant Medical Officer - Honourable Minister of the Cook Islands, 8 October 1920, H 333/13/1, ANZ.

> we have many cases at present in the early stages which will recover if sent to New Zealand, (over 90% of initial cases recover under suitable conditions) and which are steadily going downhill here and it is imperative that immediate steps be taken to procure treatment for them in New Zealand.[101]

He assured the Minister that they would set up 'compulsory segregation for advanced cases in a highly suitable locality and under trained supervision'.[102] The reply from New Zealand explained that their stance stemmed from lessons they had learned through their New Zealand experiences with Health Boards that did not cater for the care of advanced cases, and therefore they had invariably sent inappropriate cases to sanatoria. In contrast they found that those Boards that provided shelters within their institutions for advanced cases sent only those likely to benefit from treatment. Collins was probably further frustrated by the comment that if the Cook Islands could show the New Zealand Department of Health that advanced cases were being isolated and accommodated in Rarotonga, then they would 'have some assurance that only suitable cases would be sent to the Mainland, and this matter could be considered more favourably than heretofore'.[103] In later years, when New Zealand's criteria had been met, people suffering with TB were still not able to go to New Zealand sanatoria for treatment, even when the Rarotongan sanatorium had a long waiting list.

The Resident Commissioner also directly asked the Cook Islands administration to arrange for admission into a New Zealand sanatorium for one of the Islands' top teachers who had contracted 'consumption'.[104] There is no corresponding reply but it may be safe to assume, due to Collins' revelation, that while the policy was to not send TB patients, there were some

[101] ibid.
[102] ibid.
[103] Memo Chief Health Officer to the Secretary, Cook Islands Department, 9 November 1920, H 333/13/1, ANZ.
[104] Memo Resident Commissioner to the Secretary, Cook Islands Administration, 3 July 1920, H 333/13/1, ANZ.

patients who managed to get around the system, and that this could have been managed through political channels. What is significant about these discussions is that nobody asserted the rights of Cook Islanders as New Zealand citizens to unrestricted access to New Zealand whatever their health status. This point was never raised, debated or questioned. If the Cook Islands was indeed part of the Dominion of New Zealand why were Cook Islanders not allowed to travel freely, and why did nobody challenge the viewpoints of the New Zealand administration? These discussions give an insight into the colonial nature of the relationship between the two countries and also the hierarchical nature of the status of Cook Islands Maori in relation to Europeans.

During the early 1940s, TB in the Cook Islands remained rife. No priority was given to the construction of a sanatorium and housing standards gradually deteriorated. Overcrowding helped to spread the disease while, during World War II, Cook Islanders started to become more dependent on imported and less nutritional foods. These social conditions all made them more vulnerable to TB infection.[105]

Training

Training Cook Islanders as doctors was a novel idea but slow to be taken up by the Cook Islands administration, even though other British colonial settings such as India, Africa and New Zealand had set precedents. As previously mentioned, in 1917, local women began training as probationary nurses and were sent to the Outer Islands as pioneering Cook Islands' health professionals. They remained the only Cook Islands trained health personnel until 1931.[106]

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[105] Wilson, p.53.
[106] Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.229-30.; Scott, pp.157-8.

Colonial administrations of the South Pacific were discussing the importance of maintaining future labour supplies along with regional productivity and security during the 1920s. Alongside post-war humanitarianism and advances in medical science these concerns encouraged colonial governments to begin to undertake more responsibility for indigenous well-being and they began to expand health services in the region.[107]

The combination of colonial frugality and the physical environment of the Pacific with its dispersed islands, small local populations and vast oceanic spaces demanded innovative approaches but it was not until Lambert, from the Rockefeller Foundation, visited the Cook Islands in 1925-26 that the wheels began to move in relation to a possible solution: training Cook Island men to become doctors.[108] At the same time as Lambert's visit, the new CMO Dr Ellison (Te Pohau Erihana), a New Zealand trained Maori doctor, arrived in the Cook Islands from New Zealand fresh from his postgraduate study in tropical medicine. Ellison had been a keen member of the New Zealand Young Maori Party and was instrumental in their campaign to raise New Zealand Maori health standards. Although his background showed he was up for the difficult task, the Administration thought he was 'faced with an impossible task'.[109] Lambert also observed that 'Dr Ellison was working like a beaver with an understaffed department' but Lambert felt he had an answer to the situation.[110]

Lambert believed that the answer for many Pacific Islands' medical problems would be solved by training their own people. He believed that Pacific Islanders, educated in western medical science, yet culturally homogeneous with their patients, would be valuable as a tool to

[107] Annie Stuart, 'Contradictions and Complexities in an Indigenous Medical Service', *Pacific History*, 41, 2, 2006, p.126.
[108] The Rockefeller Foundation was a regional philanthropic organisation that led the way for other regional support agencies such as the South Pacific Commission at a later date.
[109] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.223.
[110] S. M. (Sylvester Maxwell) Lambert, *A Doctor in Paradise*, London, 1941, p.257.

demonstrate to indigenous communities the advantages of western colonial and scientific worldviews[111]. He had, working alongside him during his visit, Malakai Veisamasama, a Fijian trained in medicine, as ‘Exhibit Number One’.[112] Advocating for a Native Medical Practitioners’ training service to be set up in Fiji, he urged the Administration to have the Cook Islands participate.[113] It was the intention that Native Medical Practitioners would be positioned professionally above native nurses or dressers but without the full qualifications or privileges of the Colonial Service Medical Officer.[114] The idea was controversial. Many colonials and officials in the Pacific had rejected the proposal of natives being educated to the requisite level and being able to assume their professional responsibilities. Yet it was looked on favourably by the Resident Commissioner Hugh Ayson, the Cook Islands CMO Ellison, Maui Pomare, the New Zealand Minister of Health, and Apirana Ngata, the New Zealand Minister of Native Affairs. These Ministers, and the CMO, were all New Zealand Maori and therefore ‘natives’ themselves, so it can be reasonably argued that this influenced their decision. There was one instance where Pomare withdrew New Zealand’s support in 1927. He was insulted when he was treated like a ‘native’ while on official business in Fiji. As a result he decided that the Cook Islands would not participate in the Fiji Medical School scheme. On hearing this development, Lambert made a personal visit to Pomare in New Zealand to try and get him to change his mind whereby Pomare relented. This incident could be considered a show of a ‘native’ asserting his power and it was perhaps a timely reminder that he was the Minister and had a controlling influence, even if he was Maori. In 1929 the first two Cook Island candidates, Takao Tinirau and Tau Cowan, were sent to Fiji to train at the Central Medical School in Suva, returning to the Cook Islands in 1931 as the first Native Medical

[111] ibid.
[112] ibid.; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.231.
[113] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.230.; Stuart, pp.126-7.
[114] Lambert, 1923 Health Survey, CI 6/1/6, p.6, CIA.

Practitioners.[115] Dr Tau Cowan gave the Cook Islands forty years of service, retiring in 1972, and he was acknowledged as 'the first to work in the service of his people for this length of time'.[116]

Many more Cook Islanders entered the Suva School from the end of the 1920s and on graduation provided the Cook Island medical service with locals who were well trained medical personnel. They were more affordable than expatriate equivalents and, although they were valued, there were some years that the Cook Islands administration failed to fill all the training places made available to them.[117]

The Native Medical Practitioner concept was fraught with contradictions. It entrenched a hierarchical system of medical education and employment, in which race determined options, career prospects and income. Native Medical Practitioners were only eligible for government employment, mostly in primary care while European Medical Officers could take on specialist clinical work.[118] Despite demonstrating their capacity to acquire an understanding of the scientific principles and methods of contemporary medicine and surgery, Native Medical Practitioners remained subordinate in the Medical Service. Some colonial Cook Islands administrators considered Cook Islanders unsuited for advanced education or the same level of professional qualification as Europeans with some Resident Commissioners such as Hugh

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[115] Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.231-2.; Gilson, p.133. Native Medical Practitioners were renamed Assistant Medical Practitioners around 1947 and then Cook Islands Medical Practitioners about 1949. Later they became Assistant Medical Officers, and ever since 1966 they have been known as Doctor - Lange, 'A History of Health and Ill-Health in the Cook Islands'.

[116] Legislative Assembly of the Cook Islands, Official Report, 1972, Vol. I, Legislative Assembly Paper No. 7, Report on the Health Department, Cook Islands Parliament, Rarotonga.

[117] Scott, p.222.

[118] Stuart, p.143.

Ayson in 1936 actively discouraging Cook Islanders from gaining full medical qualifications in New Zealand. [119]

Whether or not their skills were fully utilised on their return from training depended on the CMO's philosophical viewpoint. This was a problem more likely to occur in Rarotonga than the Outer Islands and often caused tension between the European CMO and the Native Medical Practitioner with the Native Medical Practitioners often feeling that they were being treated as male nurses rather than doctors.[120] In the Outer Islands the Native Medical Practitioners would often be the only medical person and this allowed them some autonomy although at times the European Resident Agents would interfere with their work.[121] The complexities continued with a Native Medical Practitioner in any community potentially finding themselves inundated with patients requesting his western style medical treatment, while others circumvented him, preferring the customary herbal and massage therapies or supernatural intervention offered by *ta'unga* even though this meant breaking the law[122]. Missionaries originally outlawed consulting a *ta'unga* and in 1901 this law was revoked as the Medical Officers Inquiry Act of 1900 took its place. This Act was directed against *ta'unga* and it decreed that 'no *ta'unga,* whether Maori or foreigner, shall secretly attend any person who is seriously ill'.[123] It was expected that a medical officer should be informed if someone was ill. The Cook Islands Act (1915) set out penalties for any practicing *ta'unga* however this still did not suppress their activities.

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[119] Scott, p.222.; This debate has continued as currently most Cook Islanders trained, or training, in medicine, train at the Fiji School of Medicine in Suva, rather than in New Zealand, and NZAID fund university placements to Fiji rather than New Zealand, even though Cook Islanders are New Zealand citizens.
[120] Davis and Davis, *Doctor to the Islands*, pp.81, 4, 110-2.; Scott, pp.157, 222, 36.
[121] Scott, p.157.; Stuart, p.128.
[122] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.371.
[123] ibid

Health Services

While Lambert's visit in 1926 planted the seeds for the training of Native Medical Practitioners, the actual purpose of the trip was, at Pomare's request, to investigate the Cook Islands hookworm situation.[124] Hookworm compromises health as the parasite worm draws nutrients away from their host and therefore makes them more susceptible to diseases, one being TB. Hookworm was a leading cause of maternal and child morbidity, and anemia in the tropics. Lambert and Veisamasama examined 1,026 people to ascertain the extent of the hookworm problem. In the southern group, they found that 70 percent were infected with hookworm and they then implemented a mass treatment programme for hookworm throughout the Cook Islands.[125] This intervention could have considerably increased the resilience of people to TB as their nutritional status would have improved and hence their overall health.

Ongoing debate about suitable TB treatment, and the financial strain of the medical service, however, hindered the progress of the proposal for a sanatorium. Medical personnel began to address the TB problem through public health campaigns and open air treatment, utilising the veranda of the hospital for TB patients, or 'native structure huts' or hutments as had been suggested by Chesson. They also treated patients in their own homes. Other local grassroots initiatives began in relation to health around this time. Sanitation committees, under the backing of Island Councils, looked after public health and *Au Vaine* (Women's Committees) were formed in 1926. They provided leadership in good husbandry and housekeeping, visiting plantations and homes.[126] *Au Vaine* policy of reducing the reliance on canned and other imported foods in favour of home grown crops resulted in the increased plantings of locally grown produce, and hence improved nutrition – linked to TB resilience. Their focus on 'good

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[124] Lambert, 1923 Health Survey, CI 6/1/6, p.1, CIA.; Lambert, pp.256, 62.
[125] Gilson, p.180. For more on the impact of parasites on resiliency to tropical diseases see A. Desiree LaBeaud, et al., 'Do Antenatal Parasite Infections Devalue Childhood Vaccination?', *PLoS Neglected Tropical Diseases*, 3, 5, 2009.
[126] Scott, p.181.; Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.246, 66.

living' principles led to an inter-village competition for the *Au Vaine* Cup with points given for production of food, sanitation and cleanliness.

There was also an annual *tutaka* (regular rounds of village inspections) undertaken by the Resident Commissioner, Medical Officer, local leaders and women's committees in each district on Rarotonga during December. Lange suggests that *tutaka* was in place by the early 1930s.[127] This was an effective public health measure to improve living conditions focussing especially on impeding flies, mosquitoes, intestinal parasites and micro-organisms of gastroenteritis that flourished in dirt, and in refuse disposal. *Tutaka* were also undertaken on the Outer Islands at various times determined by the Resident Agent.[128] The *tutaka* was, and still is, a very public display of 'healthiness' as propagated by medical ideas. Everyone is aware of the expected outcomes of a *tutaka* and in a small community it becomes everyone's business if there is a home in the village that does not meet the standard. This could have perhaps been seen in a supportive light if the extended family helped to bring a property, or family's health, up to standard. Or the competitive spirit of the inspections could have put extra pressure on families that found it difficult to conform and the question hangs as to what the repercussions may have been if they could not comply with expectations.[129]

Ellison, as well as supporting the *Au Vaine*, helped establish baby and children's welfare clinics throughout the country. These were based on the highly successful New Zealand Plunket Society that nobody had thought to replicate in the Cook Islands, even though the Cook Islands were 'part' of New Zealand.[130] These clinics focussed on women and children's health and nutrition, and gave advice to families and became (and continue to be) a connection point for medical intervention. The Child Welfare Clinics, alongside the *Au Vaine*, had their

[127] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.271.
[128] Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.271-2.
[129] *Tutaka* continues quarterly to this day under the auspices of the Cook Islands Ministry of Health.
[130] Scott, pp.181-2.

'finger on the pulse' of almost all families in their respective villages and this enabled education, monitoring and support in screening and monitoring families for wellness as well as illness.

The 1930s saw TB cases continuing to be treated with other patients at the hospital. By 1935 there was an X-ray machine that helped with diagnosis, although a trained technician was not available for accurate readings, and the machine was prone to break down. Ellison began surgical procedures for patients, performing the first artificial pneumothoraces (see chapter one) for the country. While these interventions proceeded, the desire for their own sanatorium continued and was still on the agenda in 1940.[131]

Lambert began an investigation into the extent of the problem of TB in the Cook Islands by using tuberculin testing in 1935.[132] He tested 974 school children with tuberculin and found 581 (59.6 percent) were positive with the number of positive reactions rising with age. Of the 528 adults tested, 481 (92 percent) were positive. Post World War II tests on adults showed a reaction rate of around 90 percent.[133] These very high levels of exposure indicated many infectious cases in the community but for individuals it was not clear whether the reactions demonstrated successful resistance, dormant infections, or active TB. It was not until the middle of the 1950s, when diagnosis could be confirmed using X-ray, that there was definite proof that the disease was widely prevalent and that infection was contributing to a large annual number of new cases.[134]

[131] Resident Commissioner – Chief Medical Practitioner Wellington, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.; see also Lange, pp.315-17.
[132] The Royal Society of Tropical Medicine and Hygiene, Reprinted from the Transactions of the Royal Society of Tropical Medicine and Hygiene Vol 45 No 3 (December 1951), *Infections in Rarotonga, Cook Islands,* S Faine, C E Hercus, CI 6/1/6, CIA.
[133] ibid.; see also Lange, pp.313-4.
[134] J.M. Wogan NZ Health Department report August 1954 in Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.314.

In 1940 Ellison, also Acting Deputy Commissioner, laid out another proposal for a sanatorium supported by Lambert's findings of 1935.[135] He argued his case on the grounds that 27 percent of the total deaths in the country were due to TB and that he felt that the response to treatment by patients was generally very satisfactory. He explained that the present hospital accommodation was unsuitable for advanced TB cases as elevation was only a few feet above sea level, and that numerous patients did not have suitable sites to build huts for themselves on their own property, and stated that, in any case, home treatment was difficult to supervise.[136] He outlined past and present efforts to address TB and noted that the programmes had been directed chiefly with organisations such as Child Welfare (from birth to school age), schools (5 to 14 years), Boys' Brigade (11 to 18 years), Girl Guides (7 to 15 years), and returned soldiers. TB had also been addressed through other means such as public lectures, improved housing and educational pamphlets. He indicated that clinical treatment currently involving in-patients would incorporate interventions of 'diet, medicines, fresh air and rest, artificial pneumothorax, regular supervision and emergency treatment'.[137] He went to great lengths, discussing every aspect of the sanatorium, and proposed that each village would supply food for their own patients to reduce the running costs of the sanatorium and to show good will by the local community. He went so far as suggesting that

> cows could be kept to supply both the sanatorium and the main hospital in milk and butter. A poultry farm and piggery could be run and vegetables, taro, kumara, arrowroot, paw paw and other fruit grown. Fruit in season would be available from the discarded fruit in

[135] Ellison – Secretary, Cook Islands Department, Wellington, November 1940, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ, p.1.
[136] ibid.
[137] ibid

> packing sheds. The Outer Islands, too, could make their contribution in their surplus fruits and foods.[138]

They would also build 'TB hutments' in their villages for discharged patients who still needed medical supervision, stating also that all villages had agreed to this proposal which he had previously submitted (4 March 1939) for discussion. His proposal attempted to thwart all potential lines of refusal as he creatively showed in a variety of ways in which they could recoup the initial high costs and operate on minimal funding. Unfortunately, the proposal had to be put on hold as World War II approached and services continued as previously.

Although medical work on Rarotonga was mostly based at the hospital, Medical Officers did make domiciliary visits, as did nurses, after Ellison suggested that a European nurse become the District Nurse. Initially each village had a set day for visits. This evolved into a 'white cloth' system whereby a piece of white cloth was displayed outside the home of someone needing assistance. It was designed to attract the Native Medical Practitioner, Medical Officer, or District Nurse as they drove around the island but did make it a very public affair when people were unwell.[139] This practice also became the mode of operation on the Outer Islands if there was a Native Medical Practitioner or nurse in residence. The home visits provided opportunities for medical personnel to provide, alongside medical treatment, other relevant health education information on topics such as nutrition and hygiene. In 1933, Sir Apirana Ngata, the New Zealand Minister of Native Affairs, saw the value of this domiciliary approach as it was giving attention to what he considered were the real issues: 'the improvement of the living conditions of the people'.[140] Ngata's views were pioneering at the time and his

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138 Ellison – Secretary, Cook Islands Department, Wellington, November 1940, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ, p.4.
139 Interview George Koteka, Rarotonga, 29 July, 2009.; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.244.
140 Lange, 'A History of Health and Ill-Health in the Cook Islands', p.245.

philosophy of looking at social issues to improve the health of people has since been embraced as clear links between social policy and health have been established. In 2006 historian Judith Raftery proposed that ‘the healthiest nations of the world are the most egalitarian’ which Ngata, with his philosophy of improving social conditions, would conceivably have agreed with.[141]

WW II brought a large United States Army presence to the Outer Islands of Aitutaki and Tongareva. The Native Medical Practitioners found the army doctors to be very generous with medical supplies, including modern sulphur drugs and antibiotics such as penicillin which they had previously had little access to, and also with up-to-date medical knowledge[142]. One soldier, Mr S Johns, a landscape architect from California, worked in the war effort in the capacity of foreman carpenter, developing the landscape plans for the suggested sanatorium.[143]

With the war ending and new therapeutic possibilities becoming available, a new era in medicine was beginning for the Cook Islands. It was also a new era in communications with the establishment of the first regular air service to New Zealand in the period immediately after the war. The route, which became known as the ‘Coral Route’, on which DC3 planes and then flying boats were used, flew between New Zealand, Fiji, Samoa, through Aitutaki to Tahiti and ran at first monthly, and then fortnightly.[144] Figure 8 shows the flying boat *R.M.A. Aranui* refuelling in Aitutaki.

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[141] Raftery, p.23.
[142] Lange, ‘A History of Health and ill-health in the Cook Islands’, pp.206, 35.; Gilson p193.
[143] Memo from Government Public Works Dept, Wellington –Director General of Health, Wellington, 4 September 1945, H 1 499 333/13/1, ANZ.
[144] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.206.; Scott, p.270.; Jean Tekura'i'imoana Mason, 'Te Mana O Te Moni: The Cultural Influence of Corporate Power,' in *Cook Islands Culture*, Ron Crocombe and Marjorie Tua'inekore Crocombe, eds, Suva, 2003, p.189.

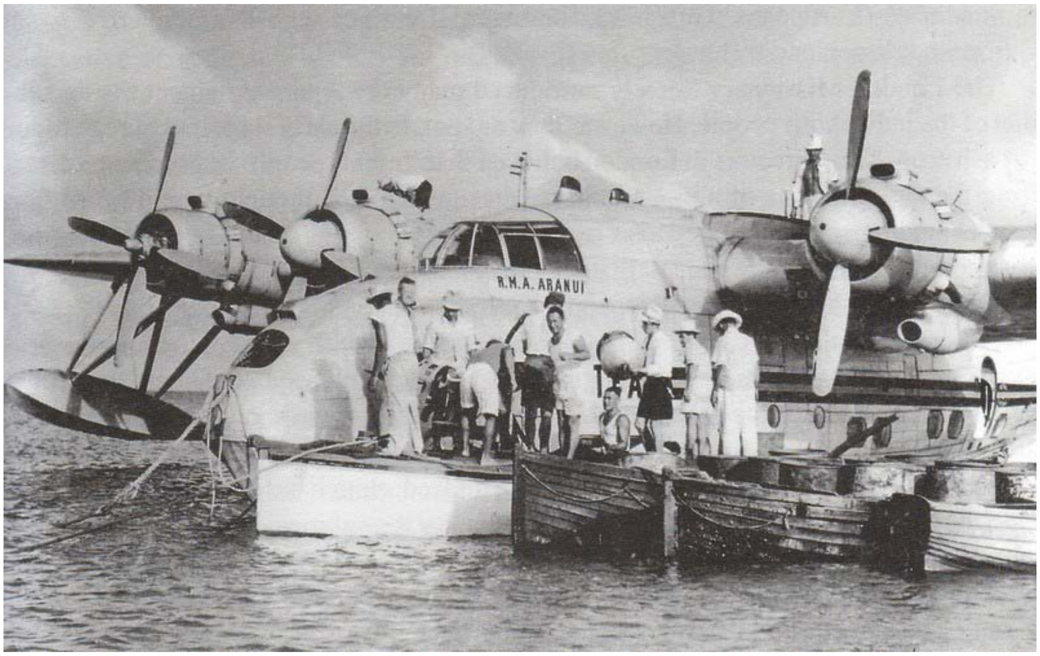

Figure 8. **Flying Boat Refuelling in Aitutaki**.[145]

World War II had forced further delays in the building of a sanatorium until Dr Derek Taylor, Director of the Division of Tuberculosis in Wellington, agreed with Ellison's proposal in 1944 and made a number of observations on the proposal, asking for further comment from Ellison.[146] In his review of the proposal, Taylor attempted to compare the Cook Island Maori TB situation with the lessons they had learned from the TB experiences of New Zealand Maori. He made assumptions on the numbers of TB cases based on New Zealand statistics alongside patchy figures from the Cook Islands. He stated that in 1937 the death rate for TB in the Cook Islands was 36 per 10,000 and based on those figures he estimated that in 1943 it would be 45 per 10,000. From this number he presumed that there would be approximately 450 TB patients in Rarotonga, (based on the New Zealand standard of ten times the number of annual deaths) and that the number of cases capable of transmitting the disease would be approximately 300. He declared that the ideal number of beds needed at the sanatorium would

[145] Solent Photo, Mason, p.189.
[146] Taylor – Director General, South Pacific Board of Health - TB San, 1922-54, 13 January 1944, H 333/13/1, ANZ.; see also Lange Ibid.

be double the number of annual TB deaths. Therefore 90 beds would be required, compared to Ellison's proposal of 12 beds in the sanatorium building and 24 in hutments. Taylor commented that Ellison's provisioning gave '54 beds short of the ideal number'.[147] He expected that this number of patients would require 20-25 trained nurses and nurse attendants, based on the New Zealand standard of one attendant to four patients, but also commented that this number of staff was high and could not be attained immediately. He then suggested that the four to five Native Medical Practitioners would probably be adequate as they could support Dr Ellison – only twenty staff too few! He finished by outlining long and short term goals. Long term goals included establishing an annual survey of all cases of TB by initiating a TB register, and developing a contact-gathering scheme and a tuberculin testing programme which could commence when the Native Medical Practitioners were sufficiently trained to implement it. He also suggested that MMR equipment could possibly be borrowed from New Zealand to survey positive reactors to the tuberculin test. He then recommended that once these recommendations were in place it would be advisable to establish a 'complete tuberculosis educational preventive programme for the population'.[148]

As the immediate objectives for the programme were to segregate and treat active infectious cases, Taylor consequently argued that provision should be made to build a sanatorium in Rarotonga to accommodate 15-20 patients, with additional hutments apportioned as suggested by Ellison totalling 30. These were still much lower numbers than Taylor had originally anticipated. Extra hutments should be provided on the individual islands when a long term programme had been introduced. Nursing staff for the sanatorium and hutment scheme should be provided for and trained with one registered nurse, four locally-trained nurses and five domestics, for both the sanatorium and the hutment group. The building of the sanatorium was

[147] ibid.
[148] ibid

finally approved by the Right Honourable Peter Fraser, Prime Minister of New Zealand, in February 1944 with one thousand people celebrating its official opening on 13 December 1945.[149] This event culminated Ellison's medical career. He contributed much to the Cook Islands medical service under extremely challenging situations. Human resources had been stretched in number and skill; treatments were still rudimentary, transportation issues created barriers to supporting people in the Outer Islands and the New Zealand administration's bureaucracy proved difficult to work with.

Conclusion

The period from the early 1900s to 1945 saw the implementation of colonial rule, two world wars and a depression - all of which took their toll internationally as well as on this small Pacific nation. The New Zealand administration, with financial and policy constraints, found no easy answers to the complex issues facing the Cook Islands. Wilson suggests that 'New Zealand could have done more in the early days' had Government policy emphasised improvement with New Zealand aid, 'instead of development from within the islands' but he also pointed out that the 'provision of medical and public health facilities' were praised by several competent medical visitors.[150] Who visited, and to what standard they were judging the servies to, is unclear.

The fact that it took 25 years to reach an agreement to build the sanatorium, even though it had regularly been determined as 'urgent' by key people, took its toll on the health of the people, and many people died from TB during the time it took to have these discussions. Of course, they may have died even if they had been in the sanatorium, although at the time the sanatorium was firmly believed to have a curative value.

[149] Department of Island Territories – Director General of Health, 21 February 1944, CI 10/2/4. CIA.; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.317.
[150] Wilson, p.57.

At the grassroots, health agencies such as the *Au Vaine* and Child Welfare, alongside regional agencies such as the Rockefeller Foundation, probably acted as supporting, monitoring and intervention sites. *Tutaka* improved the hygiene of the villages as did the *Au Vaine*, who also, with their focus on nutrition, supported the medical services goals to improve the health status of locals by improving diet. Both the *tukaka* and *Au Vaine* continue to operate to this day, although the *Au Vaine* is now the Cook Islands National Council of Women and their role has diversified. The *tutaka* happens quarterly and supports the now Cook Islands Ministry of Health in its health promotion work - particularly with helping to keep mosquitoes (and hence dengue fever and filariasis) at bay. Ellison was instrumental in the evolving service and in convincing the New Zealand administration of the importance of the sanatorium. His final proposal for the sanatorium showed he clearly knew how to ‘play the game’: how to write the proposal in such detail that it would have been difficult to deny. He improved the medical situation within the country, and laid some foundations for his successor, Dr Thomas (Tom) Davis, to continue to improve upon.

Chapter Three: Dr Tom and TB 1945 – 1952

Introduction

The role of particular individuals in making a difference is exemplified in the period immediately following the war by Dr Thomas Davis. His insights describe the medical service from just after WWII and chart the changes a strong-minded individual had on the standard of care for 'his' people. At the same time, his experiences record the steady move towards upgrading the medical service to the point of being ready to undertake a comprehensive and successful anti-TB campaign in the 1950s.

In December 1945, the newly appointed Dr Thomas Davis returned home to Rarotonga after sixteen years in New Zealand.[151] He had left his home of Rarotonga at eleven years of age to do his secondary and tertiary education in New Zealand. He was returning as a New Zealand-trained doctor, taking on something that no 'island boy had attempted' before, arriving with only two years' experience as a house surgeon at Auckland hospital.[152] Dr. Tom, as he became affectionately known amongst the Cook Islands people, was commencing the dream he had as a child; of being a Medical Officer to the Cook Islands.[153]

During his six years as a Medical Officer to the Cook Islands, Davis made a substantial impact on the attitudes towards western medicine for local people, while at the same time influencing how European medical personnel viewed the health of Cook Islanders. Both locals and the incumbent European doctors were initially, and equally, sceptical of him and his skills and

[151] Dr T.R.A. Davis wrote extensively about his experiences as AMO in late 1945, and then as CMO when he was awarded that position in 1948. His writing provides personal perceptions and insights that are an alternative perspective to the correspondence between the Cook Islands and the New Zealand Administration. This chapter relies heavily on these accounts.
[152] Davis, *Island Boy : An Autobiography*, p.30.
[153] Davis and Davis, *Doctor to the Islands*, p.40.

they were unsure of where he 'sat' politically. He was, after all, a Cook Islander, but he was also a New Zealand-trained doctor, a first for the country.[154] In fact there were openly expressed doubts about his ability as a doctor from both locals and expatriates when he first arrived on the island.[155] These types of reservations and attitudes could possibly account for why it took him three applications for the repeatedly advertised Cook Islands vacancy before he was appointed as AMO, his first application not even receiving an acknowledgement.

Davis was very much on new ground with his combination of medical knowledge and Cook Islands heritage enhancing his medical practice in ways that had never been realised before in the Cook Islands. Where attitudes about native abilities, or more often than not, the lack of them, were voiced, Davis knew from his personal experiences that Cook Islanders were not lazy, nor unintelligent. He had the benefit of speaking the same language, and he recognised that 'the tropics' were not to blame for the many health issues he initially confronted, despite such assertions by the incumbent medical officer.[156] He found it upsetting and challenging when people openly shared their thoughts on the 'natives' without restraint, making their low opinion perfectly clear, all the while forgetting that he was also one of 'them', an 'island boy'.[157] He recognised their prejudices and understood that their opinions were not based on fact, and he set about confirming that his people had much more going for them than they were being given credit for.

Dr Tom's Early Impressions of the Medical Services

His initial perusal of the medical facilities and the state of the island of Rarotonga left him feeling dismayed as he observed that the island was in quite a state of despair even though no

[154] ibid., p.51.; Davis, *Island Boy : An Autobiography*, p.30.
[155] Davis and Davis, *Doctor to the Islands*, p.51.
[156] ibid. For examples see pp.81-4 Davis and Davis, *Doctor to the Islands*.
[157] Davis, *Island Boy : An Autobiography*, p.34.

fighting had occurred on the Islands during WW II.[158] Some of the European-style houses with their corrugated iron roofs, of which the owners had once been so proud, were now covered over with coconut thatching, or were empty shells of limestone walls with native shacks tucked in behind them. Two to three hundred Manihikian and Rakahangan people crowded into dwellings on swampy land. The large numbers of Outer Islanders migrating to Rarotonga typically could not claim any land and were therefore reliant on whatever land Rarotongan landowners allowed them to use.[159] The villages were unkempt and the general impression he gained was one of dejection. Davis wondered what had happened to the *Au Vaine* who had been the conscience of the community and who had, in the past, insisted on home and village cleanliness and also what the *Ariki* (high chiefs) were doing to support the wellbeing of their community. In his opinion the local leaders and the New Zealand administration were oblivious to the impact the Depression had had on the wellbeing of Rarotonga and the financial impact of having had shipping cut off during the war.[160] Davis believed that there was a direct relationship between the standard of living and the prevalence of disease, realising that it took more than doctors, nurses and medications to control disease. He was conscious that ultimately they would need a Public Health department to look at the issues of TB, leprosy, filariasis, yaws, and malnutrition.[161]

On his preliminary visit to the thirty-two bed general hospital in Tupapa, Davis observed patients suffering from TB and suppurating TB of the bone, amongst a range of other diseases.

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[158] ibid.; Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.206, 34.; Gilson, p.178. The US military had occupied some of the Outer Islands as protection, with the Outer Islands of Aitutaki, Suwarrow, Manihiki, Tongareva and Nassau Islands being used as coast-watching stations. The first troops arrived in Aitutaki in 1941, Kathleen Hancock, *Sir Albert Henry: His Life and Times*, Auckland 1979, p.155.

[159] F.S. Maclean, report, 1946; Davis, Report, 3 January 1947, H.222/12, ANZ; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.253.

[160] Davis and Davis, *Doctor to the Islands*, pp.52-3.;Scott, pp.189-90.; Hancock, p.153.

[161] Davis, *Island Boy : An Autobiography*, p.48.

None of them seemed to be receiving treatment, nor was there anywhere to isolate them.[162] He discovered that it was common practice for families to stay with patients to do their cooking and caring, while patients also sought treatment from 'witch doctors', as the outgoing doctor called them, or '*ta'unga'* (experts in Maori medicine) even though there was a law disallowing their practice (see Chapter Two).[163] The practice of Maori medicine had been outlawed and the intervention to stop people practising was by reporting and fining *ta'unga* in the courts.[164] Surgery was almost non-existent, because in the past, patients had often become septic after surgery due to the pitiful state of the theatre.[165] Davis found the situation of the theatre with no sterilizer for instruments, and poor sanitary conditions throughout, appalling.[166] Furthermore, expatriate school teachers were called on to do the weekly X-rays if required, although at that time the X-ray machine was not working. He lamented about how he was going to diagnose TB.[167] There was no laboratory, wards were overcrowded, medicines were often underutilised or obsolete and he was shocked to discover that the Native Medical Practitioners and nurses on the Outer Islands were untrained in the use of modern sulpha drugs and penicillin. Even the comparatively modern Rarotonga hospital was dependent on obsolete drugs which may have been due to views similar to those of the matron that:

> no native responds to these new-fangled sulfa [sic] drugs, and as for penicillin, doctor, you'll soon find out whether or not you can get a native to let you stick a needle into him. He'd rather die.[168]

[162] F.S. Maclean, report, 1946, H.222/12, ANZ; see also Davis and Davis, *Doctor to the Islands*, p.53.; Davis, *Island Boy : An Autobiography*, p.35.
[163] Josephine Baddeley, 'Traditional Healing Practices of Rarotonga, Cook Islands,' in *Healing Practices in the South Pacific*, Claire D. F.Parsons, ed., Hawaii, 1995, p.129.; Davis and Davis, *Doctor to the Islands*, p.56.; Davis, *Island Boy : An Autobiography*, p.35.; For ease of reading *ta'unga* will not be translated into English in later text.
[164] Davis, *Island Boy : An Autobiography*, p.35.
[165] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.241.
[166] F.S. Maclean, report, 1946, H.222/12; see also Lange ibid., pp.241-2.
[167] Davis and Davis, *Doctor to the Islands*, p.55.; Davis, *Island Boy : An Autobiography*, p.35.
[168] Davis and Davis, *Doctor to the Islands*, pp.53-5. Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.241, 8.

He quickly learned that the matron believed natives had a special biological make-up which made them non-responsive to modern drugs, an idea that seemed to be shared by others in officialdom.[169]

Dr Tom and the Sanatorium

The newly built sanatorium, funded to the tune of ₤25,000 by the New Zealand government, held sixteen beds and was seven kilometres from the main town in Rarotonga.[170] On visiting the sanatorium above *Tuoro* (Black Rock), Davis was introduced to nine nurses, cooks, orderlies and groundsmen, but no patients.[171] This was puzzling as he had been taught that Polynesians had low resistance to TB and that it had a reputation as the ‘scourge of the Pacific’.[172] He realised that the site of the sanatorium was appropriate as far European medical views were concerned as it was very isolated and on a hill high above sea level with air that was cool and fresh (see Figure 9); an ideal environment for the current treatment of TB. However, it was local legend that Black Rock was where souls left the island upon death, and Cook Islanders felt the area was haunted. Little wonder that patients would not stay at the sanatorium. Although there were no patients, Davis was encouraged by the modern equipment and good design of the hospital but inwardly he was concerned that the sanatorium would ultimately be too small once he found a way to convince people that the sanatorium was not haunted and they began to undergo treatment there. While the exact prevalence of active TB disease was unknown, he was keenly aware of the high numbers of tuberculin reactors as post war tuberculin tests on adults had shown a reaction rate of 90 percent[173]. That sensitivity could

[169] Davis, *Island Boy : An Autobiography*, pp.33-4.
[170] Gilson, p.211.; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.317.
[171] See Figure 3.
[172] Davis and Davis, *Doctor to the Islands*, pp.55-7.
[173] T.R.A. Davis, 'Rarotonga Today', *Journal of the Polynesian Society*, 56, 2, 1947, p.212.; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.314.

merely have indicated prior contact and he was initially unclear as to whether the reactions showed resistance to infection, latent infection or active tuberculosis.

Figure 9: **Example of the Elevation of the Sanatorium Site.**[174]

The training and conditions of staff were also of concern. Davis was dismayed when he read the staff files on the Native Medical Practitioners and refused to believe all they entailed regarding their misdemeanours. Such reports did not fit with the impression he had gained of the two Native Medical Practitioners he had met so far in Rarotonga.[175] Like most of those sent to train in Fiji, they were from high standing Cook Islands families, they had been educated in New Zealand for their secondary schooling, and they had distinguished themselves at the Medical School in Fiji. He knew they were not lazy since, on top of their medical duties, they had to supplement their income by farming in their spare time because of

[174] The sanatorium site does not afford a good photograph to give an example of its elevation due to trees, therefore this photo is taken from the next rise at the same level.
[175] Davis and Davis, *Doctor to the Islands*, p.80.

their low salary. However, they had not been trusted by the previous medical officers and correspondingly had not been given any real responsibilities as health professionals. He felt that as a result they had become discouraged. This discouragement through the lack of support from previous CMOs meant they had become unsure of themselves and had ultimately led to a lack of self-confidence in their skills.

In an attempt to mould the organisation of medical care into a more efficient system, Davis quickly formed positive relationships with Matron Hawkes, a European nurse trained in New Zealand, and the Native Medical Practitioners. He spent time developing more than just a professional relationship with the Native Medical Practitioners, inviting them and their wives to dinner, feeling that if he treated them as doctors rather than 'hospital chore men' (the way they had been treated in the past) they would respond accordingly.[176] He developed a roster for the Native Medical Practitioners, sharing the workload for medical and surgical duties, promising them he would take 'every opportunity to demonstrate modern methods' (of medicine) to them so that they could undertake more responsibilities in their individual fields.[177] He records that they responded well to the added responsibilities and, on occasion, he discovered them using their spare time to study his medical textbooks.

As far as hospital organisation and medical care went, Davis made immediate changes - beginning with the training of staff in sanitary and surgical cleanliness to ensure that patients did not become septic after surgery. People needed to be convinced that injections were not to be feared since so many illnesses required them as part of the treatment. It seemed that most people had witnessed injections when morphine had been given to dying patients and they

[176] ibid., p.84.
[177] ibid.

associated the injection with death.[178] He therefore investigated peoples' fears and began to eliminate them by administering all injections himself even though he was exhausted by the practice. He continued this practice until the local people trusted that injections did not cause the death of their loved ones. Lange, in his thesis (1982), disagrees with Davis that Cook Islanders had an aversion to injections as 'thousands had been given for yaws'.[179]

Davis discovered that the broken-down X-ray unit he had seen on his initial visit to the hospital gave surprisingly good chest pictures after he himself got it running – even though it was a dental X-ray unit.[180] He knew it was imperative that they had an X-ray unit that could do a good job 'in a place that so many deaths were due to tuberculosis' and he made arrangements to obtain the unit left behind by the American armed forces in Aitutaki when the war ended.[181]

Dr Tom and the General Health Administration

In an effort to get a more accurate picture of what illnesses they were dealing with and what people were dying from, Dr Tom began to get the Department of Health to collate figures. An official death certificate, which had not previously been in place, was established to get this data and he increased the communication between the Native Medical Practitioners on the Outer Islands and Rarotonga more fully by utilising the radio system which had been put in place during the 1930s.[182] At the same time, he developed a plan to enlist the support of the *ta'unga* that 'were an invaluable liaison between my medicine and the public'.[183] His respect of the local *ta'unga* was reciprocated as they shared information about their different ways of

[178] ibid., p.81.
[179] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.367.
[180] Davis, *Island Boy : An Autobiography*, p.35.
[181] ibid. He found this unit, on his return to the Cook Islands 20 years later, still in operation
[182] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.235.
[183] Davis and Davis, *Doctor to the Islands*, pp.83, 160.; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.374.

healing and slowly the *ta'unga* began to support his western medical ideas, often returning to their villages and repeating his lessons.[184] Davis felt this mutual respect helped him to break down the fear of the sanatorium, the fear of autopsies (so that cause of death could be determined) and, in addition, engender a feeling of confidence in the Native Medical Practitioners. He controversially referred psychological and psychiatric patients to *ta'unga*, as he felt they managed them well and better than the western medical system seemed to.[185] It could be surmised that since he was a Cook Islander, Davis knew that *ta'unga* held a culturally significant place in the community and that they were often the first 'port of call' for local people with a medical problem. The fact that he found a way to work with them, rather than against them, as the colonial administration was undoubtedly doing, enabled a partnership approach. This gave the medical service another surveillance mechanism for health issues through the close relationship with *ta'unga* and hence their communities.

Davis pushed boundaries with the New Zealand administration and later wrote that the Resident Commissioner, Mr William Tailby, was in need of health education himself.[186] He made requests for medicines and equipment that had not been sought before but had to explain why he wanted them. He pointed out that the Commissioner's own life may be lost if they did not procure items such as antibiotics which often saved lives. Native Medical Practitioners on the Outer Islands and in Rarotonga were asked to submit full reports of what was happening medically in each island. Davis then collated these into highly detailed monthly reports for the Commissioner, the Pacific Medical Service in Fiji, and the Department of Island Territories in New Zealand. In these reports Davis noted, in particular, inadequacies that needed bringing up to, what he considered, modern standards. He knew that he was not going to be popular in the

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[184] Davis and Davis, *Doctor to the Islands*, p.160.
[185] ibid., p.161.; Baddeley, p.143. Baddeley states that psychosomatic illness was still predominately treated by *ta'unga* in 1975.; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.377.
[186] Davis and Davis, *Doctor to the Islands*, p.83.

beginning as nobody thought that anything was wrong with the current medical service. However, he was exasperated with the poor excuses given to him as to why the 'poorest of medical services' were being given to 'his' people.[187] None of this endeared him to the administration. The Commissioner informed him that he would not be considered negligent if he did not work so hard and suggested that perhaps he was over concerned about the health of the Islanders. Davis was also reminded that that he was expected to attend tennis along with other social events of the expatriate community. At the time he was unsure how to interpret this statement but on a later occasion when it was mentioned again he had to clarify with the Resident Commissioner that the ethics of his profession did not allow him to follow this advice.[188]

These statements give some insight into the environment Davis found himself immersed in and the administration's values, which convey a fatalistic attitude to the ill health of Cook Islanders. It reveals perhaps what had previously been acceptable for the Medical Officers preceding Davis and offers an appreciation of the type of attitudes pervasive at this time. In his history of Cook Islands Health, Lange suggested that Davis' criticisms of the state of medical care in the Cooks Islands were perhaps harsh, in that real effort had been expended to find solutions to their complex health issues, although, as this analysis reveals, with very mixed results. However, Lange also concedes that Davis was justified in using new approaches and as a result of his efforts a number of innovations were initiated after 1946. [189]

Dr Tom and TB Control

Davis made education about TB, and other infectious diseases, a priority. He came to realise that people recognised chronic TB but did not understand the disease nor how people who

[187] Davis, *Island Boy : An Autobiography*, p.35.
[188] Davis and Davis, *Doctor to the Islands*, pp.83-6; 121, 48-49.; Davis, *Island Boy : An Autobiography*, p.33.
[189] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.249.

appeared healthy could actually be infectious and unwell. This initiated a number of ideas to begin to overcome people’s objection to the sanatorium. He reasoned that evil spirits could not access *tapu* (sacred) grounds, such as those of the sanatorium, and used a co-operative patient, willing to defy superstition, to lead the way.[190] The patient happened to be Geoffrey Henry, the father of Albert Henry who would be the first Premier to the Cook Islands, and Davis’ predecessor as Prime Minister.[191] He also persuaded patients to seek early help, using pneumothoraces (see Chapter One) to show the value of early treatment and the deaths of advanced cases to support his argument that early treatment was best.[192]

The sanatorium was therefore operating fully within a short time and quickly became too small to deal with the number of patients. Dr Tom had to rely on home treatment of the less serious cases.[193] The distance of the sanatorium from most villages continued to be an issue for many families as making visits to support relatives was difficult and Davis advocated for transport for the sanatorium. Parents were especially reluctant to leave their seemingly healthy children isolated so far away and in September 1949, now CMO, Davis commented in his monthly report that they had been waiting for sanatorium transport for more than two years.[194]

He began to feel that the medical service was too reliant on imported European staff and he set about, with Matron Reynolds in the late 1940s, training the first twenty-five Cook Islands student nurses, rather than the existing situation of probationary nurses, with a Cook Islands

[190] Watt-Davis, 27 March 1946, Cook Islands Health Services – General, 1945-54, H 333/12, ANZ; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.318.
[191] The first elections under self government were held in 1965. Davis returned to the Cook Islands in 1972 to form the Democratic Party and became Prime Minister in 1978.
[192] Watt-Davis, 27 March 1946, Cook Islands Health Services – General, 1945-54, H 33/12, ANZ; see also Lange, 'A History of Health and Ill-Health in the Cook Islands', p.318.
[193] Davis, *Island Boy : An Autobiography*, p.48.
[194] Davis, September monthly report, 1949, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.

designed curriculum.[195] Courses were taught by expatriate nurses and the AMO and at the end of their three year course they all passed the New Zealand Trained Nurses' examination.[196] To put this in context, it should be understood that at the time the Cook Islands had no secondary school after the age of fourteen, and English was the second language of these women. To have learned the complexities of medical practice and practical nursing under these circumstances was exceptional. Davis then went to bat, and won, for increased wages for nurses as he felt the

> pittance they were paid, alongside the hours they worked, their qualifications, and the fact they needed to make up for the living needs of their families by keeping animals and planting food crops, was outrageous.[197]

The nurses obviously felt fully supported by Dr Tom as they went to him again in later years to support their claim to become registered nurses, and many spoke in interviews about their respect for the work Dr Tom did to improve the medical service for Cook Islanders.[198]

Dr Tom's philosophy of having Cook Islanders taking more responsibility for their health led to the development in each village of a "Committee of Health" which he thought would bridge the gap that he felt had developed between the Health Department and the community.[199] His rationale was that he wanted local people to be able to have more of a say and he needed a vehicle to create more understanding of why interventions were needed. He felt that for many years local people had been deprived of responsibility for their own affairs and that, as this had become normalised, they had become reticent - with this being misinterpreted by

[195] Davis and Davis, *Doctor to the Islands*, p.221.
[196] Davis, *Island Boy : An Autobiography*, p.47.
[197] ibid.
[198] Interview Tu Tutakiau, Rai Heather, Kathy Koteka, Rarotonga, 2009.
[199] Davis and Davis, *Doctor to the Islands*, p.222.

expatriate staff as ignorance.[200] The Committees created a vehicle for many interventions, of which TB education was one, as Dr Tom claimed that TB accounted for almost forty percent of annual deaths.[201] After Davis explained to the committees about how TB spread and asked for everyone's cooperation to lessen the death toll, there was an almost immediate response. The information filtered back to their village communities with families soon seeking X-rays. Support for the sanatorium, alongside the development of isolation huts outside family homes to deal with the number of patients being treated at home, were evident before long.[202] In only a few short years the TB situation had been turned about, in that patients would now rather stay in the sanatorium by choice, rather than go to the expense of building a special hut.[203]

As a follow up to his 1944 report (see Chapter Two) in 1946 Dr C. A. Taylor, Director of the Division of Tuberculosis in New Zealand, visited Rarotonga to investigate the Cook Islands TB situation. In his report he stated that TB was one of the 'serious diseases of the native population but mentioned that no figures of mortality or morbidity were given to support the statement'.[204] After his visit he made sixteen recommendations on how to improve the TB situation. Taylor's sixteen recommendations were:

(a) Develop a TB register
(b) Train suitable Native Medical Practitioners in tuberculin testing technique
(c) Certification of deaths from TB be put on a satisfactory basis
(d) Publish an annual report of TB statistics showing suspect and proved TB cases, and deaths
(e) Provide microscopes to native Medical Practitioners to enable sputum examinations to be made in the Outer Islands
(f) Elementary laboratory equipment be provided to the CMO if a medical vessel is provided to enable a laboratory service to be taken to the Outer Islands

[200] ibid.
[201] ibid., p.225.
[202] ibid.
[203] Director General of Health - Resident Commissioner, 20 Jan 1950, Cook Islands TB 1949-57 IT 110/2/4, ANZ.; Davis and Davis, *Doctor to the Islands*, p.222.
[204] Research teams and reports, 1949 – 56, CI 6/1/6, p.8, CIA (cited in report from Hercus).

(g) Transfer the US Military 30M.A. X-ray unit from Aitutaki to Avarua and transfer the Watson Caldwell machine to either the sanatorium or Aitutaki
(h) One nursing Sister from Avarua be sent to Apia Hospital to learn laboratory and X-ray technique
(i) That an X-ray engineer, be asked to visit Rarotonga to install the American plant
(j) That a new X-ray room and dark room be included in the proposed alterations to Avarua Hospital
(k) That the sanatorium be regarded as a subsidiary unit to Avarua Hospital for the purpose of administration, supply of staff, stores and equipment
(l) That case records at the sanatorium be kept in full detail with a note as to exercise grades permitted, whether infectious sputum etc and that Native Medical Practitioners in outlying islands be given specific instructions as to after care when a patient is discharged from the sanatorium
(m) That the diet of the patients conform to less carbohydrate and more protein and that some form of contract buying of perishable foods be instituted
(n) That the outer walls of convalescent units at the sanatorium be protected by a suitable form of shuttering and that the two end cubicles in each block be made into one room as a recreational room
(o) That the patients' stay in the sanatorium be shortened by teaching them to understand the principles of preventing spread of infection which, having been achieved and cooperation promised, would qualify them for discharge to their homes under field staff control
(p) That Rarotongans intending to visit New Zealand be radiographed and, if found to have an abnormal X-ray, be discouraged from making the visit, and if discovered to be the subjects of TB be required to take proper treatment in the Cook Islands and not in New Zealand.[205]

Davis agreed with the recommendations and his team began to put them into place, although some changes would take years to implement and some would never eventuate.[206] Suggestion (p), for example, became an issue of contention for many years as the requirement of having to have an X-ray for Cook Islanders, as New Zealand's own citizens, seems to imply that the medical service and the Islanders themselves may be irresponsible and spread TB to New

[205] Adapted from Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[206] In Chapter Four these sixteen recommendations again become relevant when they are reviewed by Wogan.

Zealand.[207] If TB was discovered in intending travellers, through the screening done by the Police department, they were not allowed to travel to New Zealand.[208]

Dr Tom as CMO 1948 – 1951

In late 1947, after almost three years as AMO to the Cook Islands, Davis applied to use his six months end of term furlough to do a post graduate course in Tropical Medicine and Hygiene at the University of Sydney.[209] He felt the course would expand his knowledge about the health issues of the tropics and give him new ideas about how to treat TB. Even after completion of this new qualification the Administration still had reservations about appointing him CMO.[210] On his eventual three year appointment in 1948 as CMO, Dr Tom began to make the changes he had desired during his previous three years but had been unable to implement.

In 1946 Davis had quietly predicted to himself that the sanatorium would not be big enough to cater for the number of TB cases he anticipated during his first visit.[211] His prophecy proved correct and by 1948 they had to initiate a waiting list. In his monthly reports between 1948 and 1951 Davis regularly commented on the disrepair of the sanatorium to the Resident Commissioner, who amalgamated these into his report to the New Zealand administration. Davis indicated problems such as that the outside huts at the sanatorium required reroofing saying, 'none of which are capable of turning even a light shower'.[212] They had problems with water and nurses sometimes had to carry water up the hill. There was also a fluctuating

[207] Chapter Four and Five discuss this issue in more detail.
[208] Interview Adamson, Rarotonga, 2009.; Wogan – Ashby, 27 February 1953, Tuberculosis: Control and Treatment: Immigrants, H 246/41/6.
[209] Davis, *Island Boy : An Autobiography*, p.92.
[210] Davis and Davis, *Doctor to the Islands*, p.220.
[211] ibid., p.57.
[212] Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.

electricity supply which meant that they at times had to use candles.[213] Even though the building was only five years old it was in a state of disrepair and with 25 cases on the waiting list, there was now an 'acute' need to for an extension.[214] In November 1949 Davis problem-solved by suggesting a host of possible interim measures such as each patient being kept at the sanatorium for a set period of approximately six to nine months after which the patient would be sent home to convalesce in a special *kikau* (coconut frond) hut prepared by their relatives. As Davis noted, this system had already been 'tried in 1945-1946 not because of over-demand on the sanitorium facilities but because of the great antipathy towards the sanitorium' [sic].[215] He did have concerns that the system he was proposing was tantamount to decentralization which he perceived would have the added difficulties of supervision and administration. He hoped that the period spent under sanatorium routine and discipline would be of some use when patients were sent home, but he felt that this, generally, was not the case. The alternative he posed was a moral dilemma in that only those

> whom medical authorities assume will benefit by sanitorium [sic] treatment be admitted to the sanitorium [but that] difficulties arise when such cases are considered unlikely to reach a successful conclusion and where it would be unkind to refuse them the possibility of successful treatment.[216]

However, he also had concerns that such open cases were dangerous when left at large in the community. Staff were currently refusing TB cases assumed unsuitable (i.e. incurable) but that they were limiting this practice to ensure they did not arouse public opinion on the

[213] ibid ; This problem continues to date: *Cook Islands News*, 19 November 2009, Water shortage affects hospital: 'there was talk at the hospital of closing parts of it down due to the small amount of water coming out of the taps' http://www.cookislandsnews.com/2009/November/Wed25/local.htm#0911190110
[214] Resident Commissioner to NZ Department of Health, November monthly report, 1949, Cook Islands TB 1949-57 IT 110/2/4, ANZ.
[215] ibid.; In archival papers the word 'sanatorium' is, more often than not spelt 'sanitorium' and will be written as it was on the original file.
[216] ibid.

inadequacy of the sanatorium facilities, although he had concerns that if this practice assumed larger proportions criticism would result. His final comment was that ‘the only other alternative to the above suggestions is that the moral obligations involved be disregarded’.[217] The ethical obligation to care for all patients needing care, even if clinically he felt there was no hope of a patient becoming well, must have been extremely difficult alongside the need for those patients who were likely to be ‘cured’ but on the waiting list. Other countries had also grappled with this dilemma. Incurable patients blocked the limited bed space but also, if they remained ‘at large’ they potentially infected others.[218] In his reply to Davis, Dr H. B. Turbott, the Director-General of Health, supported the policy of refusing the assumed unsuitable cases admission to the sanatorium and agreed that there may need to be an extension of the sanatorium or that the only other course would be a preventive attack with Cook Islands Medical Practitioners trained to use the tuberculin test and a BCG vaccination programme.[219] This was a suggestion that Taylor had previously recommended. In this conversation the seeds were sewn for a comprehensive anti-TB campaign.

Dr Tom and Medical Research

During the summer vacation of 1949 and 1950 Otago University researchers Dr Satchell, of the Zoology Department, and Dr Faine, Mr Samual and Sir Charles Hercus, of the Medical School, completed a health survey, at Davis’ request, with a cross-section of 365 people from the village of Arorangi, in Rarotonga.[220] Davis hoped that this research would help to define their medical issues so that interventions could be tackled with greater focus. The research also fulfilled a policy agreement held between the New Zealand Medical Research Council and the Department of Island Territories to send short term research expeditions to study the

[217] ibid.
[218] ibid.
[219] Director General of Health - Resident Commissioner, 20 January 1950, Cook Islands TB 1949-57 IT 110/2/4, ANZ.
[220] Davis, *Island Boy : An Autobiography*, p.90.

health of the people living in New Zealand dependencies in the South West Pacific. However, he was surprised when he read the recommendations in the report.

In this survey of Arorangi all subjects were clinically examined, Mantoux tested, and these tests read 28 hours later. Positive reactors to the Mantoux test had their chests X-rayed with the films returned to New Zealand where they were read by trained staff and reported on by diagnostic X-ray staff from Dunedin Hospital. The people displaying coughs were supplied sputum containers and asked to bring in samples when they returned to have their Mantoux read. Although 30 sputa were examined, no tubercle bacilli were seen and since there were no laboratory facilities for further tests, the results were taken at face value.[221]

Hercus commented in his report that bovine TB must be rare if not absent amongst Rarotongans as there were very few cows and milk was seldom drunk.[222] The New Zealand Government did supply milk to schools for children after 1944 due to concern that Cook Islands children were malnourished and therefore susceptible to TB.[223] However the milk Rarotongan children drank was probably reconstituted from powdered milk and was therefore safe. Hercus felt that the most similar picture of TB was that of New Zealand East Coast Maori among whom bovine TB was also uncommon.

The conclusion of the report was that, without bacteriological evidence, there was a

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[221]Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 13/12/1949 – 6/11/1956, CI 6/1/6, pp.1-9, CIA; see also S. Faine and C. E. Hercus, 'Infections in Rarotonga, Cook Islands', *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 45, 3, 1951, p.342.
[222] ibid.
[223] Faine and Hercus; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.280.; Faine and Hercus, p.345.; Milk in New Zealand only began being pasteurised from 1937 although, as it was voluntary, it was only gradually taken up by dairy farmers.; Linda Bryder, 'Tuberculosis in New Zealand,' in *History of Tuberculosis in Australia, New Zealand and Papua New Guinea*, A. J. Proust, ed., Canberra, 1991.

> moderate incidence of tuberculosis, chiefly if not all of human origin, the pattern of tuberculin sensitivity, representing contact with infection, suggests a low degree of spread to immediate contacts, especially young children, at least until adolescence. Houses, though often not good, were seldom overcrowded or deficient in ventilation; diet was at least qualitatively adequate. These facts confirm the suggestion that domestic infection plays a small part.[224]

The study showed that 89 percent of the adults tested were sensitive to tuberculin, showing that they had been infected or exposed with TB at some stage. The TB morbidity figure of 23 per thousand found in the study was much lower than the official figure that estimated 111 per thousand, and the team suggested that the possibility of non-tuberculosis conditions simulating TB required further investigation.[225] They argued that this suggestion was worth considering due to the large numbers of deaths attributed to respiratory illnesses at this time (and which continued in the future).

While Hercus concluded that: ‘housing, although not ideal, was generally adequate for shelter and ventilation, but sometimes inadequate for space’, Lange later concluded that ‘domiciliary conditions were very likely an important factor in the poor health of many Cook Islanders’ due to economic constraints and poor hygiene, particularly with regards to human waste disposal.[226] Housing styles had been greatly influenced by the missionaries as they discouraged local style dwellings built of coconut and pandanus materials known as *kikau*. Medical Officers as early as 1903 had recognised that coral limestone housing was detrimental

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[224] Faine and Hercus, p.345.
[225] ibid., p.351.
[226] Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 1949 – 956, CI 6/1/6, pp.14-5.; see also C. E. Hercus and S. Faine, 'The Rarotongan Villagers' Environment', *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 45, 3, 1951, p.361.; Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.260-7.

to health and suggested to the mission that the stone cottages be demolished and replaced with *kikau* houses, although this suggestion had been declined. Introduced styles were criticised for being ill-ventilated, over-crowded, hot under the roofing iron, and hard to clean.[227] Even Pomare, on his 1906 visit, had expressed his opinion that the best housing was those of traditional styles; with their 'walls of smooth and fitted canes' and 'snowy coral pebbles on the floor' were seen as ideal as they were 'cool, airy, and healthy'.[228] However, Rarotonga had lost most traditional styled houses as early as 1890 and stone or wooden houses, with their highly valued iron roofs became predominant over the next three decades. Nevertheless, by 1940 most of these were in a state of disrepair and were overcrowded, with between seven or eight people sleeping in single rooms.[229]

Davis, on having received the final report from Hercus, read the four recommendations with one in particular seeming to cause him to be astonished. When he read that a recommendation was that 'the people should endeavour to be more (self) reliant and less dependant on Government in the shaping of their destinies' he underlined the comment and wrote on the side 'amazing!'.[230] He considered this comment inappropriate and wrote asking that, in the future, could any recommendations made be suitable for implementation and realistically achievable in the Cook Islands. He voiced his concern about accommodating research teams in terms of both physical accommodations as well as sparing his already stretched staff. This matter was later taken up by the Resident Commissioner in a letter to S. Patrick of the Department of Island Territories. He softened Davis' concerns about not being able to cater

[227] Lange, 'A History of Health and Ill-Health in the Cook Islands', pp.254-5.
[228] ibid.
[229] Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 1949 – 1956, CI 6/1/6, pp.14-5, CIA.; see also Hercus and Faine, pp.354-57.; Lange, 'A History of Health and Ill-Health in the Cook Islands', p.256.
[230] Report of Research Expedition to the Cook Islands 1949-1950, Research teams and reports, 1949 – 956, CI 6/1/6, p.19, CIA.

for research teams, and the difficulty faced when Medical Officers had to leave their work to cater for teams of specialists coming in, saying that

> the ultimate desirability and value of their services is not in any way underestimated; our problem is to cope with them during their research visits and I cannot but feel that at this stage we need practitioners before researchers…and then asked that 'research projects in the Cook Islands be restricted until we have more adequate facilities and staff to deal with them'.[231]

Patrick later corresponded directly with Hercus, making him aware of the Resident Commissioner's concerns and his recommendations.[232] His final comment being perhaps revolutionary for the times when he suggested that the people in the Islands might have a preference on what they would like researched. He stated:

> I am inclined to feel that it would be a good gesture to the Administrations to ask them to give an indication of the lines along which they would desire research to be undertaken in the immediate future. If such requests were made and acceded to, the cooperation of the Administrations would be more likely to be assured than if research teams visited the territories on research projects, the value of which could not be immediately appreciated by the Administration.[233]

The request was viewed favourably by the University of Otago and the Cook Islands administration then agreed to have research teams every three years.

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[231] Resident Commissioner - Patrick, Secretary, Department of Island Territories, 14th Feb 1951, Medical Research Cook Islands, 1950-54, IT 69/155/1, ANZ.
[232] Patrick – Hercus, 24 March 1951, Medical Research Cook Islands, 1950-54, IT 69/155/1, ANZ.
[233] ibid.

Developing Issues at the Sanatorium

As previously mentioned, the issues with the sanatorium were 'now acute' by the start of the 1950s. Davis, nevertheless, felt that there were also some successes. In his December 1949 report he commented for the first time about the use of drugs for the treatment of TB saying that 'Streptomyocin [sic] has been used on cases where fibrosis is not believed to be extensive with encouraging results'.[234] However, the annual report of the Cook Islands for the same year showed the deaths from TB were 33 percent of the total deaths with an estimated morbidity of 111 per thousand. Although large fluctuations in rates are possible given the small size of the population, this compares with the figure of 62 per thousand given in the 1950 report. These figures were unsupported by laboratory or autopsy findings and, as diagnosis was seldom bacteriological, they must be accepted with qualification.[235] Even though drug treatment was beginning, and would hopefully continue to lower the morbidity rates considerably, the rates of infection were increasing and some of the social issues surrounding TB had to now be confronted.

One patient, Mr Samual Noa, who had brought his daughter to Rarotonga from Mangaia as she had been diagnosed as having TB, found out on his arrival that his TB had reactivated. He wrote to Davis humbly asking for financial support for his family as he had nine children in Mangaia (and it is assumed, a wife) and although he and his daughter were well fed and cared for in the sanatorium he was concerned about the welfare of his family. He outlined his work history as a 'Government' employee and shared that even though he had been off work for nine months due to his illness, he felt he was constantly pressured to return to work. He openly confessed that perhaps he had been working too hard, causing his illness to return. He was

[234] Davis – Resident Commissioner, December 1949, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[235] Faine and Hercus, p.342.

wondering how his family could be supported while he was in the sanatorium.[236] In a letter seeking advice from the New Zealand Internal Affairs Department on this issue, the Deputy Resident Commissioner was obviously concerned, as he stated that the letter had been occupying his mind. The letter 'raised for the first time what assistance can be expected by a breadwinner who is an inpatient at the sanatorium for long periods'.[237] The Commissioner was obviously caught between being frugal and not setting a precedent so that the Administration would not appear a 'milch cow', and his compassion for Noa's situation. He openly stated that he felt that if a precedent was set there was an element in the community that would 'seize upon' such an opportunity. The Administration clearly did not want to do this, but he did suggest that the staff could 'keep an eye on the families of all in-patients' and if the

> husband [sic] is the in-patient, and his family could not maintain the *kainga*, and relatives also could not help, then the Administration may consider assistance of some sort.[238]

There was no indication of whether any support was in fact offered, and if it was what it entailed. This situation shows some of the complexities about how to support families financially especially when Noa, while ill with TB, had been under repeated pressure to return to work.[239] This showed, perhaps, the lack of understanding by the community about the repercussions of returning to work too soon.

Another situation where a patient was referred from an Outer Island for medical reasons involved the grandmother of Vereara Maeva Taripo, Te Kauvai Tatira, who was sent from Aitutaki to Rarotonga in the late 1940s for her diabetes. Tatira had no symptoms of having TB

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[236] Noa – Davis, 21 January 1950, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[237] Deputy-Resident Commissioner – Secretary, Island Territories, 10 March 1950, Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[238] Deputy-Resident Commissioner – Secretary, Island Territories, 10 March 1950, Islands Tuberculosis 1949-57, IT 90/10/7, ANZ; *Kainga* translates to family.
[239] Noa – Davis, 21 January 1950, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

but, on examination at the general hospital, her TB was discovered and she was transferred to the sanatorium.[240] The impression Maeva Taripo got from the nurses was that as her grandmother had '*totovene*, she was too sweet' (she had diabetes) her TB was worse than if she had not had diabetes.[241] Diabetes continues to be a disease associated with both TB and Pacific Islanders to the present day, with latent TB often becoming reactivated as the body becomes stressed with the diabetic condition.[242] Once her grandmother was sent to the sanatorium Maeva Taripo was allowed to visit even though the policy was that no children were allowed. She got permission although she was frightened of the Charge Nurse Pari Tamarua, who was intimidating as 'she seemed to be very strict with the nurses'.[243]

MMR

Mass Mobile Radiation had become a key intervention in western countries in identifying TB (See Chapter One). By May 1950 the medical staff had organised an improved programme for the detection of early cases and examinations of contacts. A request was made to the New Zealand administration from the AMO that MMR be instituted as part of this programme. Davis felt that the TB programme would be strengthened by the establishment of MMR as they grappled with the control of TB so, with this end in view, the conversion of some of the existing X-ray equipment, so as to be suitable for this purpose, was carried out and it was hoped that approval for additional equipment would be forthcoming.[244]

The Otago University research team visit again underlined the necessity for the provision of MMR. Unfortunately, in 1951, when Acting CMO Dr B. Scott approached the radiologist attached to the research team for an opinion on the matter, the view expressed was that their

[240] Interview Maeva Taripo, Rarotonga, 2009.
[241] ibid.
[242] Littleton.
[243] Interview Maeva Taripo, Koteka, Tutakiau, Adamson, Rarotonga, 2009;
[244] Davis – Resident Commissioner, May 1950, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.

existing and converted X-ray plant would be unsuitable. The radiologist concurred with the opinion that MMR was the only solution to the TB problem in the Cook Islands and stated that, in his view, the installation of the necessary plant would not involve excessive capital expenditure.[245] In September Davis outlined the advantages and disadvantages of developing the MMR programme for the Cook Islands to the Resident Commissioner.[246] The advantages, as he saw it, were that they would have a more exact knowledge of the extent of their TB problem and that the newly identified cases would benefit from sanatorium and other treatment. He also felt that the MMR campaign would be inexpensive other than the initial cost and staff expenses, however, there were some disadvantages. It was expensive initially with a cost of £2300 and they would also need to find the finances for a salary for a qualified X-ray technician. There was also the problem that the equipment was not portable which meant that the MMR programme would only benefit around half of the population - those based in Rarotonga. The last problem he could foresee was that there was a limited number of sanatorium beds for the increased cases likely to be found and, with a limited population, the cost would have to be justified against its original and maintenance costs.[247] Meanwhile the sanatorium continued to have its accommodation stretched, partly due to the increased number of early cases being detected, and also an influenza epidemic activating latent TB.[248]

Dr Manea Tamarua and Pari Tamarua

Dr Manea Tamarua and his wife Pari, become significant players in the fight against TB. Manea Tamarua, who had been Native Medical Practitioner on Mangaia for four years since 1942, was the first Native Medical Practitioner to undertake a Government sponsored postgraduate training programme specializing in TB (Figure 10). He returned from Suva in

[245]Scott – Resident Commissioner, August 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[246] Davis – Resident Commissioner, September 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[247] ibid. It is unclear why he felt the MMR equipment would not be ‘portable’ he perhaps meant that most machines current at the time would not stand up to transportation by ship and lighter unless modified.
[248] Davis – Resident Commissioner, November 1950, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.

August 1951 and was placed in charge of the sanatorium where his wife, Pari Tamarua, served as a nurse, and where they both lived. Both Pari and Manea were the cause of much correspondence at different times regarding their suitability for training, or for positions of responsibility. Pari had been convinced by Ellison to transfer from teaching to nursing in 1932 and it seems an indication of her skill that Scott wrote that he hoped that she would return to her position after her maternity leave should no European sister be secured before then.[249] At the time it was unusual for women to return to work soon after childbirth and Scott's statement is quite exceptional under the circumstances.

Figure 10. **Dr Manea Tamarua.**[250]

Ongoing debate concerning whether a European Sister or a Cook Islands nurse should be in charge of the sanatorium began and went back and forth for several years. The Resident Commissioner also supported Pari Tamarua when, at a later date, he supported Scott's recommendation to have her as Sister-in-Charge of the sanatorium. He felt that replacing her with a European sister would 'bring endless difficulties'.[251] He felt no European sister would

[249] Scott – Resident Commissioner, August 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[250] The *Dominion*, 18 August 1965.
[251] Resident Commissioner – Secretary, Department of Island Territories, 5 February 1953, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

stay at the sanatorium for longer than a few months as it was so isolated, and there were no other Europeans around. He considered that Tamarua and his wife at the sanatorium were less costly, as well as working ‘smoothly and efficiently’.[252] This did not stand in good stead with Miss Cameron from the New Zealand administration. She firmly believed, (her views shared through Turbott) that ‘a European Sister is needed, and indeed must be kept on strength until replaced by a fully trained (New Zealand standard) and competent Rarotongan Sister’.[253] This comment was responding to the Official Secretary of the Cook Islands administration who said that, from the administration’s point of view, Tamarua and his wife ‘were an ideal combination’ and that they had done ‘excellent work since taking over’.[254] He also thought there would be ‘unfortunate repercussions if Manea and wife are replaced by a European Sister, and then on it being found to be unworkable, to request their return’.[255] Pari became the Sister-in-Charge of the sanatorium while Dr Tamarua became the specialist TB officer for the Cook Islands with Davis entrusting him with, in conjunction with the New Zealand Health Department, the development of an extensive control programme using the drugs streptomycin and isoniazid (INH).[256] Davis also set up other departments making the chief of each accountable for providing a good service.[257]

On his arrival at the sanatorium in 1951, Tamarua found the building of new wards underway. The erection of a new twelve bed hospital block which would be a three cubicle building with each cubicle holding four beds, making space for twelve more patients. However he was dismayed that due to a lack of facilities he had had to discharge thirteen cases, although they

[252] Resident Commissioner – Secretary, Department of Island Territories, 5 February 1953, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[253] Turbott – Secretary, Department of islands Territories, 7 May 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[254] Official Secretary - Secretary, Department of Island Territories, 6 March 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[255] ibid.
[256] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.319.
[257] Davis, *Island Boy : An Autobiography*, pp.47-8.

were 'far from being arrested'.[258] He was concerned, as although they were sputum negative on direct examination and laryngeal swabs, some of them may have been positive on a more refined method of examination, e.g. 'concentration and cultures' but, as they lacked appropriate facilities, these examinations were not carried out.[259] He felt that, due to the dilapidated condition of the roofing of three *kikau* huts which accommodated half the total number of patients, discharging the patients had been unavoidable as there was nowhere else for them to be accommodated. He informed Davis of his concern that there was a danger of the patients breaking down again, especially the old chronic cases, and that they may become positive and infect other members of their household.

Tamarua also had concerns that the new wards being built would barely be sufficient to take the cases that he had just discharged and that as it then stood there would be no further admissions for quite a while yet, after the readmission of the above cases. He then went on to discuss patients currently in the sanatorium and stated that:

> judging from the X-rays it appears that the majority of cases now in the Sanitorium are of the chronic fibroid types with certain amounts of deterioration in some of the long standing cases. However attempts will be made to give pneumo-peritoneum and possibly artificial pneumothorax to some of the cases selectively.[260]

He evidently still saw surgical interventions as an option for these cases despite the superiority of drug therapy and was prepared to combine the two. In October, he combined the use of pneumo-peritoneum, or collapse therapy, with Streptomycin and PAS on ten patients. These cases were X-rayed after their third refills (see Chapter One) and, with the exception of one

[258] Tamarua – Davis, 17 October 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[259] ibid.
[260] Tamarua – Davis, 17 October 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.

case; he reported that 'all showed a good degree of collapse with a fair amount of adhesions in three of the old cases'.[261] The rest of the patients were on complete bed rest with routine treatment.

During October 1950, a TB register of positive cases and contacts was completed, as Taylor had recommended, with an intention to follow this up with a survey of the Outer Islands to establish a similar register for them. However, Davis said that the development of the campaign was still hampered by the 'lack of the necessary facilities for mass chest radiography and fluoroscopic micrography, and a shortage of accommodation at the sanatorium'.[262] Tamarua told Davis that 'as soon as the necessary supplies were available, a complete survey of the island, including Mantoux testing and clinical examination, would be undertaken' and he regretted that the survey could not include radiological investigation as the costs would be exorbitant. For this reason, and also on the count of operating speed, he again urged that the installation of a plant for MMR be given priority attention.[263]

Full-scale Anti-TB Campaign and Dr Tom's Departure

By the end of 1951, Davis decided the time was right to lobby New Zealand for a comprehensive TB campaign to combat the 'greatest single killing disease in the Cook Islands'.[264] He hoped that permission would be granted for the introduction of BCG vaccinations as they had become a key component of New Zealand's anti-TB programme since the passing of the Tuberculosis Act in 1948.[265] The view of BCG in New Zealand at the time was that it had a key preventive role and that it could give protection to a new generation

[261] ibid.
[262] Davis – Resident Commissioner, October 1951, Cook Islands Medical Reports 1948-54, IT 110/5/1, ANZ.
[263] ibid.
[264] Davis - Official Secretary, Rarotonga, 14 December 1951, Cook Islands Tuberculosis 1949-57, IT 90/10/7
[265] Dunsford, pp.85-7.

of young people who no longer gained immunity naturally through close contact with TB. New Zealand began a nationwide BCG campaign in schools during 1951.[266]

Davis requested support for his plan from the administration and argued several points to support his proposal. He felt that as they now had Tamarua as a 'full time TB officer' and that internationally 'BCG vaccination had proved itself sufficiently', that now was a good time to have a concerted effort to eliminate the disease as they had 'the manpower, expertise and the vehicle'- the vehicle presumably being the drugs to treat TB.[267] While arguing in his proposal that Cook Islanders had a 'European type of reaction to the disease responding to even the simplest treatment of bed rest and discipline', the statistics would not necessarily agree with his statement. He also pointed out that the selected cases they had given streptomycin and PAS medications to were 'producing satisfactory results'.[268] Davis asked for a copy of the results of the recent survey undertaken by the SPC by Dr Clere on Mantoux testing and reactions as he felt that their research would confirm his argument that the Cook Islands needed a 'frontal attack on Tuberculosis especially using B.C.G.' and save the medical service some time.[269]

Around this time, Davis began to have reservations about his career. He had been in the Cook Islands for five years and was feeling pleased with the point to which the medical department had reached.[270] He had been surprised at how quickly the changes had occurred as he had anticipated that his initial goals would take around twenty years to achieve. He attributed the 'intellectual capacity of the people in general' and the medical staff's ability to 'grasp new

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[266] ibid., p.162.
[267] Davis - Official Secretary, Rarotonga, 14 December 1951, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[268] ibid.
[269] ibid.; He never received a copy of this report as it was only available in French. In March 1952 SPC stated that they were beginning to translate the report into English. This was also another example of researchers gaining information from the Cook Islands but giving no feedback on how they could realistically improve their situation.
[270] Davis, *Island Boy : An Autobiography*, p.89.

concepts and abide by them' as the reason they had been so successful so quickly, as well as the support given by the New Zealand Government.[271] Davis ultimately left the Cook Islands in May 1952 to advance his career with a Masters in Public Health at Harvard University, not returning until 1978. He did not see the beginning of the comprehensive anti-TB campaign but he had laid out a sound proposal for one.

Conclusion

The period under the helm of Dr Tom built the foundations for the anti-TB campaign that was to follow. The potential for a dedicated person to shape the medical progress of a small nation is well illustrated. Medical services were still basic but considerably more professional than when Davis had arrived as others also attest to.[272] He managed to coordinate the service to a point where it gained public confidence, raised expectations about the level of the medical service and provided support to the local staff using himself as a role model. Davis did not accept excuses or appear to suffer fools gladly and 'walked the talk'. By edifying the Native Medical Practitioners and working alongside grassroots organisations such as the Committees of Health, Davis raised the status of the Cook Island medical staff. The culturally accepted and well established *ta'unga* were recognised and he challenged the Administration to achieve better results. His medical expertise, in combination with his ability to bring the community alongside him, allowed him to make some significant improvements to the medical service and to set the scene for the upcoming anti-TB campaign.

The exact prevalence and morbidity of TB in the Cook Islands continued to be a mystery during this period. Faine and Hercus' 1950 study suggested that the Cook Islands TB

[271] ibid.
[272] Interviews T. Herman, N. Herman, Tutakiau, Maeva Taripo, Rarotonga, 2009.

morbidity figures were 23 per thousand.[273] However, this was based on their small sample from Arorangi and was considerably lower than the medical figures for 1949 and 1950 which showed 111 and 62 respectively per thousand. Their suggestion of the possibility of non-TB conditions simulating TB should be considered when looking at the Cook Islands figures for TB as other respiratory illnesses were, and still are, a major cause of death in the Cook Islands. Perhaps, as the Otago University team sent their X-rays back to New Zealand for reading, this enabled a higher standard of analysis to be achieved than was possible in the Cook Islands, as reading of the X-rays was highly complex and required specific training. If the Cook Islands had been able to have facilities such as those in New Zealand, their figures might have been as accurate as Hercus', if his were in fact correct.[274] Until the Cook Islands medical service had the equipment and the staff capable of reading X-rays well, they were unlikely to diagnose TB accurately as it is a notoriously difficult job. The report by Faine and Hercus was ultimately of limited practical value to the anti-TB campaign in the Cook Islands.

[273] Faine and Hercus.
[274] ibid., p.351.

Chapter Four: ‘frontal attack on tuberculosis’ 1952 – 1960.[275]

Introduction

During the 1950s, TB was being countered globally by increasing confidence in technical and therapeutic advances. New tools such as chemotherapy drugs, BCG, and MMR were regarded as the key players and, from 1955, the Cook Islands undertook an all-encompassing assault against TB using every available treatment. It took some years to bring the campaign to fruition as the isolation of the Outer Islands continued to be problematic. The planning of the operation involved extensive correspondence taking several years to finalise, in an effort to ensure the implementation would be as successful as possible.

As can be seen by Figures 11 and 12 below, the numbers of deaths from TB in Rarotonga were considerable and represent the disease that was of the ‘most importance to address in the Cook Islands’ during this period.[276] Figure 11 shows that, although pulmonary TB was the major concern, TB meningitis deaths were considerable also.[277] This form of the disease was not just within under fives as would normally be seen; people aged between twenty and fifty also were vulnerable to this variation of the disease. Meningitis TB was rarely separated out within the files viewed for this study and TB was usually spoken about as one generic disease.

[275] Davis - Official Secretary, Rarotonga, 14 December 1951, Cook Islands Tuberculosis 1949-57, IT 90/10/7
[276] Appendices to the Journals of the House of Representatives (AJHR), 1953, A.3, pp.38, 40.
[277] AJHR, 1952-1963, A.3.

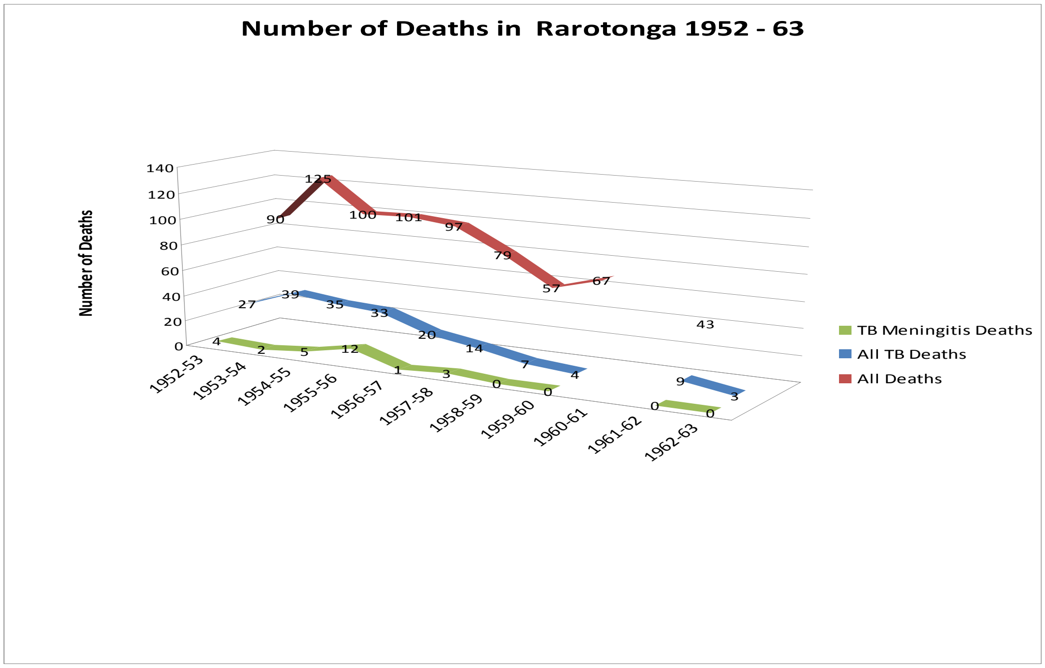

Figure 11. **Number of Deaths in Rarotonga 1952 – 63.**[278]

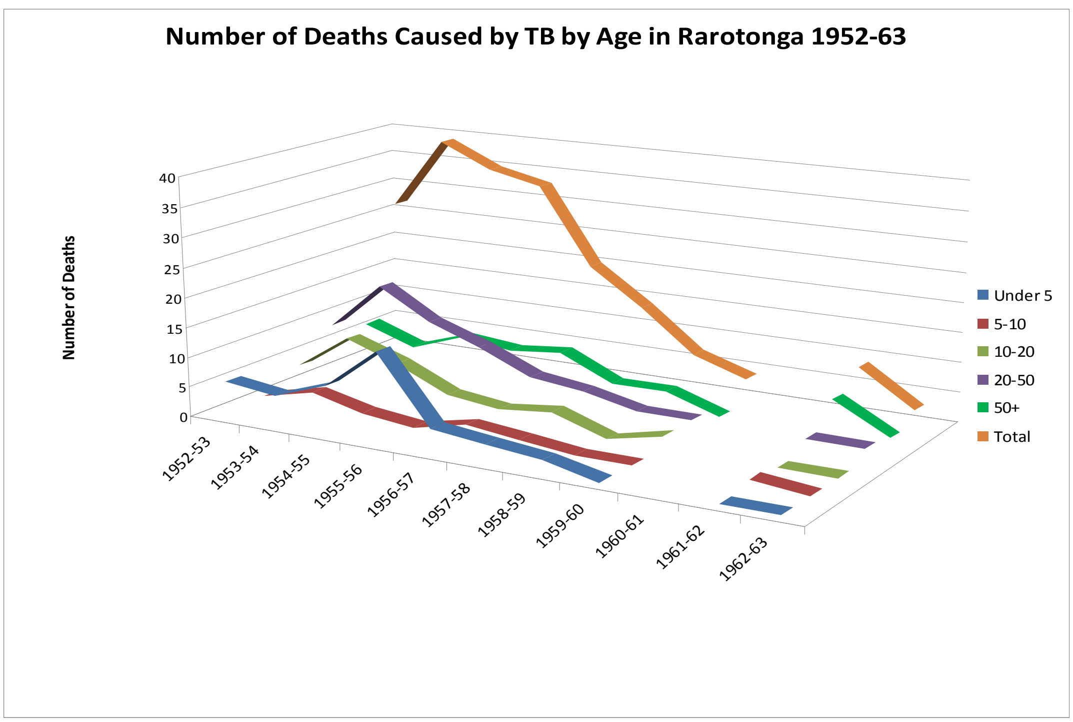

Figure 12. **Number of Deaths Caused by TB by Age in Rarotonga 1952 – 6.**[279]

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278 AJHR, 1952-1963, A.3.
279 ibid.

Whether it was dealing with meningitis TB or pulmonary TB, the continuing close relationship between New Zealand and the Cook Islands enabled the Cook Islands medical service to develop their campaign while other Pacific nations, who were also 'part' of New Zealand were not afforded the same privilege. This chapter explores the planning and development process that enabled this campaign to get underway and follows it for the first five years, when many barriers related to the workforce and equipment were identified and overcome. People needed to be well-trained in TB care and treatment, prevention using interventions such as BCG, while also using the technology now considered a major part of an anti-TB campaign. The complexities of designing an MMR unit to take across the reefs of the Outer Islands presented a major challenge. The medical service in the Outer Islands needed formalising and mainstreaming to enable patients with TB to be well cared for and the social conditions on the islands needed to improve, especially housing.

Davis's proposed anti-TB campaign was agreed upon in 1953. At the time Dr J. M. Wogan, Director of the Division of Tuberculosis at the Department of Health in Wellington, wrote and agreed 'that in the absence of any means of isolating infectious cases, the promotion of vaccination in the immediate future … would be the thing to do'.[280] Once the campaign began it was seen as something to be proud of as stories began to appear in New Zealand newspapers, and regional organisations, such as the SPC, looked to learn from the Cook Islands' experience. There seemed to be a sense of optimism in that 'the enemy', as TB was seen, could be fought and defeated, just as WWII had been. New Zealand remained extremely influential to the country during these years but as a colonising country initiating independence, it began to redefine how it administered the Cook Islands. The Minister of Island Territories, the Honourable Clifton Webb, stated in May 1954 that they were aware that

[280] Wogan – Deputy Director General, 7 May 1953, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

> excessive paternalism and bureaucratic efficiency in administration are not everything, and there is a lot to be said for accelerated political development, even at the expense of administrative efficiency…[281]

This statement signalled changes were afoot. New Zealand was beginning to recognise the need for Cook Islanders to have more of a role in their own development. New Zealand was also aware of, and their actions influenced by, the imminent United Nations Declaration on the Granting of Independence to Colonial Countries and Peoples (which was eventually adopted by the General Assembly in 1960). The aim of New Zealand was to have a system of self government where Cook Islanders could have full management of local affairs, while maintaining their close association with New Zealand. To discuss these aspirations and develop them further, a New Zealand delegation visited the Cook Islands in August 1954. It was led by Webb and included the Secretary of Island Territories, the Director of Education, Dr C. E. Beeby, Dr J. M. Wogan, Director of the Tuberculosis Division of the Health Department and Mr C. C. W. O. Turner, Chief Engineer of the Ministry of Works.[282] The discussions with the Legislative Council ultimately led to the Council having increased responsibilities and authority in both fiscal and legislative matters.[283] Webb also predicted at the time that the 'Cook Islands people would never want complete self-government' although he did think that the two counties' relationship 'could not remain static'.[284] His words proved to be both true and false. In the next ten years New Zealand's direct administration of the group would cease completely as the Cook Islands became self governing.

[281] S. D. Wilson, 'Cook Islands Development 1946-65,' in *New Zealand's Record in the Pacific Islands in the Twentieth Century*, Angus Ross, ed., Auckland, 1969, p.74.
[282] ibid., p.75.
[283] ibid.
[284] ibid., pp.75, 7.

As policies and personalities changed, and medical interventions evolved, the Cook Islands embarked on a comprehensive and pioneering anti-TB project modelled on New Zealand's response to TB. It is this campaign that possibly laid the foundation for the Cook Islands currently having such a low rate of TB as it set in place practices that were realistic and effective within the challenging environment and with the limited resources available.

This chapter sets out the key aspects of the campaign separately with each section being chronological in its description, beginning with the phenomenon of migration.

Mobility and Migration

One of the issues beginning to significantly impact on the Cook Islands was the migration of Cook Islanders to New Zealand for work. During the 1950s many Cook Islanders left the country due to uncertain financial opportunities to secure 'easily found and well paid' work in New Zealand.[285] Women were in demand as domestic servants and as unskilled workers in shops and factories, while men often worked in industrial areas such as factories, warehouses and construction. Pay rates were low in the Cook Islands and the lure of earning more money was strong as the New Zealand minimum wage legislation protected the migrants from being discriminated against.[286] Employers in New Zealand played an important part in migration as they often advanced the fare to intending employees to be repaid by future earnings. Alongside the potential increased income Cook Islanders were allowed to vote as they were New Zealand citizens and were also entitled to social security benefits.

[285] Gilson, p.192.
[286] R. A. K. (Ronald Allison Kells) Mason, *Frontier Forsaken: An Outline History of the Cook Islands*, Auckland, 1947, p.100.; Gilson, p.192.

Figure 13 below shows the transnational nature of Cook Islands Maori movement for the years 1951 – 1970 both into, and out of, New Zealand.[287] The term transnationalism refers to 'the multiple ties migrants create and maintain with their home society, while still forging new links with the host society'.[288] Where the people departing New Zealand are going to was not recorded in this data but due to the number of Cook Islanders now residing in Australia, a presumption is that some of these departures went to Australia. People could also be returning to the Cook Islands for short visits for many reasons as many Cook Islanders hold strong ties to their islands of origin. These figures reflect how transnationalism is a 'normalised' behaviour for Cook Islands people.

[287] Statistics New Zealand, 'Unpublished Census Data'.,1951 – 1970.
[288] Helen Morton Lee, 'All Tongans Are Connected: Tongan Transnationalism,' in *Globalization and Culture Change in the Pacific Islands*, Victoria S. Lockwood, ed., New Jersey, 2004, p.135.

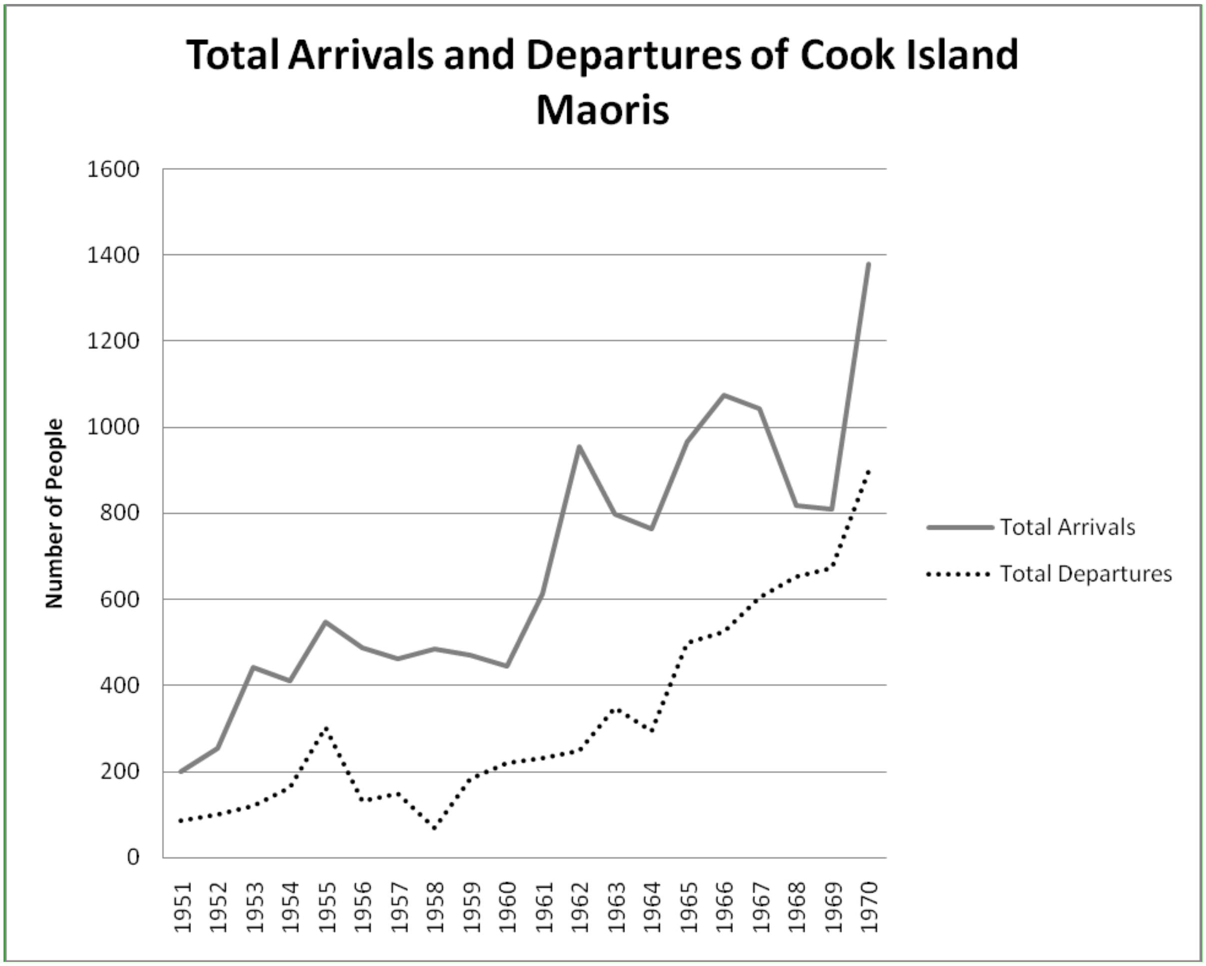

Figure 13. **Migration Statistics for Cook Islanders Entering and Leaving New Zealand.**[289]

In addition to the practice of employers advancing fares, other incentives played an important part in fostering the migration of Cook Islanders to New Zealand. Among the more important were an absence of immigration restrictions for Cook Islanders entering Australia and New Zealand, an opportunity for vocational training, a choice of jobs, the presence of relatives now settled permanently in New Zealand, the chance to save funds to build a European-style house in the Cook Islands, and, at the end of the day, the lure of new experiences.[290] However, it was not all smooth sailing if you wanted to leave: Cook Islanders who had TB were not allowed to

[289] Statistics New Zealand, unpublished data, 1951 – 1970. Data for Cook Islands Maori has been interpolated for 1951, 1966, and 1981.
[290] A Programme for Economic Development in the Cook Islands, Belshaw and Stace, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.

travel to New Zealand until they had undertaken a chest X-ray and could verify they were clear of TB, as discussed in Chapter Two.

Some organisations in New Zealand were concerned that TB was a problem that belonged to immigrants and that the disease was being brought into New Zealand from overseas. To defend Cook Islanders apropos of this, Wogan had to remind the Auckland Town Clerk, Mr T. Ashby that Cook Islanders were not migrants but they were actually New Zealand citizens. Furthermore, his department's research had shown that even though Cook Islanders were not 'aliens':

> the number of cases (of TB) occurring in alien assisted and unassisted immigrants has been small. In the past the majority have had a chest X-ray before entry to New Zealand.[291]

Although Cook Islanders were New Zealand citizens they were still required to have a clear X-ray, like 'aliens', before heading to New Zealand, however the reverse does not appear to have been the case.

Prejudice of this type caused some indignation. Dr T. T. Romans, the recently appointed CMO who had replaced Davis, sent a strong letter of reply to Dr C. King, a Tuberculosis Officer in Auckland, who had written regarding his concerns over a Cook Islands child whom he thought should have been X-rayed before she was allowed to migrate to New Zealand. Romans had to state that 'neither she, nor any other Cook Islander is an immigrant as they are all legally <u>New Zealand citizens</u> [his emphasis] just as anyone born in New Zealand'.[292] He went on to state that the Cook Islands were not 'bound' to medically check anyone travelling to New Zealand

[291] Wogan – Ashby, 27 February 1953, Tuberculosis: Control and Treatment: Immigrants, H 246/41/6
[292] Romans – King, 10 September 1954, Tuberculosis: Control and Treatment: Immigrants, H 246/41/6; see also Dunsford, p.270.

but 'it is made a condition of obtaining an exit permit that all Cook Islanders, as far as possible, are examined within a month of sailing'.[293] He wrote that they had kept back 'quite a number who would otherwise have gone' and that they had 'incidentally, been on the receiving end for cases which have acquired the infection in New Zealand and brought it back with them!'.[294] He stated that the police were not currently sending children up to the hospital but that this had since been 'straightened out and all are now referred'. [295] Romans seemed to be making a point when he then asked that if there were any chance of it being made a '<u>condition of entry</u>' [his emphasis].

A further example of the discrepancies between border monitoring occurred in March 1955 when another situation arose in New Zealand whereby a Cook Island man had been admitted into Waikato hospital with TB. His doctor in New Zealand was concerned that his three children, aged one, two and four had been sent to live with their grandmother in Rarotonga. He said that 'unfortunately they were not X-rayed prior to leaving New Zealand' and he gave the grandmother's address in Rarotonga asking that the CMO in Rarotonga be informed of the situation.[296] While it is positive to see the open communication between New Zealand hospitals and the Cook Islands medical service, this situation highlights some of the issues Cook Islanders and administrators were faced with. These children, although they would not have been infectious, could have needed treatment and yet they were sent to Rarotonga without a medical check-up.[297] The situation highlights the ongoing transnationalism between

[293] ibid.
[294] ibid.
[295] Police were responsible for the enforcement of emigration TB X-ray. The intervention of the police within this medical policy intimates to Cook Islanders that travelling with TB is a criminal issue.
[296] Badger, for Director General, Department of Health – Secretary, Department of Island Territories, 11 March 1955, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[297] Children are not normally infectious when they have TB until adolescence as their coughing mechanism is not fully developed therefore they cannot produce sputum.

New Zealand and the Cook Islands with people moving easily between the two countries but with the monitoring system for TB only going in one direction.

Dr Terepai Maoate, who completed his medical training in Fiji in the early 1950s and who was the Minister of Health in 2009, remembers the X-rays from ‘the old days’.[298] He noted that, although you had to have X-ray clearance before being allowed to go to New Zealand, people would also have to have the symptoms that went along with TB if their X-ray was suspicious, before they were actually diagnosed with TB and prevented from travelling. Symptoms such as ‘night sweating, loss of weight and general malaise’ should also be apparent, as he said it was ‘not always TB when you see those shadows’ (on the X-ray).[299] This may have been the policy but it evidently was not always followed.

The impact of the ‘clear X-ray before you can leave policy’ can be seen in the following experience as told by Vereara Maeva Taripo. She recounted in her interview that when she was a child she lived with her grandmother. When her grandmother’s diabetes worsened she was referred to Rarotonga from Aitutaki, and it was there that they discovered she also had TB. She was admitted to the sanatorium and yet nobody checked Maeva Taripo for TB until she won a scholarship to go to New Zealand for her secondary schooling.[300] For her to be able to go to school in New Zealand she had to have an X-ray to ensure she was clear of TB. However, two weeks before she was about to leave for New Zealand she was informed from the Education Department that she could not go, as she had TB. It was later found that there had been an error and that she in fact did not have TB. The person who had TB was actually another student who had been X-rayed at the same time. As a consequence Maeva Taripo

[298] Interview, Sir Terepai Maoate, Rarotonga, 2009.
[299] ibid.
[300] Interview, Maeva Taripo, Rarotonga, 2009.

missed out on going to New Zealand for her schooling. If it had not been for her guardian trying to find out why Maeva Taripo was not allowed to go, they may have never found out that she did not have TB. No medical authorities had been to see her to investigate her illness, and start her on treatment although her family had not considered this as significant. In reality it seems that one of the education organising committee's daughters was the person who had TB and Maeva Taripo's X-ray had been swapped with hers so that their child could leave to go to New Zealand. This was verified when they went to the hospital to visit a friend and the doctor asked why she had not gone to New Zealand, as he had done her tests and seen that she was clear and free to go. 'He looked at me and said, who said I had TB?' and I replied, 'Education said I couldn't go'.[301] He enquired as to how that could be 'when the Health Department had not contacted us for treatment'. He checked Maeva Taripo again, and said that 'only one student had TB and she has gone to NZ, you are clear'.[302] Maeva Taripo understands that the other girl was screened in New Zealand and that she went into hospital until she was cleared. This whole scenario shows how easily people could slip though the system and the possibility for it to be manipulated. While it is unclear if this was a one-off situation it does show vulnerability within the system.

The X-ray screening process before departures to New Zealand, a seemingly racist practice against the New Zealand citizens of the Cook Islands, did also act as another form of surveillance for the country. It discovered people with TB who otherwise never knew they had it, such as Ngapuretu Wea who will be discussed later in this chapter. Her situation showed how, even with a high degree of surveillance, someone could remain undiagnosed by the medical services.

[301] ibid.
[302] ibid.

Medical Services Relating to TB

The visit by Wogan to Rarotonga with the delegation from New Zealand in 1954 provided an opportunity for him to observe, report, and make recommendations for the development of the medical services of the Cook Islands.[303] It allowed Wogan to get a hands-on feel for the special circumstances involved in providing medical care relating to TB in the Cook Group. His report gives an overview of the state of the medical service at the time just prior to the start of the campaign and acknowledges the difficulties of 'providing modern medical services in a relatively lightly populated area, scattered over fifteen islands over vast stretches of ocean'.[304] Wogan noted that TB in the Cook Islands was currently of 'considerable magnitude' and he felt it was comparable to the TB rate of New Zealand Maori in the 1920s. He optimistically considered that as New Zealand had been successful in reducing the rate of TB in Maori, there would be no reason why they could not replicate the success with Cook Islands Maori, so long as an all-encompassing TB campaign could be provided.[305]

Wogan believed that previous planning and control had been sound as European doctors and nurses had been in charge of programmes and that the standards of the Maori practitioners 'fall short for those Europeans in that their training is not at the present comparable to European standards'.[306] Although this statement regarding training was true, Davis stood as an example of the potential of the Cook Islands Maori, had they been given the same opportunities. Wogan did not see this 'falling short' as a problem. He felt it an advantage that 'Maori personnel were closer in outlook to those people they were trying to help' and

[303] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ; The Division of Tuberculosis was established in 1943.
[304] Wilson, 'Cook Islands Development 1946-65,' p.77.
[305] ibid.
[306] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

therefore the ‘raising of their standards will naturally then accompany and assist in raising the general standards of the inhabitants’.[307]

Wogan re-examined all sixteen recommendations previously made by Taylor in 1946 (see Chapter Three) to check whether these had been implemented and found that while progress had been made, there were areas still requiring improvement. He considered that the TB register was having limited success and that a different system was needed to track the number of TB cases they had at any one time. Although the certification of deaths from TB had improved, Wogan believed that until there was a full complement of medical staff, and the continuing superstition and prejudice about early treatment and autopsies had disappeared, no marked improvement would take place.

Wogan’s report concluded with seventeen recommendations. The most important was that the campaign should start as soon as staff and equipment were available. Wogan noted that at

> its inception the Director of the Tuberculosis Division [should] be present or a Tuberculosis Officer from the New Zealand Department of Health [should] attend for a period of two to three weeks to give advice and assistance on technical matters[308].

He also wanted to ensure that the sanatorium would be fully equipped to handle the extra patients who would emerge from the campaign, and suggested that the already planned alterations to the sanatorium be implemented.[309] The latter must have brought relief to CMO Romans. Wogan’s final recommendation was that a comprehensive plan to improve housing be put in place.

[307] ibid.
[308] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[309] Ibid.

Drug Treatment

The western world had been intensifying their efforts to fight TB during the 1940s with one of the key areas of progress being the improving drugs which became available for the treatment of patients. In 1946 the New Zealand Health Department began importing streptomycin in very small amounts.[310] However this drug on its own had significant side-effects and other drawbacks (see Chapter One). Para-amino-salicylic acid (PAS), when combined with streptomycin, helped to delay the development of resistant strains of TB and was the initial treatment plan.

While the Cook Islands anti-TB campaign was being finalised, iso-nicotinic hydrazide (isoniazid or INH) was being trialled at the sanatorium. New Zealand began treating patients with INH in 1952 and it had changed the face of TB for the country as it had the benefits of a slower rate of resistance as well as the absence of the major side effects of streptomycin. INH, combined with streptomycin, rendered patients promptly non-infectious and allowed them to have only a short stay in hospital and to then continue drug treatment at home.[311] The major side effects of streptomycin were reduced in this combination. If the drug proved successful in the Cook Islands it would reduce the pressure on the sanatorium and move the focus to domiciliary treatment.

Tamarua put the first patient onto INH in January 1953. The patient was a 35 year old male with advanced fibro-caseouses TB of both lungs and multiple cavities who had been an 'inmate' of the sanatorium for two years, and his condition had been deteriorating for the previous six months.[312] He had received a course of streptomycin and PAS early in 1952 with

[310] Dunsford, p.91.
[311] ibid., p.94.
[312] Tamarua, January Monthly Report 1953, Cook Islands Medical Reports 1948–54, IT 110/5/1, ANZ.

no satisfactory results. Three weeks prior to the new treatment he had become breathless, weak and lost his appetite. His treatment was initially one tablet daily of INH for one week together with ½ gm streptomycin. After three weeks of treatment Tamarua noted that his general condition appeared to be the same but the breathlessness was somewhat relieved. A week later the dose was increased to five tablets in twenty four hours with the streptomycin dose remaining unchanged. The result of this case was not noted but this was the first trial of INH for the Cook Islands medical staff with Tamarua commenting that 'so far no toxic effect has been detected' and that it

> would be of interest to observe the above case as to what the final result would be and also to find how long 1000 tablets will last for patients.[313]

As an insight into Tamarua's thoughts on the new drug, in a post script he added:

> it (is) unlikely that isonicotinic acid hydrazide will give any better results than streptomycin P.A.S., although it may possibly have some effect in delaying the emergence of streptomycin – resistance strains. From a perusal of overseas reports it appears that this (INH) drug has already fallen into some disrepute and it will be interesting to observe whether local experience bears out this contention.[314]

Tamarua's cautiousness reflects not only his nature but perhaps his observations of TB drug treatment and demonstrates his dedication in keeping up with scientific literature, a task which must have been fairly difficult at the time due to the isolation of the Cook Islands. Perhaps his scepticism was due to experience with streptomycin, which had previously been heralded as the magic bullet for TB, although it had ultimately been proven to not cure, but to merely

[313] ibid.
[314] ibid.

delay patient death, except where it was combined with PAS.[315] Ultimately the use of INH with PAS became the standard treatment for those with TB. This did present a further problem however as PAS was particularly nasty to swallow and so patients would be inclined not to take it if they began to feel better.[316]

The Sanatorium

Meanwhile in the early 1950s the sanatorium was still under pressure. As discussed in Chapter Three, there had never been enough beds to cater for the number of patients and even though the physical space was now available, as extensions to the building had been completed, the equipment needed for the extra patients was not. Staff numbers had also been reduced when the previously mentioned *kikau* huts became unusable in late 1951 and staff never reinstated.

These inadequacies were brought to the forefront in early 1952 when Scott, acting CMO, advocated extra staffing and facilities to Geoffrey Neville, the Resident Commissioner. He asked for four additional staff, along with extra beds, sluice units, laundry and kitchen equipment, and said that until he had these, they would be unable to accommodate any increase in patient numbers at the sanatorium.[317] Neville understood that the sanatorium was currently catering for forty patients and that the staff were under considerable pressure. The physical ward space of the sanatorium had been recently expanded with the ability to now cater for 64 patients, dependant on the provision of equipment. In 1953, Neville, outlined two possibilities for consideration by Wellington. One, that they expand the patient number to 64 with its associated costs (staffing, beds, sluice units etc), or two, that they keep the sanatorium

[315] Dunsford, p.92.
[316] Interview Tu Tutakiau, Ngapoko Tutai Adamson, Ngapuretu Wea, Rai Heather, Rarotonga, 2009.
[317] Neville – Wright, Department of Island Territories, 5 February 1953, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

operating for 40 patients only, although this did not fill accommodation to its capacity.[318] The first request met with no success, as Wogan felt the cost of increasing the number of beds at the sanatorium was too high, and his solution was that hutments could be established in villages to cater for the sanatorium's patient overflow which would require less financial outlay.[319]

A year later, in 1954, Romans re-examined the figures in Scott's request to expand the number of beds at the sanatorium. Romans re-estimated and minimised costs in an endeavour to convince the New Zealand administration that 64 beds was a financially viable proposition, especially as they had a long waiting list and the physical space was already available. The sanatorium staff had continued to admit only those who they felt would respond positively to treatment but they had a waiting list of 61. Those figures did not include those who had died while awaiting admission, or those who would be found by examining all the contacts of known cases.[320] In his memorandum Romans challenged the Department of Island Territories saying that, while he appreciated that the increased demand for the sanatorium beds would eventually diminish as a result of the upcoming campaign he anticipated that with present indications it would be 'at least twenty years' before this was likely. He felt that to be completely effective the

> many chronic open cases which cannot be dealt with at the hospital or the sanatorium at present, MUST be removed from their homes to the Sanitorium [sic] to avoid constant production of new cases which

[318] ibid.
[319] Wogan – Deputy Director General, 7 May 1953, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[320] Romans – Neville, 2 March 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

> would always occur however effective a B.C.G. Vaccination Campaign were.[321]

Wright, forwarded Romans' concerns to Wogan in August 1954, reiterating Romans' arguments and reminding him that 'this figure would increase as a result of the MMR and BCG vaccination campaign which should reveal many new cases requiring accommodation', as noted above, at least for the following 20 years.[322]

By the end of October 1954 the Cook Islands medical service had a quandary on their hands indicating that neither Scott's nor Roman's concerns had been taken on board. They had thirteen infectious TB patients in the general hospital because no room was available at the sanatorium. Romans urgently requested, through the Resident Commissioner, two additional nurses from the Public Service Commission as he could put 12 of these patients at the sanatorium if they had the extra staff.[323] No reply is accounted for in the files and it remains unclear whether Romans had his requests granted.

Not only were staffing numbers up for discussion but also who were the most suitable staff to run the sanatorium. The debate regarding Pari Tamarua being in charge of the sanatorium (see Chapter Three) again raised its head. The New Zealand administration wanted a European sister to be in charge of the sanatorium. Romans controversially commented that

> it could not be agreed that a European Sister should control domestic and nursing staff at the sanatorium. The present arrangement with local

[321] Romans – Wright, 12 May 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[322] Wright – Wogan, 3 August 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[323] Neville – Department Island Territories, 30 October 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

> Sister-in-Charge had resulted in great improvement in the outlook of patients and staff absconding had been nil.[324]

This strong, and somewhat unusual, stance in opposing the New Zealand administration's instructions on having a 'European Sister-in-Charge' gives an indication of how valued Nurse Tamarua was to the Cook Islands medical service. In all other correspondence up to this time, the Cook Islands administration had accepted the lead of New Zealand. Romans proposed a solution, which was ultimately taken up, in that a European Sister would relieve one day a week at the sanatorium with Nurse Tamarua in charge the rest of the time. He felt that this would 'show any deficiencies and enable corrections to be made' and it would perhaps pacify the New Zealand administration that a European nurse could still have an influence if required.[325]

Wogan's report, after his visit to the sanatorium in 1954, credited the New Zealand administration with the high standard of service and supervision being offered to patients, with no mention of the medical staff's performance. Romans' and Scott's concerns that an additional 20 beds at the sanatorium were essential were finally acknowledged by Wogan[326]. It must have been exasperating for the New Zealand-qualified Cook Islands medical service to have to wait for a New Zealand representative to verify their concerns before being granted permission to proceed, although of course this was standard operating procedure. On top of this, to have no acknowledgement of their role in the 'high standard of service and supervision being offered to patients' must have been potentially soul destroying when it is clear they had been working very hard in tough situations.

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[324] Romans – Official Secretary, Rarotonga, 30 June 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[325] ibid.
[326] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ

Wogan commented that there appeared to be little transference of knowledge when patients were in the sanatorium to try to ensure there would be no transfer of infection when patients went home. He did concede that this had been attempted but ‘there was no appreciation by patients of the principles involved’.[327] From previous correspondence it is my understanding that patients would not be allowed home if they were still infectious so it is unclear why Wogan would be making such a statement, unless he is referring to their illness being reactivated. He also is signalling the need for more health education, which will be discussed later in this chapter.

It took until the beginning of 1957 before the sanatorium finally had all the wards up and running at full capacity to provide for the rising numbers of patients. It now catered for 68 patients, four more than the official capacity. Romans seemed to be continually looking for ways to improve the service they were providing. He applied for funds of £800, in the 1957-58 estimates for special items, to build an occupational therapy room at the sanatorium.[328] In the western world occupational therapy had generally become an accepted part of sanatorium treatment in the post WWII period and structured occupational therapy would build on the fortnightly films, the library, and the weekly art and craft classes, held for patients since the early 1950s.[329] Romans felt the need had ‘become more and more obvious for a recreation come occupational therapy room for use by patients on up grades’.[330] The Hospital Comforts Committee, a Cook Islands volunteer support group, had been trying to support patients by encouraging various sorts of occupational therapy and by supplying material for the patients’

[327] .
[328] Romans – Wright, 28 January 1957, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[329] Further Education Project 1951, South Pacific Commission Community Development Project, 1951-56, IT 166/6-12, ANZ.; Linda Bryder, 'Occupational Therapy and Tuberculosis', *Society for the Social History of Medicine* Bulletin 40, 1987.
[330] Romans – Wright, 28 January 1957, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.; ‘up grades’ were those patients who were allowed ‘up’ or out of bed.

use but it had been difficult to teach new crafts as the patients were scattered amongst different wards and there was nowhere to assemble. Romans' request was granted and the concept was further supported by the Hospital Comforts Committee by ₤50 per year until the room was fully equipped.[331]

The experiences shared by nurses and patients who spent long periods of time at the sanatorium provide an alternative perspective to that of the administration and medical papers. The sanatorium, as mentioned in Chapter Three, was set high on the hill at *Tuoro*, (Black Rock) and was isolated from other villages, Arorangi being the closest. Nurses, when rostered on at the sanatorium, spent three months at a time there, working six days a week, and they had to stay in the nurse's quarters on site, as did the Matron and Dr Tamarua. All those interviewed 'hated going there'; mainly because of the isolation since in those days with limited transportation it seemed a long way from town.[332] Kathy Koteka, Rai Heather and Ngapoko Tutai Adamson, all nurses at the sanatorium, pointed out that the matron, Pari Tamarua, was extremely strict and a strong disciplinarian, although Koteka reasoned that this 'taught them to do nursing care very well'.[333] Even Maeva Taripo, whose grandmother was a patient at the sanatorium, was scared of Pari and felt she was hard on the nurses although once she got to know her she began to understand her ways and that the 'nurses needed someone strict'.[334] Thoughts of which Romans seemed to concur.[335]

Typical duties for nurses at the sanatorium in the early 1950s saw the nurses, if on the morning shift, start at 6am by washing the patients. If a patient was on strict bed rest but could sponge

[331] Wright – Romans, 20 March 1957, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[332] Interview Adamson, Koteka, Rai Heather, Rarotonga, 2009.
[333] ibid.
[334] Interview Maeva Taripo, Rarotonga, 2009.
[335] See page 116. Romans – Offical Secretary, Rarotonga, 30 June 1953, cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

themselves, they would be expected to but if they were too sick, the nurse sponged them, and those who could, went to the bathroom to do their own bathing.[336] The nurses then had their cleaning to do; 'copper licing' the floors, mopping, cleaning the patient's lockers, making the beds and all before breakfast at 7am. Koteka explained that copper licing was when the nurses would put damp straw or sawdust on the ground and leave it for three or four minutes before sweeping it up. The purpose of this practice was that it was thought that the 'sawdust stops the infection from flying around'.[337] They would also spend time sorting out the food for patients, and if patients asked for food they were required to give it to them because at that time, eating was considered a key treatment.[338] Produce was also brought in from churches at various times to support the sanatorium and the weekly visiting time on a Sunday often saw families bringing in extra food. Dr Tamarua also grew crops on the sanatorium site and sometimes nurses or sanatorium staff would be required to help with the tending of the fields.[339] Weekly weigh-ins for all at the sanatorium took place to ensure the patients were putting on weight, and that staff were not losing it – a sign of TB. Staff were also given an annual X-ray for the same purpose. All X-rays took place at the general hospital in Tupapa.[340]

Working in the sluice room was difficult for all the nurses interviewed. The night nurse would collect the sputum and have to clean of the sputum mugs (also known as 'spatial' mugs) wearing gloves and a mask, and later a gown as well.[341] These were metal mugs that were lined with heavy paper for patients to spit into. Cleaning the sputum mugs was hard and 'really not nice' work.[342] The fire would have to be lit to heat the copper to bring water to the

[336] Interview Tutakiau, Rarotonga, 2009.
[337] Interview Koteka.
[338] Interview Tutakiau.
[339] Interview Adamson.
[340] Interview Koteka.
[341] Interview Heather, Tutakiau.
[342] Interview Koteka.

boil for sterilising the mugs. The paper cups filled with sputum had to be burned which the nurses had to do themselves.[343] Only one nurse would be on night duty so cleaning the sputum mugs of up to 60 patients would have taken some time. The second medication round took place on the night shift with both TB and secondary infection medication being administered. In order to carry out this task the single nurse would have to walk outside in the dark between the four blocks that were set apart from the main building.[344]

All nurses commented on how difficult it was to get patients to comply with taking their medication due to the bitterness of PAS. The senior nurses or the staff nurse would have the responsibility of handling the medications. Some nurses thought that they were required to watch the patients take their medication and they said that sometimes the patients just would not, or could not, even though they were very sick. Sometimes a patient would take it only to throw it back up and then have to take it again. Adamson said that she would explain to the patients why taking the medicine was so important and they would still say ‘oh leave it there’ and then they would not take it. She also said that it amazed her that when she poured the ‘medicine out, it burns the ground and stained the wall’.[345] It seems there was little trouble with injections although one patient, Ngapuretu Wea said that she ‘felt like a pincushion’ and the only place left for her to take her injections was in her bottom as her arms were ‘like rocks’ from so many injections.[346] A personal account by a patient in a Scottish sanatorium at that time revealed a similar scenario.[347]

[343] Interview Adamson, Koteka, Heather.
[344] Interview Koteka.
[345] Interview Adamson.
[346] Interview Ngapuretu Wea, Rarotonga, 2009.
[347] Isabel Gillard, Cirus Island, in Press (reference supplied by L. Bryder)

Wea spent three months in the sanatorium when she was around 15 years old (in perhaps 1948 or 1949, she was unclear) but she only stayed for two to three months before she walked out. She 'didn't like it up there' and walked down the hill and hopped on the back of a truck and went home. Nobody followed her up to bring her back or to see if she was ok, 'we didn't have those things in those days'.[348] It was not until she wanted to leave for New Zealand in 1953 that her TB was picked up for a second time by having a chest X-ray.[349] This time she could not walk away and had to be cleared before she emigrated. She had been told that her mother had died at the age of 49 from TB after being in the sanatorium for only two weeks, as had her brother. Both had their TB discovered at the general hospital and they were then sent to the sanatorium. Wea had been her mother's primary caregiver and, on reflection, she realised that she probably got TB from her mother as they lived in a one room house and she would administer Maori medicine to her mother when she began coughing blood.[350] This would entail going to the lagoon for salt water that her mother would drink, sometimes making four or five trips in a night.

Wea had no idea that she was not well at the time of her second diagnosis and it came to her as a complete surprise. After her diagnosis she was picked up a few days later from her home by the ambulance and taken to the sanatorium. Once there, she started her medication and found taking it very difficult saying that; 'one was a liquid, dark. Oh, I hated taking it, and then pills and injections'[351]. She said that she had injections three times a day, and tablets three times a day, but not together, and a liquid which was twice a day. She was told to stay in bed;

[348] Interview Wea
[349]ibid.
[350] ibid.
[351] ibid.

however, she often disobeyed orders and snuck out.[352] After twelve months Wea was allowed to go home but experienced no follow up and had no further medications to take.

She had not one visitor in her time at the sanatorium and when she returned to her home her friends were surprised to hear that she had been in the sanatorium. They had assumed she had gone to New Zealand. It was very difficult for people to get up there. She said, ‘it’s hard to get up there, there’s no way of getting up, you would have to walk’ and seemed to be unperturbed that nobody visited her.[353] The other possible reason is that people were frightened to go up to the sanatorium to visit her due to the stigma attached to TB. Another difficulty Wea faced was that there was ‘nothing to do while we were up there’ although one nurse, when interviewed, said there were crafts and sometimes carving for the men, but this may have been a while later.[354] Wea was then allowed to leave the Cook Islands as her TB was cured and she joined her husband in New Zealand. Subsequent checks for TB were made at each of her first antenatal visits in New Zealand, with negative results. However, once she did cough blood while working in New Zealand and was alarmed that her illness had returned, but upon check up at the hospital this proved to not be the case.[355]

The Training Debate - New Zealand or Fiji?

Where to train Cook Island’s medical staff was a continual and contentious issue. Training had been a topic of debate since Lambert had first sown the seed of providing medical training to ‘natives’ of the South Pacific region in 1925 (see Chapter Two). With the New Zealand administration being such a strong influence on the medical service of the Cook Islands and with predominantly New Zealand European doctors working as the CMO or AMO, it would

[352] ibid.
[353] ibid.
[354] Interview Koteka, Wea.
[355] Interview Wea.

have seemed sensible to send Cook Island medical practitioners to train in New Zealand rather than Fiji. This was especially the case as they often replicated medical interventions based on a western model, as were implemented in New Zealand. Scott and Romans favoured this option.

In 1953 Scott, 'strongly recommended' Tamarua for six months TB training in New Zealand, preferring that he be stationed in Whangarei, where TB conditions were considered to be close to those of the Cook Islands, and that he be put with a TB Officer rather than in a sanatorium.[356] He wanted Tamarua to 'secure actual first hand experience' of 'Mass Miniature Radiography, tuberculin jelly testing and mass B.C.G. vaccination' as a variation of this programme was to be followed in the Cook Islands campaign.[357] However, Dr Harold Turbott, Deputy Director General of the New Zealand Department of Health, strongly objected to Scott's recommendation of training in New Zealand, saying that Tamarua should be sent to Fiji as their TB programme was more closely aligned to the Cook Islands although he did not explain in what ways. He believed that Tamarua would not get 'as easy instruction here [New Zealand], that he would be in an unsuitable environment', and that there was

> little use in training a man in specialised techniques if the equipment is not there to practice on and maintain competency. Dr. Scott's recommendations are not considered to be in the best interests of the project he is interested in.[358]

The conflicting views regarding Tamarua continued between the Cook Islands medical staff and administration and the New Zealand administration. By June, Romans had become involved in the discussion. He firmly supported Scott's recommendation reminding the New

[356] Scott – Official Secretary, Rarotonga, 3 March 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[357] ibid.
[358] Turbott – Wright, 7 May 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

Zealand administration that Tamarua had been 'New Zealand educated and was familiar with its life and the differences as compared to the Cook Islands'.[359]

This strong message from Romans supporting Tamarua exemplifies the respect in which Tamarua's skills were held in the Cook Islands. Scott and Romans saw the value of training in New Zealand, whose campaign the Cook Islands was being modelled on, but this was disregarded by the New Zealand administration. It was rare for the Cook Islands to challenge the New Zealand administration, and the only other example in the files examined, was regarding Pari Tamarua. The Cook Islands ultimately did as they were told in this instance as the New Zealand administration was financing the training. Tamarua trained in Suva, Fiji, where he became more proficient in vaccinations, treatment of TB and MMR.

The Magic of Mass Miniature Radiography

Since WWII, the western world had considered MMR one of the most effective ways to recognise TB.[360] As discussed in Chapter One, radiography for diagnosis of extent and progress of TB was used as X-ray was the only way to find early TB and thus utilise early treatment. However, it was expensive and usually only available in the hospitals of cities.[361] The Cook Islands medical staff had been agitating for a MMR unit for many years, as discussed in Chapter Three, as it would complement their X-ray unit at the hospital and it would enable people in the Outer Islands to be X-rayed. However, the difficulties of tropical life and transportation continued to be a challenge.

Romans requested support from Turbott in 1954 for the proposed TB campaign that had been approved in 1953. He reiterated the question he had asked previously, regarding what progress

[359] Romans – Official Secretary, Rarotonga, 30 June 1953, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[360] McCuaig, p.68.; Daniel, p.116.
[361] McCuaig, p.68.

had been made as to the Cook Islands obtaining MMR equipment. He wanted ‘some idea of the whole progress of the projected mass miniature scheme for the Cook Islands’.[362] He claimed that he was ‘almost completely in the dark’ over the scheme and that apart from being told to ‘include money for it in the 1954-55 Estimates for it, I can get no information’.[363] The arrival date of the MMR equipment impacted on the decision of when to send Tamarua for training in Suva, and other decisions such as the ordering of vaccination and treatment supplies.[364] Turbott was away at the time Romans’ letters were received and they were answered by Wogan. The reply must have frustrated Romans further as he was told that there had been no progress regarding the designing of a MMR plant suitable for the Island Territories although they had found a company prepared to build the plant once it was designed.[365] He informed Romans that a plan for TB control of the Cook Islands had been sent to the Secretary for Island Territories but that he had heard nothing further and no official steps had been taken to design and obtain suitable MMR equipment. He suggested that Romans again take up his cause with Turbott. Romans in further correspondence then asked that ‘urgent representation be made to the [Department of] Island Territories for a decision on these matters’ as he was unsure of what to plan for until he received clarification from New Zealand.[366]

After visiting Rarotonga in August 1954, five months after the above correspondence, Wogan relayed good news on behalf of Turbott. Permission had been given for the campaign to go ahead and Tamarua would lead the team, with a ‘radiography technician temporarily

[362] Romans – Turbott, 3 April 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[363] ibid.
[364] ibid.
[365] Wogan – Romans, 24 May 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[366] Romans – Wright, 8 July 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.

employed by the local administration for a period of two years'.[367] Since a Cook Islander was currently being trained in Suva as an X-ray technician and the training would take two and a half years to complete, Wogan suggested 'sufficient training of an, at present untrained person, could be given in New Zealand before the tuberculosis campaign is commenced'.[368] It is significant that he felt that someone (presumably a European New Zealander) could have a quick informal training and be sufficient for the campaign while a Cook Islander was taking two and a half years to undergo thorough training. It also poses a question as to the competence of an informally trained person, especially with the technical task of X-ray. A bacteriology technician, who would also join the team, would be a locally appointed trainee. Wogan's post-visit report also made note that the present X-ray equipment was inadequate for the work being required of it but that suitable equipment would be available by April 1955 and that they now had the details of a suitable X-ray unit but he was awaiting further information on how to power the plant. This comment is at odds with his previous correspondence to Romans in May where he stated he knew nothing of the MMR equipment to be used. Consequently, Wogan must have moved very quickly on this aspect of the programme.

[367] Wogan – Wright, 20 August 1954, South Pacific Board of Health - TB San, 1922-54, H 333/13/1, ANZ.
[368] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

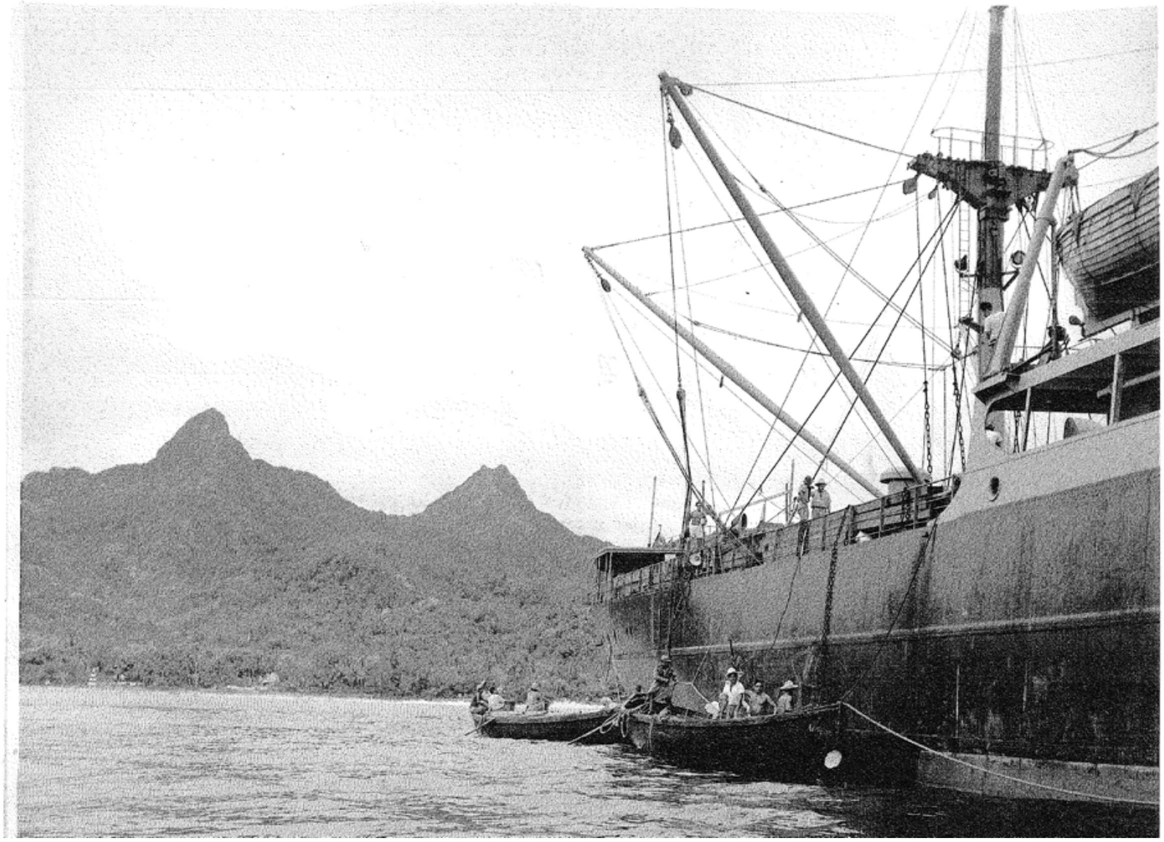

Figure 14a. **Maui Pomare Unloading Cargo in Rarotonga.**[369]

The MMR equipment required needed to be 'light weight equipment that could be broken down to single components and weighing no more than 200lbs, packed in water proof boxes for easy transport' and finally a suitable supplier had been found.[370] The boxes should also be able to float on the off chance they should be lost overboard when off loading (Figures 14a and 14 b). Wogan thought there could be some difficulty in supplying power to the X-ray unit and wanted to access a petrol driven 5 kilowatt electric power generator that could be broken down to less than 200lb components. Romans and Wogan continued to correspond for the rest of 1954 as they finalised details on the upcoming campaign with the main issue being able to adapt the MMR equipment to ensure it was suitable for shipping and handling.

[369] Cook Islands Library and Museum Society Inc. photo.
[370] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

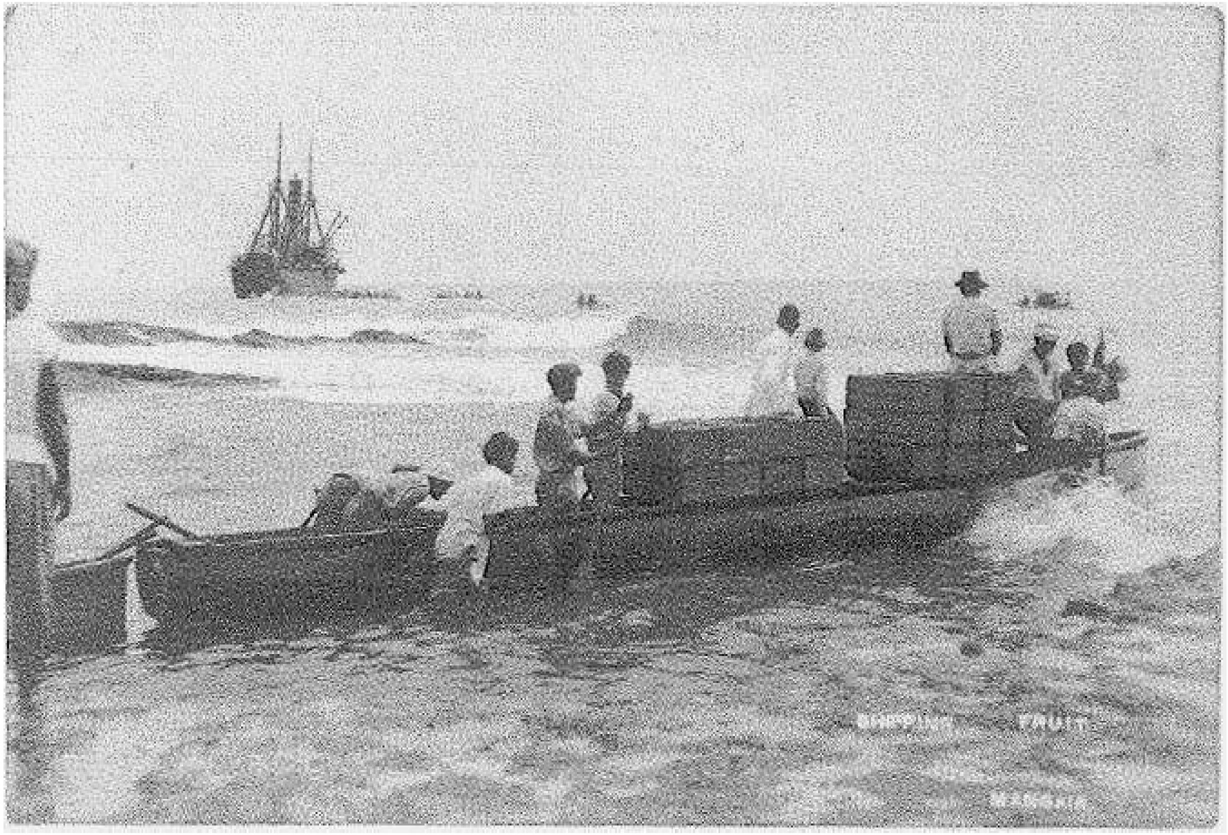

Figure 14b. **The Maui Pomare Awaits Cargo from the Island of Mangaia.**[371]

The issue of getting appropriate and portable MMR equipment for the Island Territories was one that many countries in the South Pacific experienced. The SPC prepared a technical assistance paper in 1954 in an attempt to support countries in their decision making. The need throughout the region was for equipment that could be 'light, compact and solid' while also

> capable of withstanding rough handling, a wide range of temperatures and humidity, be easy to assemble and disassemble, simple to handle and service, inexpensive to purchase and operate.[372]

They noted, as a disclaimer perhaps, that they had difficulty in recommending equipment that, because of ongoing technical advances, quickly became obsolete and because each island was

[371] Cook Islands Library and Museum Society Inc. photo.
[372] X-ray Equipment, Technical Information Circular No 5, March 1954, South Pacific Commission, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

so different with varying requirements e.g. power supply, atolls, mountains etc. They finally recommended a '15 mA, 85 kvp X-ray unit' that the United States Army Medical Corps had perfected in the field (perhaps during WWII when they were a presence in the Pacific), and which they felt met most of the requirements that countries in the Pacific would encounter.[373]

Romans also needed to confirm what date the MMR equipment would arrive, as timing was critical for another reason. He had designed a series of educational and promotional talks and broadcasts on the survey and wanted to implement these immediately before the campaign began. He understood the importance of health education to support his programme and he requested examples of New Zealand materials for 'adaption and reproduction' and these were going to be translated into (Cook Islands) Maori.[374]

In April 1955, the promised date for the MMR equipment, the campaign had a tragic setback with Wogan's sudden death at the age of 39. It took a few months for the threads of the campaign to be reinitiated and the recruitment process for the radiographer to begin. Romans preferred an unmarried man and expected that he would be in the Cook Islands for at least eighteen months.[375] Mr Mahoney who had been running the Christchurch mobile X-ray unit was recruited for the position. He had recently resigned but the Health Department wished to retain his services. This meant they could forgo the informal training previously mentioned to bring someone up to speed. Mr Laing, who took over from Wogan, and was the Director of the Mass Radiography Unit in Wellington, also trained Mahoney in the use and care of BCG equipment so that he could support this work also.

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[373] ibid.
[374] Heatley, for Secretary, Department of Island Territories – Wogan, 18 November 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[375] File note, 5 May 1955, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

Now that the equipment was complete and in situ, and the personnel required for the X-ray equipment were in place, the campaign was almost ready to go and it was hoped that the survey of resident Cook Islanders would enable some solid data on TB prevalence. However, as people often travelled between the Outer Islands and Rarotonga, and also between New Zealand and the Cook Islands, this would make accurate data gathering more difficult.

The Campaign Begins – Ready, Set, Go!

Laing made the trip to Rarotonga in late November 1955 to supervise the opening stages of the TB campaign as Wogan had previously suggested. He reported that the X-ray equipment had arrived in good order and was soon assembled and ready for operation. The campaign began with a 'survey of the all the hospital staff, including a chest X-ray, and Mantoux testing, followed by BCG vaccination, where necessary'.[376] The X-ray films were deemed entirely satisfactory, and so the team began to survey the outer villages. The impression Laing gained from one week's observation of the operation was that 'the natives were most anxious to accept the service'[377]. He was confident this was due to the exceptional preliminary publicity Romans and Tamarua had arranged about the campaign as figures 15 and 16 show. After three years of planning the Cook Islands anti-TB campaign was finally underway.

SPC would later criticise the programme pointing out that there was no 'radiologist' or 'even a fully qualified medical specialist in tuberculosis' in the team except for Laing's presence in the first two weeks. They noticeably did not value Tamarua's postgraduate specialisation in TB through Fiji. They believed the term 'radiologist' that referred to Mahoney, should have been 'radiographer', someone who would not normally make 'diagnosis of the X-ray

[376] Laing - Secretary, Department of Island Territories, 7 December 1955, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[377] Ibid.

appearances of disease'.[378] They felt that diagnosis was the remit of a radiologist and that this post was missing from the programme. By radiologist they meant 'a medically qualified specialist in radiography' as opposed to a purely technical radiographer.[379] This discussion could account for possible misreading of X-rays and inaccuracies in numbers of TB cases diagnosed as Hercus had suggested in Chapter Three, if SPC's concerns were correct.

Figure 15. **It doesn't hurt**.[380]

The primary objectives of the campaign were 'to assess accurately the incidence of tuberculosis in the Cook Islands (which has only been guessed at in the past)' and to, concurrently with the X-ray campaign,

[378] South Pacific Commission, Tuberculosis in the Cook Islands, 5th August 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.
[379] ibid.
[380] *New Zealand Free Lance*, 1 February 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ, p.16.

carry out a programme of Mantoux testing and BCG vaccination of negative reactors in order to increase the resistance of that part of the population most susceptible to the disease, and so to prevent as far as possible the appearance of new cases.[381]

Once the first objective was achieved they began to organise a programme of treatment for the new cases discovered. Figures 15 and 16 illustrate the MMR and BCG aspects of the campaign.

Figure 16. **Now let's see.**[382]

[381] Romans –Wright, 21 August 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[382] ibid.

As there had been unavoidable delays in getting the equipment to the Cook Islands, it was not possible for the team to visit the Outer Islands until after the hurricane season. Consequently they planned to focus on completing a full survey of Rarotonga to identify any issues that might arise, and be prepared for all eventualities in the Outer Islands. When the survey team went to Muri, a village on the south side of Rarotonga, it was estimated that over 90 percent of the population turned up for X-ray.[383] The *New Zealand Free Lance* newspaper, running a story on the Cook Islands campaign, stated that it was thought that:

> the ratio of TB cases in the Cooks is likely to be as high as two or three per hundred – as against the present one-in-a-thousand New Zealanders discovered by mass radiography.[384]

Five months into the programme the X-ray equipment was transferred to Aitutaki to begin surveying the Outer Islands. After 126 exposures the equipment failed. Due to the ingenuity and inventiveness of the staff they managed to get the machine going again with a temporary repair. However, it could only work at a reduced capacity. The machine had been weakened and a part was sent to New Zealand for repair, which on re-arrival was still faulty.[385] They managed to keep the machine going, with all the challenges it presented, and by December had X-rayed 10,000 people of all ages across seven different islands, taking films of all except those under the age of three years.[386]

The follow up of patients went on continuously and in increasing volume from the beginning of the campaign. In Rarotonga, every TB suspected case found was re-X-rayed on a full size

[383] *New Zealand Free Lance*, 1 February 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ, p.16.
[384] ibid.
[385] Mahoney – Chief Medical Officer, 18 April 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[386] Romans, notes on the Mass Miniature X-ray Unit in Use in the Cook Islands, 19 December 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

film. This re-X-raying also enabled those reading miniature films to check their initial readings, thus increasing their accuracy, especially when assessing films from the Outer Islands where no full size X-ray was available. As soon as a sufficient number had been checked, and with it an idea of the likely additional numbers who would require treatment, orders for the necessary drugs were placed. Thereafter, all confirmed cases requiring drug treatment were screened by Public Health staff, their home living conditions investigated, and their likely co-operation in domiciliary treatment assessed. In slowly increasing numbers, confirmed cases started on domiciliary treatment where sanatorium admission was not possible.[387]

In the Outer Islands, patients were informed they had TB when the final lists were sent to doctors, along with their supplies of drugs for treatment. In Rarotonga in all cases, and in Aitutaki if they were told before they started their drug regimen, they would also be advised as to what they could do to help their own recovery – e.g. how to live healthily, taking complete rest, eating the best food they could manage. Before the campaign began the CMO gave talks in all villages in Rarotonga in which he outlined the disease, the purpose of the survey, and

> how they could to a very large extent help themselves while [his emphasis] awaiting treatment. This advice is no mere sop; it can, and frequently does, result in the arrest of the disease process without the use of any drugs, and was of course the basis of all tuberculosis treatment before such drugs became available.[388]

In the Outer Islands the resident Cook Islands Medical Practitioner, replicated his model.

[387] Romans –Wright, 21 August 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[388] ibid.

The Health Department felt that the mainstay of their follow-up programme upon diagnosis should be domiciliary treatment, aided by education, while also maximising the use of any available sanatorium accommodation. Concurrently, the use of the sanatorium was being expanded by discharging many patients after a comparatively short stay to continue treatment at home.

To ensure there was a standardised treatment plan for all patients discovered through the anti-TB campaign, the Cook Islands Health Department developed an 'Outer Island Treatment of Pulmonary Tuberculosis Cases: *Rapakau – Ango I te Maki-maro Ki Te Pa Enua'* handbook.[389] The handbook offers an insight into the details of the Outer Islands programme and shows that they wanted to ensure that 'as far as possible, the appearance of drug resistant germs which can result from inefficient treatment may be avoided'.[390] The handbook was in both English and Cook Islands Maori and intended for the senior medical staff of islands with TB cases for treatment. It was originally sent at the time the first medication was sent out for new patients.

There were many strict protocols to adhere to which closely followed New Zealand's standard treatment plans for the same period. Doctors were instructed that before they began any active treatment the patient and 'his home conditions had to be investigated' and an attempt made to decide whether the patient would cooperate fully in treatment. 'If and when you are satisfied that the patient and his family will cooperate fully, then you may begin drug treatment'.[391] No options or alternative plans were given if a home was not up to standard or if the family would not cooperate, which suggests that they did not expect this situation to eventuate.

[389] Outer Island Treatment of Pulmonary Tuberculosis Cases, August 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[390] ibid.
[391] ibid.

Medical staff were instructed that patients should live in separate 'shacks' with nobody else, or on a piece of verandah not directly linking with the rest of the house, and that they should have their own set of eating utensils, which should be sterilized by boiling after use.[392] There should also be a suitable container with disinfectant in it for collection of sputum – the sputum and disinfectant being disposed of daily by burning, or by adequate burial. Staff would need to explain fully to the patient and to the family all the details of the treatment and impress on them that following these guidelines was the only way to ensure that the disease would be cured, without the likelihood of early relapse. The patient was also '<u>NOT</u> to be visited by children at any time'.[393] The handbook discussed the details of treatment for adults and children, reactions, and what to do in the event of a reaction to medication, sputum tests, blood tests, and education. The instructions finished with an important reminder to medical staff:

> remember education is the way of life the patient and his family must follow, must go on constantly, with frequent encouragement to help the patient adapt him – or her-self mentally to leading a restricted life while treatment is going on. You must do everything you can to ensure that once regular treatment has begun, it is kept up and not allowed to lapse, unless this is done there will be a very big risk of the tuberculosis bacilli developing drug resistance, which, if it occurred, would greatly hamper the campaign to control and eradicate this disease, and lengthen the time which it will take to produce lasting improvement in the general health of everyone in the Cook Islands.[394]

[392] ibid.
[393] ibid.
[394] Ibid.

The Cook Islands campaign was of interest to other countries as they were the forerunners to other anti-TB campaigns which were put into place throughout the Pacific. The SPC, despite its initial criticism, made enquiries about the programme and Romans sent them comprehensive notes on the design of their campaign with particular focus on the MMR unit, along with recommendations for improvements.[395]

The director of the New Zealand Division of Tuberculosis, Dr G Dempster, who had replaced Laing, visited Rarotonga, Aitutaki and Mangaia to review the anti-TB campaign in early 1957. His visit and ensuing report with recommendations indicates the close eye New Zealand was keeping on the programme. He felt that much had been accomplished already and that the medical staff were 'to be commended on the interest they have shown' and that if the pressure continued he anticipated a 'marked improvement in the incidence of tuberculosis within the next decade'.[396] Mortality rates were shown in his report 'where figures had been more reliable' and are shown in Table 1. He did not comment on the large increase in meningitis TB for 1955-56.

Table 1. **Rarotonga Mortality from TB 1952 – 1956.**[397]

Year	Population	Number of Deaths		Other	Total	Rate per 10,000
		Pulmonary T.B.	Meningitis T.B.			
1952-53	6019	22	4	1	27	44.8
1953-54	6020	31	2	7	40	66.4
1954-55	6072	28	5	2	35	57.6
1955-56	6417	18	12	3	33	51.4

He noted that while there was no significant change in the mortality rate from all forms of TB, there was an indication of some decrease in pulmonary TB deaths. Drugs had only begun to be

[395] Romans, notes on the Mass Miniature X-ray Unit in Use in the Cook Islands, 19 December 1956, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[396] Dempster – Wright, 8 April 1957, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[397] ibid.

used in treatment since 1953 and he anticipated there would be a fall in mortality within 'the next few years'.[398]

Dempster's report showed that the MMR survey had completed 8,069 examinations from the population of 12,775 which is 63 percent coverage over three years (see Table 2). Another six islands were still to be surveyed with a combined population of 3,124. The results showed 'a high incidence of tuberculosis in excess of 18.3 per 1,000 examined (NZ figures approximate 2 per 1,000)'.[399] The campaign tuberculin-tested 8074 people with 4620 showing as negative reactors; 99.3 percent of whom then received a BCG vaccine (see Table 3). Dempster felt that this was a 'gratifying achievement and the result of this work should be soon reflected in a lowered incidence of tuberculosis meningitis'.[400] What cannot be ascertained from these tables is whether the portions referring to X-ray examination are to be regarded as independent of those showing Mantoux results. Also there does not appear to be any criteria available to explain how cases appear in the columns marked 'suspect TB' and 'active TB'. It is unclear if 'active TB' were those which manifested not only clear pathology by X-ray, but a positive Mantoux as well.

[398] ibid.
[399] ibid.
[400] ibid. BCG would hopefully reduce the number of children getting TB. Children can also get meningitis TB from adults with pulmonary TB. Therefore if fewer adults had TB, this would reduce the rate of meningitis TB also.

Table 2. **Number of TB Persons as Discovered by Mass Miniature X-ray Examination 1956.**[401]

Location	Population	No. X-ray	Suspect Only	Active T.B	Previously Known cases	Total TB Cases	Rate per 10,000 Population
Rarotonga	6072	4116	306	55	68	123	299
Aitutaki	2612	1137	39	34	5	39	343
Mangaia	1974	1641	100	41	3	44	268
Pukapuka	673	403	25	13	3	16	397
Manihiki*	864	412	37	3	1	4	-
Penrhyn*	575	360	8	2	0	2	-
Total	12775	8069	515	148	80	228	283

*Manihiki and Penrhyn rates are unreliable as approximately 300 frames were unsatisfactory and unable to be read

Table 3. **Mantoux Reaction and B.C.G. 1956.**[402]

Location	Number Mantoux	Positive Reactions	Percent Positive	Negative Reactions	No. Vaccinated	Percent Rejectives Vaccinated
Rarotonga	3678	1699	48	1979	1963	98.2
Aitutaki	1725	685	39	1040	1040	100
Mangaia	1614	751	46	863	863	100
Pukapuka	327	121	37	206	206	100
Manihiki	410	132	32	278	263	94.6
Penrhyn	320	66	21	254	254	100
Total	8074	3454	42	4602*	4589	99.3

*miscalculation in original text - should be 4620

In figures for Aitutaki the numbers of ‘suspect TB’ and ‘active TB’ are approximately the same, but less than half the population was X-rayed though significantly more received the Mantoux test. Proportionately there were more than two and a half times as many cases of active TB found in Aitutaki than was the case in Rarotonga, but the percentage of Mantoux reactors was much greater in Rarotonga than in Aitutaki – 48 percent as against 39 percent. Once again these figures are unclear and cannot be taken at face value.

401 ibid.
402 ibid

The number of patients being treated for TB at the time of Dempster's visit was '101 on home treatment, spread across six islands, and 68 in the sanatorium'.[403] The system in place for home treatment in Rarotonga was that the Chief Sanitary Inspector would visit the patient's home and give advice on isolation conditions and sputum disposal.[404] He would also visit any home contacts and make the arrangements for them to be X-rayed. The junior Cook Island Medical Practitioner would then visit twice per week to check on progress and ensure the patient had carried out their instructions. The male nurse from the sanatorium would visit patients to administer injections of streptomycin and dispense weekly supplies of any other necessary drugs as well as ensuring there was a monthly change of all possible combinations of streptomycin, INH and PAS.

Dempster did feel that there were two major deficiencies in the Cook Islands programme. Firstly he felt that there was insufficient laboratory equipment for TB testing and urged that the 'requests sent by the Medical Department for laboratory apparatus receive sympathetic consideration'[405]. The amount of sputum testing was small and the sputum state of patients was virtually unknown, due to having no laboratory. Without appropriate laboratory equipment patients, who on X-ray evidence should have positive sputum, were regularly reported as negative. Although he did not point this out, it is probable that the 'positive' X-ray evidence, insufficiently supported by bacteriological evidence, would not be proof that the abnormalities seen were TB – it could be another respiratory illness. His second concern was that transportation for home visits was inadequate and he felt that the CMO's request for

[403] ibid.
[404] ibid.
[405] ibid.

another jeep was fully justified as a 'considerable proportion of cases entailed injections of antibiotics for prolonged periods'.[406]

He made a raft of recommendations to 'tweak' the overall efficiency of the TB programme. The Department was to shorten the stay of patients at the sanatorium, in line with international trends at this time, due to the efficiency of the chemotherapy treatments, but that treatment should continue with a domiciliary focus and regular follow up of family contacts through the weekly clinic. He felt

> the dosages used (for treatment) in the Cook Islands might be increased with advantage. It is recommended that Streptomycin be used in doses of 1gm daily and INH in doses of 4-6 mg per kilo of body weight instead of the standard dose of 200mg daily for all patients.[407]

He advised that

> an adequate dosage appeared to be of more importance than frequent change of drug combinations in preventing resistance [and that the] use of INH and PAS even for prolonged periods in home treatment of cases could prove quite satisfactory and would lessen the amount of work entailed by the daily injection of streptomycin in a large number of district cases. [408]

He endorsed the CMO's proposal to do a yearly mass examination especially for the Outer Islands as this was the only way to check on the effectiveness of home treatment. He reasoned that the results of the survey would indicate how often they would need to repeat them, though

[406] ibid.
[407] ibid
[408] ibid.

this was never implemented. He recommended that the vaccination of infants and the retesting and vaccination of school entrants be carried out annually as this would build up the immunity in the younger age groups. Lastly he noted that the Cook Islands should not underestimate the value of health education and they should take every opportunity afforded to raise community awareness about TB.[409]

Concurrent with the X-ray and vaccination campaign, the Health Department also undertook a comprehensive social marketing programme, following up from the pre-campaign education Romans had initiated.[410] Posters printed in Rarotongan Maori dealt with the main methods of spread of TB infection. Rarotongan Maori was used as every island had its own dialect but it was considered that all islands understood Rarotongan Maori. The posters addressed coughing, droplet infection, care of eating utensils, separate sleeping accommodation and the burning of sputum, complementing and reinforcing the lectures and broadcasts presented to the population prior to the start of the survey.

In July 1957, after much correspondence with the New Zealand administration, the Cook Islands sent their MMR unit to Niue along with their radiographer to support their sister nation with their own TB survey. Consequently, the survey of the rest of the Cook Islands was unable to be completed. The country then had to rely on using their X-ray equipment at the hospital until late 1960 when the Cook Islands finally had their MMR unit replaced, as it had been damaged in transit to Niue, requiring ₤1000 worth of repairs.[411] Later it was decided that the machine needed a major overhaul that would cost an additional ₤600 - ₤800 and while this

[409] ibid.
[410] ibid.
[411] Heatley, for the Secretary – Auckland Officer, Department of Island Territories, 13 June 1957, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ; Hegan for the Secretary – Secretary, Government Stores Board, 21 October 1959, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

was being considered, information came to light about a suitable portable machine manufactured in Japan. The Japanese equipment was ₤600 and therefore cheaper than repairing the old machine and it was also ‘extremely lightweight and easily carried over reefs by two or three men’ and therefore was highly suited to the conditions.[412]

One way of re-checking on the Outer Islands TB situation after the initial campaign, and without MMR equipment, was to combine the check with other medical interventions taking place. John Numa, a Cook Islands Medical Practitioner, was sent to Aitutaki in October to look at leprosy and the feasibility of developing a leprosarium there, but to also to check the island’s TB status eighteen months since the last survey[413]. His team worked from house to house through eight villages clinically examining every person less than 30 years of age, examining 1809 people in total. The team found 63 new cases of TB with ‘proved contacts’ and 20 new cases with ‘unknown contacts’.[414] Out of the new cases there were 55, out of a total of 83, who had been given a BCG eighteen months previously. Numa considered that the vaccinations administered in 1956 may have shortened the incubation period of the disease and had been responsible for the crop of new cases that had occurred in children since as ‘many if not most’ of the cases were in vaccinated children.[415]

This experience was not unseen in other countries; the value of BCG vaccination had been a topic of hot debate since 1921, with some countries opting to use it, and others not.[416] The other possibility was that the immunisation had failed but, despite this possibility, Numa

[412]Hegan – Secretary, Government Stores Board, 21 October 1959, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.; Christchurch Press, Gisborne Herald, 24 May 1960, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[413] Numa – Acting CMO, 9 December 1957, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ
[414] ibid.
[415] Medical Health Office – CMO, 28 May 1958, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.; see also Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.
[416] For more on this subject see Bryder, 'We Shall Not Find Salvation in Inoculation: BCG Vaccination in Scandinavia, Britain and the USA, 1921-1960'.

recommended that BCG should be given to all contacts under 30 years of age and others in the same age group, as well as following up all newborns with a vaccination again at school entry. He wanted all teachers, and anyone employed involving close contact with children, to be ‘checked and examined at least once per year, including BCG’.[417]

Maoate, as a relatively new doctor with only two years’ experience, was sent to a WHO funded workshop on TB.[418] The course covered TB case finding, BCG and MMR which he then put into practice when he was posted to Manihiki from 1956-58. While in Manihiki he and two others sent from Rarotonga, one to do the X-ray and the other to do Mantoux testing, surveyed the whole island with the MMR unit and it was noted in the annual report that domiciliary treatment had been expanded to Manihiki in 1956-57.[419] Maoate found that patients were not always good at taking their treatment because it was so long-term and it was often combined with Maori medicine from the *ta'unga.*[420] He would ignore the Maori medicine as he felt ‘you can’t stop it’ and would get the nurse aid to visit the homes to give the treatment; he considered ‘the personal touch’ was always important in getting people to comply with taking their medicine.[421] One other approach that he felt worked well was when they began to use a Public Health approach ‘especially through community efforts, like Child Welfare, Public Health inspectors’.[422]

Dr George Koteka, who began his career as a doctor to the Cook Islands in 1953, worked alongside Tamarua before being sent to the Outer Islands. While in Atiu he discovered six

[417] Numa – Acting CMO, 9 December 1957, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.
[418] Interview Dr Terepai Maoate, Rarotonga, 2009.
[419] AJHR, 1957, A3, p.45.
[420] Interview Dr Terepai Maoate, Rarotonga, 2009; Dr George Koteka made similar comments in his interview also, however he did not support internal medicine only Maori medicine that was applied to the skin.
[421] ibid.
[422] ibid.

cases through his clinical skills and then, on Mangaia, after the MMR unit and Tamarua had been to the island, they had 21 cases. He had already diagnosed a couple of the cases within those 21, but only the most advanced cases as he had to rely for diagnosis on the family history and whether they experienced any of the classic TB symptoms such as having 'lost a lot of weight, night sweats and loss of appetite'.[423] He, along with the rest of the medical service in the Outer Islands, introduced BCG alongside the MMR and immunised all newborns and school children. Every day, seven days of the week, he would travel around the whole island to give the injections to the TB patients. The flag system was used to signal if anyone needed his help. This practice, he felt, led to 100% compliance of taking TB medication, unless they developed a reaction to it. Koteka felt that the success they ultimately had with TB was due to 'the BCG immunisation, the general change in the economy [improving] and the education of the people that TB was an ongoing problem for a while' alongside the good relationships held between the Health Department, Child Welfare and the traditional healers.[424] He felt that success was due to 'the cooperation of the people. I didn't reject anyone, and the healers had their place'.[425]

With so many cases of TB being identified one issue that was again raised was the possible financial support for people living with TB. The January 1958 monthly medical report commented that they

> would stress the necessity of providing sufficient financial assistance to families when the breadwinner is on treatment necessitating rest. If

[423] Interview Dr George Koteka, Rarotonga, 2009.
[424] ibid.
[425] ibid.

> this is not given the patient does not rest and in going to work spreads infection.[426]

There was no reply to this remark so it is difficult to ascertain what reaction it received. However, it is noteworthy to see that the topic was still of concern to staff, as it had been in the past, as they were noticing the repercussions of patients having to return to work too early.

Improvements in Housing and Living Conditions

Despite many improvements, housing was an ongoing issue and concern relating to TB. Wogan in 1954 had concerns about social aspects of the Cook Islands, such as housing, that interconnected with TB.[427] He commented that much of the housing in the Cook Group (see Figure 17) was substandard and felt that in some cases

> the requirements for adequate space for sleeping, sitting and eating might well exist, but in the majority there was no running water available or any reasonable provision or use of facilities for the disposal of waste water and excrement.[428]

His understandable concern was

> that it was all very well to tell people what they should do, but to tell them without affording opportunity for acquiring those things which must exist for practice of them is ineffective and ludicrous.[429]

He could perhaps see that Cook Islanders did understand, and knew what they should be doing to improve their health, but in many instances did not have the means to implement them. In

[426] Wallace, extract from Medical Report, 6 January 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.
[427] Wilson, 'Cook Islands Development 1946-65,' pp.100-3.
[428] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.; A Programme for Economic Development in the Cook Islands, Belshaw and Stace, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ, p.143-5.; ibid.
[429] Wogan, Report on the Medical Services of the Cook Group of Islands, 20 August 1954, Cook Islands Tuberculosis 1949-57, IT 90/10/7, ANZ.

his recommendations for improvement of the Cook Islands medical services he asked that New Zealand increase the subsidy for health.

A Cook Island Maori family's home. "In some places," says the Belshaw-Stace report, "the conditions of the houses give the appearance of tropical slums." Infant mortality in the Cook Islands is twice as high as that in Samoa, and has increased in recent years.

Figure 17. **Example of Housing in the Cook Islands during the 1950s**.[430]

Perhaps in response to Wogans report, the New Zealand Government commissioned Professor Horace Belshaw of Victoria University and the Reserve Bank economist, Mr. V. D. Stace, experienced investigators of colonial administration, to do an economic survey of the Cook Islands in 1955.[431] Macdonald, Minister of Island Territories, said that the survey had been initiated to 'ensure that administrative activity would be brought within an integrated

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430 *Auckland Star,* 2 May, 1956.

431 *Auckland Star*, 2 May, 1956.; A Programme for Economic Development in the Cook Islands, Belshaw and Stace, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.; Wilson, 'Cook Islands Development 1946-65,' p.75.

programme for development' and that Belshaw had been asked to lead the survey due to his knowledge about 'development with the cooperation of the people'.[432] The 204 page report gave an extensive overview of all, historical and current, social and economic aspects of the country and recognised that the limited standard of living of the people had a direct impact on the health status of its population and therefore impacted also on its economic viability. The report accordingly made a raft of recommendations for change, and regarding the implementation of which, the Resident Commissioner Mr G Nevill met with the relevant departments in Wellington.[433] It was broadly criticised by *Auckland Star* reporter Antony Alpers who wrote a series of articles strongly criticising the way the island group had been administered by New Zealand. He claimed that the living conditions that Cook Islanders were having to deal with seemed to be sliding backwards under the leadership of New Zealand[434]. The Minister of Island Territories replied to the allegations made by the newspaper stating that he saw the articles as an 'uncharitable attack' and that:

> it was a pity if the Belshaw-Stace report, instead of being used as an aid to better things, were now used by ill-disposed persons as a weapon to discredit the New Zealand Government in the eyes of the people of the Cook Islands and to sabotage the co-operation between the Government and the people which is the whole theme of the report.[435]

Macdonald went on to say that the report was subsequently adopted in principle by the Legislative Council of the Cook Islands and by the Cabinet in New Zealand as a broad approach to the future economic development of the islands and one which would also, as

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[432] *Auckland Star*, 16 May, 1956.
[433] A Programme for Economic Development in the Cook Islands, Belshaw and Stace, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.; Auckland Star, 4 May, 1956
[434] *Auckland Star*, 1 May – 17 May, 1956.
[435] *Auckland Star*, 16 May, 1956.

socio-economic conditions improved, improve the health status of the country.[436] Although the report was acknowledged in the 1956 Department of Island Territories Report on the Cook, Niue, and Tokelau Islands, it was not a subject of discussion in following years.[437]

Cook Islands Medical Practitioner, Numa was also concerned about poor housing and the impact it had on poor health. However, his comments about housing are an exception as generally comments were made as to how tidy and clean the Outer Islands were. His report on his visit to Aitutaki in 1957 stated that the houses there were unclean and overcrowded and he considered that this contributed to ill-health on the Island. He wanted laws to be put in place and to mandate that there be only one home on each section. To give an indication of the uncleanliness he stated ‘I never fail to put on my shoes for a medical call. You never know what you might step on, faeces etc’.[438] One article that could stand as support of Numa’s observations appeared in the *Truth* newspaper in 1953 even though it was four years prior. The article reported the observations of MP Mr J. Rae who had visited Aitutaki. His view of the island was that there were

> untidy villages and poor homes, Government trucks shaken to pieces on roads, which could easily have been improved, orange orchards deteriorating because of lack of supervision, and school buildings which were mostly on the point of collapse.[439]

The Minister of Island Territories, Mr Webb, in reply stated that he had received ‘no complaints about the points raised’ had been made to him ‘nor, he was sure, to the Resident Commissioner’.[440] It is unclear why inspections such as *tutaka* would not have addressed the

[436] ibid.; Wilson, 'Cook Islands Development 1946-65,' p.76.
[437] AJHR, 1956, A.3, p.17.
[438] Numa – Acting CMO, 9 December 1957, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.
[439] *Truth*, 17 June, 1953.
[440] ibid.

health and sanitation issues that Numa and Rae described but housing sites are altogether another issue. Land belongs to tribal groups in the Cook Islands and is only given by a Chief to people who can prove ancestral affiliation to the tribe. Once land was given, a person had the right to build where and how they wished as there were no building codes in place at the time.[441]

In response to the Wogan and Belshaw-Stace reports, a housing scheme of aided self-help for home builders was approved by the Department of Island Territories in June 1957.[442] The scheme was financed by both New Zealand and the Cook Islands Legislative Assembly and also pointed out that some Maori were building small homes in permanent materials with many of these being financed, in part, by cash contributions from relatives working in New Zealand. Under the 'Direct Subsidy Scheme' free roofing material was issued to Cook Islanders who were building new houses or renovating existing ones to approved standards.[443] These funds were quickly utilised and by the time the scheme closed in 1960, '145 houses had received free roofing material to a total of nearly £8000'.[444]

Another scheme, which became known as the Housing Improvement Scheme 'proper', was established in 1958. This scheme offered three types of assistance: (i) 'Direct assistance' which provided ₤50 for roofing materials to those erecting a new dwelling or renovating an existing one to a standard considered satisfactory by a local committee, (ii) 'Loan finance' which was made available by the Government to private individuals and required security of building or land, and (iii) Finance would be available for a Cooperative society formed by members of the Cook Island Public Service. This money was to be used for the 'erection or

441 Gilson, pp.15, 137-44.
442 AJHR, 1957, A3, p.41.
443 Wilson, 'Cook Islands Development 1946-65,' p.100.
444 ibid.

repair of houses'.[445] A revolving fund of £150,000, taken up at a maximum of £20,000 annually, formed the basis of the scheme with a Housing Improvement Board administering the advances from the fund.[446] By mid-1965 '1,055 loan applications had been received with 748 approved to a total value of £172,275'.[447] The schemes saw a marked impact on housing standards, particularly in Rarotonga, and in 1961 the schemes were mentioned in a report from the Health Department, where there had been pleasing results in the *tutaka.* The report stated: 'in the matter of housing, notable advances have been made, the end result of the Housing Loan Schemes'.[448]

South Pacific Commission Tuberculosis Conference 1958

The SPC organised a conference for the South Pacific on TB in 1958 and, after reading about the Cook Islands anti-TB programme they made an approach to gather Cook Islands support for the inclusion of an overview of the campaign in their programme. This request provides some evidence that the Cook Islands anti-TB campaign was a pioneering project in the Pacific and that other countries were interested in their programme to perhaps emulate and learn from. Of particular interest, along with the findings of the MMR survey, was the survey team's experience of the X-ray equipment relating not only to its performance but also to how it travelled – its transportability, effectiveness and convenience under the conditions in which it was used.[449] Dempster and Romans' reports on the MMR campaign became the basis of the paper for the Tuberculosis Conference that was held in American Samoa.

[445] ibid.; AJHR, 1958, A3, p.44-45.
[446] ibid., p.100. The board comprised the Cook Islands Treasurer and Director of Social Development, plus three other persons (not necessarily government officers) appointed by the Minister of Island Territories.
[447] ibid., p.101.
[448] AJHR, 1958, A3, p.44; AJHR, 1960, A3, p.43; November monthly report, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[449] Lonie – Wright, 16 June 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

Notably the paper presented at this conference acknowledged that the 1951 SPC report had some errors. The paper noted the

> proportionate mortality recorded for 1948 at least, refers to deaths in Rarotonga alone, although the annual report in which the figures occur says that the "figure may be taken as representative of the whole group" – a somewhat large assumption. It appears from other reports that in fact tuberculosis diagnosis at death, as they appear in published tables, refer to Rarotonga only.[450]

This indicates that there was no clear data about what was happening in the Outer Islands during the earlier years. The paper recognised that from 1952-1956 the figures (see Tables 1 – 3) seemed to become uniform but that the deaths occurring from pulmonary TB were high and they felt it was unfortunate that with such a high proportion of deaths there was no information given as to the criteria to be satisfied before a death was to be allocated to TB. The authors also commented that there was a 'remarkable' number of deaths to 'meningeal tuberculosis' (in '1955-1956 there were twelve deaths – more than a ninth of the total number') and yet there was no explanation given.[451] They criticised the policy of Mantoux testing all those up to the age of 50 with '2nd Strength PPD' as there was the danger of a 'severe reaction as well as producing non specific reactions'.[452] Recommendations were made with a view to the use of smaller doses in the future. It is unclear how the paper was received at the conference, or what responses or repercussions there were, if any, to the criticisms, although it is probably safe to say that the comments would have helped to further refine the programme if the New Zealand authorities considered the criticisms to be justified. However there is no evidence of this.

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450 Smith, Secretary General, South Pacific Commission – Wright, 5th August 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

451 South Pacific Commission, Tuberculosis in the Cook Islands, 5th August 1958, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

452 ibid. PPD is the acronym for Purified Protein Derivative used in Mantoux tests.

The TB Association

While many western countries had voluntary TB Associations to advocate for people living with TB, the Cook Islands did not. TB Associations had been instrumental in many campaigns against TB as they could raise funds to experiment with new methods of addressing TB, and if they were positive, they would then demonstrate their value and share them with official agencies.[453] The associations would regularly agitate to increase state spending and to influence legislation. They would often align themselves with other strong organisations to maximise their influence.[454] During 1959, Miss Low, the Secretary of the New Zealand Federation of Tuberculosis Associations, enquired of the Department of Island Territories whether the Cook Islands would like some assistance to set up their own association.[455] In reply she received acknowledgement of interest in the proposal and that, in due course, she would hear further as the Government of the Cook Islands needed to be consulted.[456] Behind-the-scenes correspondence between Island Territories, the Health Department and the Cook Islands administration began which, in fact, did not support the initiative. Wright sought the advice and opinion of the Director General of the Health Department, as they appreciated:

> that while the Association might do much good work here in New Zealand its effectiveness might not be so great in a small community and it could possibly also have a hampering effect upon the work of the Medical Authorities by well meaning but misdirected effort. Our experience has shown that this is often the case in the Islands with

[453] Daniel, p.44.; Georgina D. Feldberg, *Disease and Class: Tuberculosis and the Shaping of Modern North American Society*, New Brunswick, New Jersey, 1995, p.111.
[454] Teller, pp.43-9.
[455] Low – Wright, 20th October 1959, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.
[456] Hegan (for Wright) - Low, 5 November 1959, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

> Associations of this nature and we would like your opinion as to whether or not it should be encouraged[457].

Wright then asked what the view of the Government of the Cook Islands was, and in his correspondence affirms the views of both the Department of Island Territories and the Department of Health 'that there is doubt whether such an association would be effective in the Cook Islands'.[458] Their reply, after discussions with Tamarua and Romans, stated that they do

> not consider that a voluntary association should be formed in the Cook Islands. Dr Romans gave the reason that he considered it doubtful whether such an association would add to the increased knowledge and local interest that there was now. Would you please thank the New Zealand Federation for the interest shown.[459]

What is noteworthy from these conversations is firstly, that they are still doing what New Zealand said they should do and secondly, the view that a medical model is the only approach seen as viable. The opportunity of having a non-government organisation with a focus on TB is not seen as beneficial by the medical staff. Given that TB was still a concern and that medical staff were inundated with patients, it could possibly have been advantageous to have a community led organisation to support health staff and people living with TB. However, it seems no community organisations were approached for their view on the offer. It was possible that the New Zealand TB Association could have had a patronising approach and expect local people to do as they advised, but this may not have been the case and it seems short-sighted to not have investigated this offer more thoroughly. In New Zealand, TB

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[457] ibid.

[458] Hegan – Secretary Government of the Cook Islands, 14 December 1959, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

[459] Secretary, Government of the Cook Islands – Wright, 4 February 1960, Cook Islands Tuberculosis 1957-64, IT 90/10/7, ANZ.

Associations supported people affected by and living with TB while also supporting the work of Health Departments, but, in this situation, the medical personnel decided that, in the Cook Islands, this was not going to happen.

Conclusion

Overall, the standard of the health services rose steadily after 1955. TB had been a disease of major concern at the time of Wogan's survey when 36 out of every 1,000 Rarotongans were affected and New Zealand considered that 'outstanding progress was made in disease control'.[460] The 'frontal attack on TB' of the 1950s reached 63 percent of the total population, with 93.3 percent of the negative reactors to tuberculin receiving a BCG vaccine. The population coverage achieved by the campaign probably made an impact on the future low TB rates of the Cook Islands. Vaccinating all those who did not have Mantoux reactions may have built their immunity, and if people did get TB the medication was on hand for treatment.

Development of the training manual for all Outer Island doctors would certainly have given confidence and consistency in the details of the programme throughout the country. Conceivably this is another crucial factor in the 'setting of the scene' for the consistency of medical care of TB from that point in time and into the future. The domiciliary programme, as the only feasible way to cater for such large numbers of TB cases in isolated settings, enabled a practical approach involving medical personnel and village communities. Medical personnel could attend patients in their hutments or porches at home, while, if necessary, extended families could support relatives. It also offered a 'watch dog' approach if required, as small communities knew who was unwell and were well indoctrinated with health education messages so could support the work of the Health Department as well as looking after the

[460] Wilson, 'Cook Islands Development 1946-65,' p.101.

health of their families. These small communities perhaps played the role that TB Associations did in larger more urbanised and impersonal communities.

Current international research has shown that social conditions interact syndemically with TB.[461] Maoate considered that the improving standard of living, housing and people being more hygiene-conscious significantly impacted on the Cook Islands TB rates.[462] That TB rates are associated with crowded living conditions is not surprising given what is known about how the infection is spread through droplet form. The improving housing conditions of the Cook Islands, due to the housing lending schemes, in all probability directly impacted on lowering the TB rates as the numbers sleeping together in single rooms lowered.[463]

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[461] Littleton, p.1677. The term syndemic refers to ‘a set of interactive and mutually enhancing epidemics involving disease interactions at the biological level that develop and are sustained in a community or populations because of harmful social conditions and injurious social connections’ (Singer and Clair, 2003 cited in Littleton and Park 2009).
[462] Interview Sir Terepai Maoate, Rarotonga, 2009.
[463] M. Baker, et al., 'Tuberculosis Associated with Household Crowding in a Developed Country', *Journal of Epidemiological and Community Health*, 62, 2008, p.720.

Chapter Five: Becoming Self Governing

Introduction

The significant period of 1960 to 1975 was time for the Cook Islands Medical staff to consolidate its TB service and it was also the time when the country went through the process of becoming independent of New Zealand. They could now strengthen what had been new practices with the 1950s anti-TB campaign and cement them into standard practice. Both internal and external surveillance continued, almost constantly, as the Cook Islands programme was of interest to New Zealand and other Pacific Nations. Domiciliary treatment became the focus for treatment and care of patients through the development of a Public Health Department. Due to the level of domiciliary treatment being implemented, district nursing became more important in conjunction with community partnerships with established organisations such as ante-natal and child welfare clinics. The barrier of distance to the Outer Islands was still a major challenge. However, the links and partnerships the medical service had established with community organisations helped them to be more effective.

The anti-TB campaign continued along the themes previously discussed in Chapter Four, but TB was, for the first time, no longer the Cook Islands' greatest cause of death.[464] While TB had been the 'single greatest overall cause of death' in 1957, with twenty deaths in Rarotonga, 'various heart disorders almost equalled deaths from tuberculosis'.[465] This is the first mention of Non Communicable Diseases (NCDs) in the annual reports. The correlation between NCDs and TB is that NCDs can play a significant role in reducing the effectiveness of the immune system as the body is under pressure dealing with other health issues. Rarotonga was the island most likely to be influenced by imported European foods and the 1957 *Report on The*

[464] AJHR, 1957, A3, p.44, 58.
[465] ibid.

Cook, Niue, and Tokelau Islands presented to the New Zealand House of Representatives commented on this.[466] While heart disease related deaths were higher than previous years, the 'statistics also disclose a marked drop in deaths from tuberculosis, probably the lowest figure since certifying of deaths began'.[467] The breakdown of deaths showed that there were 'equal numbers in the age groups forty and over and under forty instead of the previous overwhelming preponderance in the younger age group'.[468]

Pneumonia and cardio-vascular disorders began to supersede TB as the major causes of death and indicated a move away from infectious diseases being the major concern for the medical service and the beginning of an era when NCDs took precedence.[469] The number of new TB cases began to drop dramatically from the early 1960s as illustrated in Figure 18 below.[470] The drop in numbers was supported by the system for case finding, contact tracing, and treatment while the medical personnel further reduced the number of infectious cases through their thorough programme and finetuning of these strategies. As re-surveying was completed, fewer numbers than had been expected were uncovered, much to the satisfaction of the medical service. This chapter will explore and discuss some of the interventions which were implemented during this time period that supported the downward trend.

[466] ibid.
[467] ibid.
[468] AJHR, 1957, A3, p.45.
[469] AJHR, 1960, A.3, p.47.
[470] Legislative Assembly of the Cook Islands, Health Department Annual reports Cook Islands Parliament, Rarotonga.; AJHR, 1960-1995. In the introduction I discussed the differences in numbers for the years 1970-1975 that were compiled in different documents as can be seen in figure 6. It is my contention that the number of cases of TB continued to drop as the data from the years' respective annual reports and the Public Health TB Register show and that there was a mistake in the numbers of the 1974 and 1975 Annual reports as the narrative in the same reports did not correspond with the figures collated.

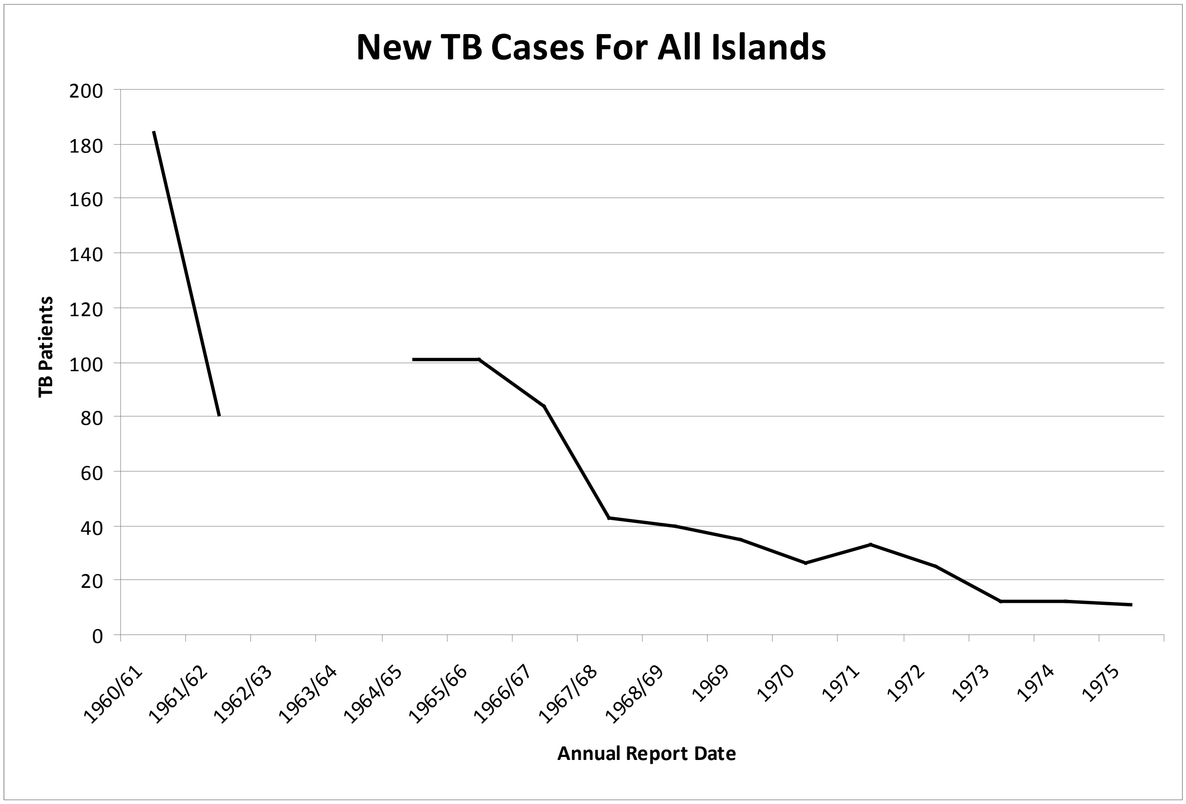

Figure 18. **Number of New TB Cases 1960 – 1995.**[471]

Self government

In December 1960 the New Zealand Government supported the United Nations 'Declaration on the Granting of Independence to Colonial Countries and Peoples' which advocated the immediate transfer of all powers to the people of dependent territories.[472] While New Zealand had been encouraging the development of local initiatives in the Cook Islands since the Belshaw-Stace report of 1957, by supporting the United Nations declaration they needed to accelerate the speed of which they had been moving. It was possible that the governance of the

[471] ibid.
[472] J. F. Northey, 'Self-Determination in the Cook Islands', *Pacific Studies*, 74, 1, 1965, p.112.; Gilson, p.219.;Wilson, 'Cook Islands Development 1946-65,' p.103.

Cook Islands could come under the scrutiny of the United Nations and New Zealand did not want to be seen as contravening the declaration by maintaining control of the country.[473]

This process of ending their colonial relationship took some time to bring to fruition as there many issues relating to self government that needed to be worked through to an agreement. Ultimately the group negotiating for the Cook Islands wanted the country to be self governing on all internal matters but also to retain their New Zealand citizenship. They requested the continued support of New Zealand, asking them to carry on supporting their economic development, and asked if they would 'carry out external affairs and defence functions subject to consultation with island representatives' for the country.[474] Ultimately an immense change for the country, and the way the administration of the group was managed, happened when the Cook Islands became self governing on 4 August 1965. New Zealand, from this point forward, played less of a commanding role, but still influenced many decisions and medical interventions due to its historical relationship and trusted connections.

The election, forming the first government of the Cook Islands, led to Dr Manea Tamarua to leave 'hands on' medicine for a while. Tamarua had been a high profile member of the community as he led the 'fight against TB' and it was probably the way he had portrayed himself through these campaigns that led to his popularity during the first election, which led to him becoming the first Deputy Premier for the Cook Islands. He, and another doctor, Pupuke Robati, were 'elected to the Assembly', becoming the first of a number of doctors to be involved in the political arena in future years which included Dr Tom Davis.[475] Although

[473] Wilson, 'Cook Islands Development 1946-65,' p.107.
[474] Gilson, p.219.
[475] Legislative Assembly of the Cook Islands, 1964, Report on the Health and Dental Departments, p.3, Cook Islands Parliament, Rarotonga. Robati continued to work for the Department of Health, obtaining his Diploma in Public health in 1966, while also being involved in politics.

they were now involved with governing the country, both Tamarua and Robati maintained their interest in the medical service and both returned at later stages when they no longer held political roles.[476]

As the Administration altered, so did the communication channels. Once the 1964 Cook Islands Constitution was in place the WHO was unsure of how they should now approach the Cook Islands. They enquired of the Department of Island Territories about the correct correspondence channel and were informed that correspondence should now go to the Government of the Cook Islands, care of the Department of External Affairs in New Zealand.[477] The correspondence channels, and the change in the way the Cook Islands was now administered, did not make a large difference to the 'on the ground' work of the medical service; instead of working through the Department of Maori and Island Affairs, the medical service were now working with New Zealand External Affairs Department and they still had similar bureaucratic processes to work through.[478]

Mobility and Migration

Migration continued to be an on-going issue for the Cook Islands. The numbers of people leaving the islands for New Zealand increased correspondingly with improving transportation. After 1960, when a government vessel, the *Moana Roa*, began sailing, alongside Polynesian Airlines and the frequent RNZAF flights, the numbers leaving between 1961 and 1966 increased to 5,133 migrants, of which 80 percent went to New Zealand.[479]

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[476] ibid.
[477] Secretary of External Affairs – World Health Organisation, 8 November 1965, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.
[478] Hancock, pp.155-6.; Gilson, p.219.
[479] P. H. Curson, 'Population Change in the Cook Islands - the 1966 Population Census', *New Zealand Geographer*, 28, 1972, p.58.

Most of the people leaving the Cook Islands during the 1960s were families. Husbands would often leave first to find work and then wives, children, and sometimes grandparents would follow when the husband found work and was able to remit the fares for the family. By 1965, 60 percent of those who left were family groups.[480] As was seen from Figure 13 (Chapter Four), migration overseas had been a pattern for many years and continued into the 1970s, although the transnational aspect of Cook Islanders movements represented in the graph indicates that some people were not necessarily gone for long and had continuing ties to their country of identity.

This transnational movement also presents the associated health risks of possibly taking and bringing illnesses between the countries and the complexities of ensuring adequate health care and treatment when mobile. TB treatment is long-term and it is possible that as people were moving backwards and forwards between the Cook Islands and New Zealand they were transferring their illness within their family and between nations. They could also have been missed by the medical service as it would have been unknown to authorities that a person re-entering the Cook Islands had TB since people coming from New Zealand were not X-rayed. It is also unclear whether a returnee Cook Islander, home for a short period from New Zealand, would have been required to have an X-ray to return as were those leaving for the first time.

Immigration and X-rays, although not necessarily mobile X-rays, were yet again a matter to be discussed at the New Zealand September 1969 TB conference. Mr C. M. Hercus, Secretary of the Southland Tuberculosis and Chest Diseases Association, sent a letter to the Honourable J.

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[480] ibid., pp.58-9.

R. Hanan, Minister of Island Affairs, asking for the present legal situation in relation to X-rays for Islanders coming to New Zealand. He noted that

> from discussions with members of the Auckland Tuberculosis Association, it appears that a very high percentage of cases come from the Islander community in Auckland and of course, no doubt in other areas, so that there does appear to be some justification for concern.[481]

Hanan's reply ensured that Hercus understood that the governments of the Cook Islands and Niue, and the Administration of the Tokelau Islands, all had rules requiring their people to have clear full chest x-rays before they were issued with permits to leave the Islands and that this requirement had 'from time to time aroused some criticism from the people who regard it as something of a discriminatory practice because Europeans are not subject to this control'.[482] He went on to say that in spite of this criticism, the Governments concerned recognised that their people were particularly susceptible to chest complaints and, to co-operate with the health authorities in New Zealand, had continued with the compulsory X-ray requirement. Hanan concluded with the thought that could have very well caused a robust debate at the conference. He stated that:

> it seemed that the reason for the high incidence of chest infections among islanders might lie here in New Zealand as it would appear that there are adequate safeguards protecting people from contracting the diseases from new arrivals from the islands.[483]

The significance of this correspondence is that it shows the attitudes of some at the time towards immigrants and the ongoing debate about the cause of TB - particularly whether

[481] Hercus - Hanan, 18 July 1969, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[482] Hanan – Hercus, 1 August 1969, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[483] ibid.

immigrants arriving with TB or the low socio-economic status of some groups of people was the cause.

The migratory movement of Cook Islanders, however, was not only between Rarotonga and New Zealand. Many people were moving within the country also. The census of September 1966 represented the first published record of the Cook Islands population since brief census reports on the country were attached to the New Zealand census.[484] Between 1961 and 1966 the northern group 'lost a total of 478 people of which Manihiki alone lost 422' revealing that the Northern Group had begun a period of considerable population decline while, at the same time, the Southern Group, was growing.[485] Rarotonga's population had increased by almost 1,300 during this time period representing the internal redistribution of the population.[486] Although there is no direct data to indicate the destination of Outer Islanders migrating within the Cook Islands, there is indirect evidence to suggest that for most Rarotonga was their destination. The growth in the number of Outer Islanders in Rarotonga between the census years, together with the differential growth rates of the various islands, provides some evidence. The population of Manihiki declined by 422 people in the years between 1961 and 1966 while, correspondingly, the Manihikian population in Rarotonga grew from 147 to 308 while about '28 to 30 Manihikians left the island every year for New Zealand'.[487]

In the 1950s Davis had lamented the state of the settlements of the Outer Islanders, on the outskirts of Avarua (see Chapter Three). This pattern of sub-standard settlement continued.

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[484] Curson, p.51. This practice stopped in 1945 whereby the Cook Islands figures were only typescript and had very little circulation

[485] ibid., p.52.

[486] In 1900 the northern atolls contained one-quarter of the total population whereas by 1966 their proportion had fallen to just over one-tenth.

[487] Curson, p.55.; P. H. Curson, 'The Cook Islanders,' in *Immigrants in New Zealand*, K. W. Thomson and A. D. Trlin, eds, Palmerston North, 1970, p.183.

Outer Islanders ‘produced a conspicuous settlement pattern’ and it was noted again that northern atoll migrants often tended to cluster together ‘either by preference or by necessity’ and that this had generated housing problems involving ‘overcrowding, sub-standard housing, lack of basic facilities, and often minimal health conditions’.[488] The number of people sleeping per room has been strongly linked to an increased risk to TB and the 1966 census showed that the migrants from Mitiaro, Palmerston and Rakahanga living in Rarotonga had in excess of ten people per room in their housing therefore increasing their health risks considerably.[489] This probably added more of a burden on the Rarotongan health service and the sanatorium even though domiciliary care was becoming more accepted.

The Sanatorium and Domiciliary Treatment

Domiciliary treatment continued to be the ‘main weapon’ against TB in the Cook Islands during the 1960s, with the sanatorium used only for seriously ill cases.[490] The number on treatment fell steadily during 1960 – 1961 and a resurvey of Rarotonga showed that ‘comparatively few new cases were being found’.[491] The graph below, Figure 19, illustrates the number of cases being treated for TB in the Cook Islands from 1945, with an accelerated drop in the number of cases requiring treatment from the mid 1960s.[492] As can be seen, domiciliary treatment was not recorded before the early 1960s even though it was an intervention being utilised and the high number from the early 1960s, seemingly appearing out of nowhere, indicates this.

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[488] Curson, 'Population Change in the Cook Islands - the 1966 Population Census', p.56.
[489] ibid., p.57.; For more on overcrowding and associated TB risk see Baker, et al.
[490] AJHR, 1961, A.3, p.39.
[491] ibid.
[492] Legislative Assembly of the Cook Islands, Papers, Health Department Annual reports, 1945-1975,Cook Islands Parliament, Rarotonga.; AJHR. 1945-1975.

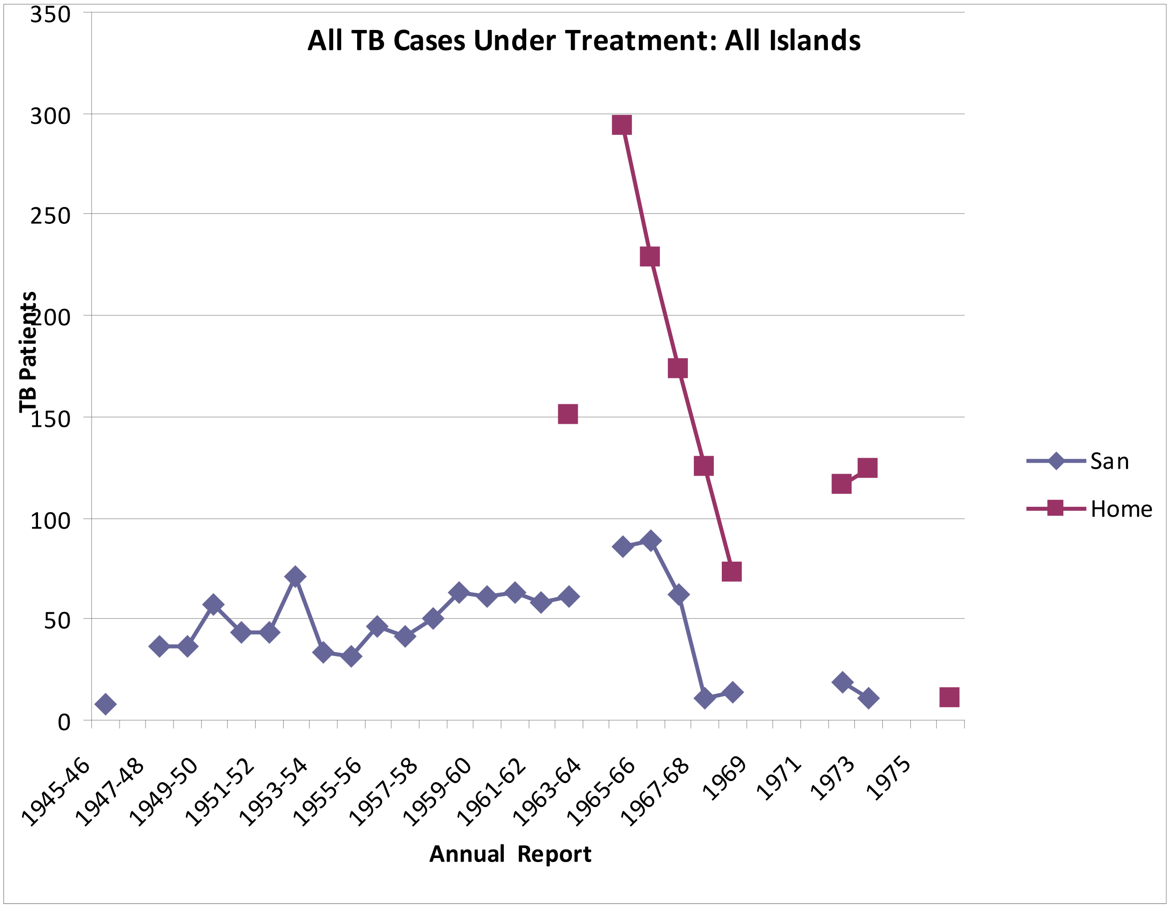

Figure 19. **All TB Cases Under Treatment: All Islands.**[493]

During 1960 the sanatorium was able to 'admit almost every case immediately' and, in addition, 'to accommodate children who previously occupied much needed beds in the general hospital'.[494] By 1963, due possibly to the sanatorium now being able to easily cater for the numbers requiring treatment, there was some discussion in the annual report about whether the sanatorium could possibly close.[495] This discussion was shut down quickly as medical personnel pointed out that closure of the sanatorium could not be expected for some years yet. Why this was a point of discussion is unclear. The discussion could have been generated through the concern of the cost of running two sites for medical care and also the fact that

[493] ibid.
[494] AJHR, 1960, A.3, p.51.
[495] AJHR, 1963, A.3, p.37.

domiciliary treatment was progressing well - as indicated by the opening of a TB outpatient unit in Rarotonga.

Dr Manea Tamarua remained instrumental in the TB programme and his influence was recognised when the Cook Islands administration and the New Zealand authorities recommended him via the Secretary of External Affairs, Mr G. K. Ansell, for the WHO's 1962 fellowship awarded to the Cook Islands[496]. It was intended that Tamarua would 'observe tuberculosis control programmes in South East Asian and Pacific Island communities rather than undertake further studies at the Central Medical School, Fiji' during this training and that this would enhance his skills on his return to the Cook Islands.[497] Tamarua attended the training for around four weeks from October 1962. In his absence, 'a small hut was converted into a tuberculosis outpatients clinic' with all case-contact work, Heaf testing and BCG vaccination, as well as case follow-up work, based at this clinic.[498] Why they would elect to do this in Tamarua's absence is unclear, unless he left instructions to do so. In any event, this hut is conceivably the beginning of the ensuing Cook Islands Public Health approach to TB.

While the sanatorium continued reasonably efficiently, the 1962 Annual Report and the new CMO, Dr G. A. Lennance, reported that the hospital was substandard in both size and facilities.[499] Lennance had been a graduate of Cambridge University (UK) in 1927 and had been working in New Zealand prior to his new appointment.[500] Although previous CMOs had commented that they felt the Cook Islands medical services had improved considerably; with

[496] Ansell – Regional Director, World Health Organisation Manilla, 8 September 1961, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.
[497] ibid.
[498] AJHR, 1963, A.3, p.37.
[499] Lennance – Turbott, 8 February 1962, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.; AJHR, 1962, A.3, p.39.
[500] 'Notices', *British Medical* 2, 3487, 1927. 'Notices'.Dr Lennance came to New Zealand in 1948 as the Director of Physical Medicine in charge of the Queen Elizabeth Hospital in Rotorua. Before leaving for the Cook Islands he was the Director of Child Health for the New Zealand Ministry of Health.

regards to the hospital, Lennance did not agree. He wrote to his friend Turbott saying how shocked he had been on seeing the state of the hospital and he dramatically added that he could now ‘imagine what Florence Nightingale thought when she saw the hospital at Scutari’.[501] He told Turbott that there was no provision for isolating infectious cases and yet, in spite of this, cross infections did not seem to take place. He speculated that possibly ‘Maori are so immune that it can’t happen’ and that as the climate dispensed with the need for blankets he wondered whether this could account for the lack of cross infection.[502] These comments perhaps reflect his culture shock at arriving to work in the tropics and working in a hospital without the facilities that he was used to, and having to deal with conditions with which he had had little experience. With such overcrowding he clearly expected cross infection to take place.

Even with an extension to 57 beds in 1950, the hospital was still not big enough, as the Cook Island’s population had reached approximately 18,040 by the end of 1959 with 7,290 of those people based in Rarotonga.[503] Although there were now hospitals on the larger Outer Islands, the serious cases were still brought to Rarotonga which then put pressure on the Rarotongan bed space. Authorisation was finally received from New Zealand to build a new general hospital in 1960 at an estimated cost of ₤320,500.[504] However, a choice could not be made about the most appropriate site and the development was prolonged until it was eventually built at the sanatorium site. The hospital ultimately opened, more than a decade later, in 1972.[505] The first phase of the construction of the hospital was finished in August of 1972

[501] Lennance – Turbott, 8 February 1962, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.
[502] ibid.
[503] Mathison, Minister of Island Territories – Cabinet Works Committee, 3 October 1960, Cook Islands Social Health 1960, ANZ.
[504] ibid.
[505] Lange, 'A History of Health and Ill-Health in the Cook Islands', p.242.

when the ‘Theatre and Administration’ block was opened, marking ‘a milestone in the new hospital construction programme as this was the first of the five phases to be fully commissioned’.[506] The ‘Surgical Ward’ was completed by the end of the same year with forty beds and it also contained ‘two self contained units which may serve as an isolation area for VIPs’ (Very Infectious Patients), such as TB patients, should they require isolating rather than domiciliary treatment.[507] By the 1970s, care and drug treatment for TB patients had evolved. However, in the Cook Islands during the 1960s, some trials and experimentation occurred.

Dr Steven Kavana became the TB officer after Tamarua and went to the Philippines and Singapore for a refresher course in TB where he ‘learned how to save money and that we don’t need to keep them (patients) in hospital’.[508] On his return, he met with the Premier, Albert Henry and the CMO, Dr Simpson, and together they decided that the sanatorium could close.[509] Although the 1966 annual report indicates that the sanatorium was closed, subsequent reports suggest that patients were treated at the institution right up until 1974 (see Figure 18).[510] However, by this stage, the focus was domiciliary treatment which meant that some of the nurses who had been fully utilised at the sanatorium now became District Nurses. The District Nurses became responsible for administering medications for TB patients in the villages they were responsible for and trying to ensure compliance with the drug treatments available.

Doctor Tamarua Herman, who became the doctor in charge of TB after Kavana, revealed some interesting points about domiciliary treatment. Although the sanatorium was closed by

[506] Legislative Assembly of the Cook Islands, 1972, Report on the Health Department, Cook Islands Parliament, Rarotonga. The theatre had been being used the previous year, and prior to the opening.
[507] ibid.
[508] Interview, Adamson, Rarotonga, 2009.
[509] ibid.
[510] ibid.

the time he was in charge of TB he ‘kept reemphasising; we should not relax and we have to maintain our vigilance’ to fellow staff members as other countries were seeing a re-emergence of TB.[511] Herman thought their key focus was ‘early diagnosis and compliance of medication’.[512] Displaying an understanding that *taunga* were an ingrained part of society as other doctors had done before him, Herman, when confronted with patients that were taking Maori medicine made from what he termed ‘prominent traditional healers’, would say ‘you can take it, that’s your choice, but please take this too’.[513] Regarding standard western medication he commented that:

> nurses and public health inspectors followed patients up at home twice weekly giving a high dose of treatment which were tablets and injections. Streptomycin was given Monday and Friday, which was not the best choice, but it was a start and at least the patients got it as the staff administered it’[514].

When he thought back he did not think they were perfect in their approach but ‘we had that system in place’.[515] He said that doctors from New Zealand informed them that ‘it was not the best (way to treat TB); medication should be taken daily but we found that some patients were not that reliable’.[516] Monthly checks were done on all patients and the medical staff would get assurance and support from the family to make sure they take the medication. Herman also felt that patients ‘get to know the nurse and the inspector and that makes a difference’ to their compliance.[517] The experiences shared by Herman highlight the complexities of delivering daily directly observable treatment to patients when the resources are not available. It also

[511] Interview, T Herman, Rarotonga, 2009.
[512] ibid.
[513] ibid.
[514] ibid.
[515] ibid.
[516] ibid.
[517] ibid.

highlights that the public health department adapted their treatment plan in a way that was not considered desirable by New Zealand, and possibly in a way that was dangerous to patients considering the side effects of streptomycin.

Drug Treatment

During 1962 a 'new, tasteless and combined drug called pasinah' was introduced to Rarotonga for home treatment.[518] Pasinah was a combined preparation of PAS and INH and its ingestion could be traced by a urine test. It was intended that it be accompanied by medical staff supervising the taking of the drugs which could possibly be the first use of the Directly Observable Therapy (DOT) programme for TB in the Pacific region, before it became recognised as a key intervention by the WHO.[519] PAS and INH combined (Pasinah) is now an outdated treatment since the advent of more effective anti-TB drugs with PAS only used, in combination with other drugs, for the treatment of multi-drug resistant TB.[520]

'Urine testing for PAS excreting and 'daily dose' supervision of domiciliary cases became routine in Rarotonga' by 1963.[521] After the introduction of pasinah, a more palatable drug, the medical staff found that only 10 percent of home treated patients were, on urine testing, found to be failing to take their drugs. Before the introduction of pasinah it was found that 75 percent failed to take their medication and they decided that, due to the low level of compliance, further education was essential for patients to ensure they fully understood the importance of taking their medication regularly. The introduction of pasinah appeared to be a hugely successful intervention it was decided to introduce it to the other islands alongside health

[518] January monthly report, 1962, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[519] Interview Tamarua Herman, Rarotonga, 2009; DOT, many years later, became the lynchpin in the WHO's strategy to eliminate TB and continues as a key strategy for ensuring patients take their medication to reduce the chances of developing drug resistant TB. DOTS was implemented into the Western Pacific Region by WHO in 1997, 'Global Tuberculosis Control. ', 1993, WHO/TB/98-237, p.129.
[520] Wikipedia, *4-Aminosalicylic Acid*; available at: http://en.wikipedia.org/wiki/4-Aminosalicylic_acid (28 January 2010)
[521] AJHR, 1963, A.3, p.37.

education.[522] What happened to delay this action is unclear as, by August, they were still discussing implementing the same intervention. The health authorities then decided to do what could be considered controversial; a 'snap check' of forty-six people on home treatment in Rarotonga as the medical staff wanted see how many patients were taking the PAS left for them by the District Nurses. This check showed that '35 had not had PAS during the previous 12 hours'.[523] It was decided to continue urine testing and also that

> the high total of defaulters required more careful checking' [and also that] 'an attempt should be made either to give I.N.H. with methylene blue incorporated, or to use a combined PAS/INH preparation and that urine testing of home treated cases should be extended to cover the group.[524]

On reflection, intervention using methylene blue would perhaps have taken away the need to test the urine as it would be directly observable whether the patient had taken their medication or not, due to the urine being blue. From the files it is unclear why they did not follow through on the introduction of pasinah as was planned, especially if it was tasteless as the monthly report had stated. It would have been an improvement on PAS as it was notoriously difficult to take due to its bitterness which must have been a barrier to compliance.[525]

The pasinah urine testing intervention had an authoritarian and public health approach which seemed to disregard human rights, in that it ostensibly was imposed onto patients. However, it seems to have been accepted by the patients, and this was possibly because they could see that it was to everyone's advantage if all patients took their medication.[526] An obedience model,

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[522] January monthly report, 1962, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[523] August monthly report, 1962, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[524] ibid.
[525] Interview Wea, Adamson, Koteka, Rarotonga, 2009.
[526] Interview Tae Nootutai, Rarotonga, 2009.

whereby it is accepted that you should obey authorities such as tribal leaders, the church, or some government departments, is still present in some circumstances in the Cook Islands. This authoritarian type of intervention is still seen as appropriate by some Cook Islanders today if it the outcome is perceived as beneficial for the community. Such authoritarianism in relation to TB is not unusual. New Zealand still retains laws to incarcerate noncompliant patients if they refuse to take their TB medication or put others at risk with their behaviour.[527]

Surveys, Surveillance and Services

Medical services continued to evolve as knowledge about TB expanded and technology advanced. Staffing remained an issue but effective work was able to be completed, enabling the medical service to find as many cases of TB as they could, and then to follow these up by tracing their known contacts and providing satisfactory treatment. Although domiciliary cases were clearly a focus for the medical service, Figure 19 does not show any reported figures of such treatment until 1963-64. However, the following accounts indicate a strong focus on treatment in homes.

With the increased numbers of domiciliary patients, the medical service had to devise a way to ensure that cases were kept track of in an accountable way. In his 1961 Public Health Report, Dr E. Simpson noted that the newly-formed TB tracking system was working well[528]. They instigated an automatic six monthly review of all follow up cases and, on implementation of this, many cases who had been on the books for some time had now been taken off on AMO Tamarua's advice. District Nurses were now being given the details of all the TB cases in their areas, some of which had been known to them before, while others were new cases. A check by MMR on all contacts of cases under treatment was being planned for November. Simpson

[527] Dunsford, p.244.
[528] September monthly report, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ

was ‘visiting, bit by bit, all homes of such cases, to review their housing standards and to discover their occupations etc’.[529] He felt that this new system was developing a ‘very encouraging cooperative spirit between the clinical staff and the Public Health section which was most desirable’ as it enabled contact checking to be more rapidly carried out on the diagnosis of fresh cases.[530] This socially aware approach provides some evidence of the connection being made by the medical service to the social factors enabling TB in the community and also the intersection of social issues with their medical interventions.

Although Lennance had been scathing of the state of the hospital when he had arrived, in 1962 he was very complimentary about the quality of the Cook Island medical staff.[531] He noted, in a personal letter to Turbott in New Zealand, that they ‘carry out excellent work under the most adverse circumstances’ and were extremely professional and that ‘in spite of all these defects [of the hospital]) the work done in the hospital, on the district, and in the preventive field is excellent’.[532] In his next letter he also complimented the District Nursing Service, which he said had been developed by Sister McCullough, whom he said was ‘first class’.[533]

In late 1963, WHO representatives Dr L. R. L. Verstuyft, Medical Officer, and Miss M. Farland, Public Health Nurse and Midwife, visited the Cook Islands to investigate the status of maternal and child health. They commented on a wide range of medical services available in the Cook Islands, also noting that TB was still a major concern and that:

[529]ibid.
[530] ibid.
[531] Lennance – Turbott, 8 February 1962, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.
[532] ibid.
[533] ibid.

> at the end of 1962, there were 64 in-patients at the Sanatorium and 151 patients in the group receiving domiciliary treatment. The number of new cases during 1962 was 40.[534]

They had other observations relating to TB in Rarotonga. They observed that at all island antenatal clinics, women were given an X-ray on their initial visit. At this appointment piperazine was also given to women to ensure that they had no parasitic worm infections thus enabling the mother and child to get maximum nutrition from the food they consumed.[535] This would also increase their resistance to TB and make it less likely their babies' BCG vaccination would be compromised.[536] The AMO continued the daily round of the island to check on the health in all villages and domiciliary patients - enabling the prevention of illness and for BCG immunisations to be given at birth or soon after. Vaccinations were only given to newborn babies 'when they [were] are numerous enough to utilize a full phial of vaccine'.[537] In the schools, the children were Mantoux-tested and those found negative received a BCG vaccine. They also underwent three medical examinations during their school life. The report noted that:

> a tuberculosis campaign is being conducted. New cases are treated in the sanatorium where they generally stay about twelve months. The average number receiving domiciliary treatment is 103. The strongly positive Heaf reactors receive a preventive course of INH tablets. In some cases, it is difficult to know if they have received BCG or not, as

[534] World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[535] ibid. Adequate nutritional status is important to ensure the immune system is robust to ward off TB infection.
[536] LaBeaud, et al., p.1.
[537] ibid.

> the individual card record system was not used when the BCG campaign began in 1956.[538]

The report indicates the level of TB surveillance and intervention continuing throughout the country. The X-rays at all antenatal clinics provided another way of checking all women of child bearing age for TB. It also shows the links within the medical department that allowed established community links to be utilised for purposes other than what they had been originally established for. The daily rounds of the AMO and nurses probably enabled relationships in the community to be well established which could have reduced the barriers to seeking medical help if there was a concern. It is unclear whether the report initiated any changes to the way TB was handled, or whether it was stating what was happening about TB for merely background purposes; however, it did appear to be viewing the TB campaign in a mostly positive light.

Between June and October 1964, a survey of the health of the children of the Cook Islands was undertaken by Dr M. Neave. [539] This study was supported by the New Zealand Research Council and was done in conjunction with an adult survey being conducted at the time by Dr Ian Prior. Neave spent eight weeks in Rarotonga and six weeks in Pukapuka, part of the northern group of islands. The population of Pukapuka at the time was 800 with 402 children under the age of 16 and Neave saw them all, while Rarotonga had a population of 9768 with approximately half of these children being under 16, of whom 534 were seen. The purpose of the survey was to see if the health of Pukapukan children differed in any striking way from

[538]World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ. It should be clearly seen if children have received a BCG previously whether the card system was in place or not as the immunisation leaves a scar.

[539] Cook Islands Child Health Survey, 1964, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.; There was no name or organisation noted on the document but a note had been written on the document regarding Dr Neave.

children in Rarotonga. The finding was that it did not, although there were some points regarding TB, which follow.[540]

The report recommended many interventions which were in fact already in place and had been previously recommended by other consultants or doctors since the campaign began in the 1950s.[541] These included 'that all newborn babies should be vaccinated with B.C.G. on every island' and that 'those with evidence of pulmonary tuberculosis would require individual treatment according to their progress'.[542] Neave felt that the BCG campaign would be best based on the child welfare clinic districts of which there was a clinic in every main village, and which worked in with the movements of the mobile X-ray unit.[543] This comment indicated that he may not have been aware of how difficult it was to get the MMR unit to the Outer Islands nor of the fact that the unit was notoriously difficult to keep working. The report noted that, on the Outer Islands, treatment would have to commence on the result of tuberculin testing, without X-ray assistance, and that:

> in every case the progress of such children – temperature, weight, physical activity, cough and sputum, E.S.R. and the presence of physical signs, should be most carefully watched, and if the child is not making satisfactory progress after six weeks or two months of treatment, if from the islands of the Southern Group, he should be brought to Rarotonga for X-ray and other examinations. …For the Northern Group children, the disadvantages of the boat journey, difficulty of getting back, and upset of the family would have to be

[540] ibid.
[541] Cook Islands Child Health Survey, 1964, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.
[542] ibid.
[543] ibid.

> weighed against the gain for the child. Radio consultation on such children should be considered normal.

All the points made were current standard practice for the doctors of the islands. The report verified what was already known; that in Rarotonga it appeared that a proportion of children had been BCG vaccinated.[544] It advised that after pre-school children had been vaccinated, that the school children of the first four grades should all be skin tested and that positive reactors who had no evidence of TB should be supervised by careful weighing, and an enquiry made to the parents and teachers for symptoms; they should be X-rayed yearly. Then it went on to suggest that after this phase of the campaign, the older children should be treated in the same way and that if this plan was followed by college age, probably very few negative reactors would be found, and no child will commence at college unvaccinated, so that yearly X-ray of all college pupils would become the most useful anti-TB activity.[545]

This report shows the level of investigation and the depth to which the Cook Islands programme was being scrutinised and it perhaps indicates a change to the focus being on children. Davis in the 1950s had previously lamented the number of people coming to the Cook Islands to do research without asking the people in the Cook Islands what they would like investigated and making sometimes impractical suggestions (see Chapter Three). This report exemplifies his concerns as it recommends a number of interventions that were already in place. Overall, it is questionable how useful it may have been to anyone other than the researcher. On the other hand, it is also possible there were other reasons to reiterate the need for such interventions such a having them acknowledged for an outside agency report that could then reinforce their importance and make funding less likely to be withdrawn, or for extra funding to be given.

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[544] ibid.
[545] ibid.

In 1966 a request came from the New Zealand High Commissioner, Mr G. C. Fortune, on behalf of the CMO Dr A. Guinea, for the WHO TB team to visit to 'accelerate the local TB programme and bring it into line with W.H.O. policy'. [546] However, he did not say in what way the programme did not meet WHO protocols. He reported in his letter that for the years ending 31st December 1963 and 1964 the occurrence of tuberculosis was as follows:

Table 4. **Tuberculosis Numbers and Rates per 1000 Population Averages Per Month, All Islands, 1963 and 1964.**[547]

Year ended	No of new cases	Rate	All cases under treatment			
			Sanatorium	Home	Total	Rate
31 Dec 1963	77	4.0	60	211	271	14.1
31 Dec 1964	58	2.8	42	156	198	9.6
Population 3 December 1964 – 20,519						

The figures in Table 4 seem inaccurate and they are perhaps actually the average new cases for the year, rather than the average new monthly cases. They do not correspond with other documents that show the annual rate of cases reducing considerably at this time. Even in 1956, at the beginning of the campaign, when MMR was being offered for the first time, the rates were not this high per month.[548]

Fortune noted that the figures quoted were, of course, those relating to known cases, but that Guinea believed that many were not being detected and he advised that recent changes had been made to improve case finding and that more widespread use of BCG was under consideration. Fortune and Guinea did, however, want to seek the advice of the WHO TB

[546] Fortune – World Health Organisation, 7 April 1966, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[547] ibid.
[548] See Table 2, Chapter Four.

Advisory Team.[549] These comments indicate the role the WHO was beginning to have as a more influential outside agency acting directly on the Cook Islands TB programme. This also points towards the start of the regional agencies becoming a more significant influence on the medical services than the New Zealand Health Department. Guinea's comment that he thought that many cases were still not being detected is also telling, if it is true, as with the amount of scrutiny the programme had been under it would seem likely that this issue would have been addressed before 1966. What perhaps is more likely is that the title of table was wrong and that it should have read 'per year' rather than 'per month' and as Guinea was new to the Cook Islands and the CMO position, he did not pick up the mistake.

In 1968 New Zealand closed its Department of Tuberculosis due to the lower numbers of TB cases.[550] However, there was still much work to do in the Cook Islands. It was also the year an offer was extended to J. M. McEwen, Secretary of the Department of Island Territories, by C. Meachen, the chairman of the Wellington Tuberculosis Association. Meachen enquired whether the Cook Islands Government would approve their offer of sending a chest physician to Rarotonga.[551] They were responding to a request given to them by Dr M.C. Laing, a senior medical officer (TB) of the New Zealand Department of Health, on behalf of Dr Guinea the CMO in Rarotonga. Laing had recently visited the Cook Islands with her husband, and while there she made an effort to develop some connections with the doctors involved with the TB control programme.[552] The TB Association was willing to pay for the cost of travel, if the physician's salary would continue while they were required in the Cook Islands. The reply

[549] Fortune – World Health Organisation, 7 April 1966, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[550] Derek A. Dow and New Zealand Ministry of Health, *Safeguarding the Public Health : A History of the New Zealand Department of Health*, Wellington, 1995, p.198.
[551] Meachen – McEwen, 21 March 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[552] Maori and Island Affairs – High Commissioner Rarotonga, 13 February 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.

from the Premier's Department to the High Commissioner stated that the Government would pay the salary and accommodate the physician and said that they were most appreciative of the offer extended. It also said that the medical service hoped this could be arranged before the cyclone season began in December.[553] It had been decided by all involved that it would be appropriate that the chest physician would work under the supervision of the CMO while in Rarotonga. However, this posed an obstacle to the proposed programme; before the arrangements could be made, Dr Guinea took up a position at the SPC in Noumea and the Acting CMO Dr Williams commenced a six-month course in Hawai'i and would not return until February 1969. Ultimately, the programme was postponed until the following year and it is unclear whether the supply of the physician ever eventuated.[554]

International Airport

While the medical services were continuing to improve the opening of the International Airport in Rarotonga in 1974 brought with it a host of possibilities which were both good and bad. One of these was that it was much easier now to make a medical referral to New Zealand for issues that could not be dealt with in Rarotonga. In July of 1974, the New Zealand Cabinet agreed that:

> any necessary medical, hospital and related treatment for Cook Islanders ordinarily resident in the Islands, which cannot be provided locally, be made available to them in New Zealand on the same basis as to other New Zealanders, provided that such treatment is recommended by the health authorities of the Cook Islands.[555]

[553] Premier Department – High Commissioner Rarotonga, 19 April 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[554] Secretary, Department of Maori and Island Affairs – Meachen, 6 September 1969, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[555] Secretary of the Cabinet, Minister of Island Affairs, 'Medical Treatment in New Zealand for Cook, Niue and Tokelau Islanders', 17 July 1974, International Health Cook Islands, 1969-78, H 334/7/3.2, ANZ.

Airfares and incidental travelling expenses, along with any private accommodation costs, would be the responsibility of the Cook Island Government.[556] This acknowledgement and support of the medical care for Cook Islanders as New Zealand citizens, even though the country was self governing, conveys the development of a more socially responsible partnership between New Zealand and the Cook Islands. There had been a time, when the Cook Islands was a colony, that New Zealand had been more reluctant to offer such services and it possibly did so now as they were under international pressure and their relationship with the Cook Islands was under more scrutiny by international agencies United Nations.

The opening of the airport facilitated migration to New Zealand and Australia, as well as to tourism to the islands. The airport signalled the beginnings of an easier transnational pattern for Cook Islanders both leaving, and arriving. However, it also increased the two-way mobility and increased the risk of bringing new diseases to the Cook Islands that they had previously not been so readily exposed to. In addition, the ability to send medical samples, receive results, and take delivery of pharmaceuticals was greatly enhanced.

Development of a Laboratory

For some time the lack of laboratory facilities at the Rarotongan hospital had been a concern for both doctors and visiting consultants in the Cook Islands. Wogan had recommended the lack of a laboratory service in the Cooks group be amended but this took some time. Finally, the January 1962 monthly report stated that a start was made upon developing a TB laboratory at the sanatorium although it did not give any details.[557]

[556] ibid.
[557] January monthly report, 1962, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.

In 1963 the CMO wanted to develop a small laboratory for TB work as he felt TB detection had now moved past beyond the stage of gross physical signs and required greater precision. He hoped to establish not only higher standards in bacteriological work but also a system of assessing the sensitivity of local strains of the bacilli to the anti-tubercular drugs.[558] He had no problem getting quotes for portable incubators to grow cultures from sputum but needed to obtain portable kerosene or battery incubators for the transportation of cultures to be brought to Rarotonga from the Outer Islands. He therefore requested advice from the New Zealand Department of Health. In response Dempster recommended it may be better to use a thermos or vacuum flask packed with ice rather than attempting to culture the organisms and then transport them.[559]

The Health Department sought out other advice and Mr W. Hamilton, a virologist from the National Health Institute in Wellington, advised that it was not necessary to incubate cultures in transit from the Outer Islands to Rarotonga. He felt that if ‘tubercule bacilli can be cultured in the Outer Islands then the viable cultures can be shipped at plane or boat ambient temperatures in a suitable postal package for many days and will remain viable until the reach the laboratory in Rarotonga’.[560] He thought that the cultures would survive a month at ambient temperatures but that by two months they would start to die off. He also said that if no facilities existed for culture attempts in the Outer Islands that refrigeration would be required for sputum samples, and that ice in vacuum flasks would suffice.

558 Simpson – Dempster, 6 February 1963, South Pacific Board – Cook Islands Supplies, 1942 – 66, H 333/12/1, ANZ.
559 Dempster - Simpson, 26 February 1963, South Pacific Board – Cook Islands Supplies, 1942 – 66, H 333/12/1, ANZ.
560 Hamilton – Dempster, 13 March 1963, South Pacific Board – Cook Islands Supplies, 1942 – 66, H 333/12/1, ANZ.

The slow improvement to the laboratory continued as, in 1964, ‘modern equipment’ was added to the laboratory and this, along with the employment of a bacteriologist, Mr R. Dix, enabled ‘many tests that had been previously impossible to be carried out’.[561] As a result ‘diagnostic accuracy, more scientific treatment and patient comfort’ were all improved.[562] Further development occurred during 1966 when the Outer Islands were supplied with microscopes while the number of tests examined in the laboratory in Rarotonga increased by 42 percent, over the previous year, reaching 30,506 in total, and the number of patients transfused more than doubled.[563] Dix was credited with the laboratory’s success in the 1970 annual report where it was stated the laboratory was now ‘well equipped to a stage where most tests can be performed in Rarotonga’.[564]

The significance of the country wanting its own laboratory was that it would enable them to be more independent of New Zealand. It would permit them to quickly ascertain results for some tests that, if they always had to be sent to New Zealand, would take time. To hasten their service by having their own laboratory meant that patients would be able to begin treatment quickly while doctors would also have their results more rapidly. As a result the development of a laboratory would enable the medical service to be more autonomous and, as it had been suggested by New Zealand consultants on a number of occasions, it would seem that the laboratory service would be adding to the increasing professionalism of the medical service and the growing autonomy of the medical service. Although the experiences of the MMR had

[561] Legislative Assembly of the Cook Islands, 1965, Report on the Health and Dental Departments, p.3, Cook Islands Parliament, Rarotonga.
[562] ibid.
[563] Legislative Assembly of the Cook Islands, 1967, Vol. I, Report on the Health and Dental Departments, p.4, Cook Islands Parliament, Rarotonga.
[564] Legislative Assembly of the Cook Islands, 1971-72, Vol. I, Report on the Health and Dental Departments, p.10, Cook Islands Parliament, Rarotonga. The cover of this report is not replicated in the inside cover which states that the report is for the year 1 January 1970 to 31 December 1970.

shown, that with the arrival of technology also comes with the burden of responsibility for equipment failure.

Mass Miniature Radiography

The continual up-keep required by the MMR unit presented many challenges that could not be solved in the country. When the MMR equipment was ‘again returned from New Zealand’ in 1960 after repairs, it enabled the medical team to begin resurveying the southern group islands.[565] As this resurvey progressed, the medical staff were pleased to find that the survey was discovering fewer suspected cases that they had anticipated, indicating that case detection and contact tracing was becoming more effective.[566] Yet it was still hard to maintain the facility. The equipment was ‘almost lost while leaving Atiu and was heavily soaked with sea water resulting in damage to the generator’ and this delayed the survey yet again. The generator could not be repaired in the Cook Islands and was once more sent to New Zealand after only being back in action a few short months.[567]

A MMR survey took place in 1962 on the islands of Pukapuka, Nassau, Manihiki, Tongareva (Penrhyn) and Rakahanga with a total of 2,171 people being X-rayed.[568] With the exception of Rakahanga, the incidence on these islands was found to be lower than anticipated, however, ‘a considerable proportion of cases were already receiving domiciliary treatment’, presumably from clinical diagnosis.[569] Within the same year ‘1,027 people in Rarotonga, including all school teachers, teacher trainees, pupils of Tereora College and factory employees’ attended the X-ray unit and a mobile clinic was ordered for this type of work in Rarotonga.[570]

[565] November monthly report, 1960, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[566] February and March monthly reports, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[567] June and July monthly reports, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[568] AJHR, 1963, A.3, p.37.
[569] ibid.
[570] ibid.

By the end of November 1962 the machine had yet another mishap. The steel transport case was accidentally dropped and the equipment damaged, which meant that the whole tuberculosis control programme of the Cook Islands, once again, had to be put on hold until the unit could be repaired.[571] The machine was sent to New Zealand on 13 March 1963 and, by May, in response to enquiries for parts, Tokyo Shibaura Electric in Japan sent a telegram stating that the model was obsolete and they could not forward any parts to repair it.[572] The machine was then sent to Japan and was finally fixed and supposed to be returned to New Zealand by the end of February 1964 at a total cost of £142.[573] However, by March, the machine was still not returned and finally, by late April, a telegram was received from Japan saying the X-ray unit was on its way.[574]

During November 1967, discussions again resurfaced regarding the possibility of lending the Cook Islands MMR to Niue and Tokelau with the benefit to the Cook Islands Government of free servicing. Dr Ian Prior, Director of Wellington Public Hospital's Medical unit, was to undertake a medical survey of the Tokelau population in April 1968 and it was hoped to be able to return the unit by approximately September 1968.[575] The Cook Islands apparatus was currently out of action pending repairs to its camera in New Zealand, however the Premier of the Cook Islands Government, Albert Henry, agreed to the proposal.

[571] Skiffinton (no letter head) – Tokyo Shibaura Electric, 27 May 1963, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.; Dempster – Secretary of Island Territories, 1 July 1964, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.
[572] Tokyo Shibaura Electric – Skiffinton, 9 May, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.
[573] Dempster – Secretary of Island Territories, 1 July 1964, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.
[574] Tokyo Shibaura Electric – Department of Island Territories, 25 April 1964, Cook Islands Tuberculosis, 1957-64, IT 90/10/7, ANZ.
[575] Department of Maori and Island Affairs – New Zealand High Commission Rarotonga, 22 November 1967, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.

The Department of Island Affairs then offered their services to the Cook Islands Government stating that they may be able to persuade Niue and Tokelau to cover the cost of a new camera, and the cost of overhauling the equipment, in exchange for the use of the MMR equipment.[576] The Government was 'pleased to cooperate' and appreciated the offer, and stated they would 'accept any offer towards the replacement cost of their camera'.[577] The telegram discussed the difficulties they were facing with their MMR equipment saying that the 'unit been little used over past three years due unserviceability and CIGOV surveys outer islands severely handicapped due this factor'.[578] They also requested the prompt return of the equipment on completion of the surveys. Island Affairs then put the above proposal to the two other governments while also replying to the Cook Islands saying that they were very confident the proposal would be accepted as they 'fully expect them to cooperate'.[579] However this proved to be a little too optimistic with the Commissioner of Niue suggesting the costs they were expected to pay were 'somewhat incongruous' on top of the cost of overhauls for the use of the machine for twelve weeks every five years, and that they 'considered it more appropriate to pay a realistic hire charge'.[580] However, it appears they did ultimately agree to pay half the costs of the overhaul of the machine and the new camera costs.[581]

The Niue Commissioner's reservations proved to be well founded as the costs were much higher than expected for the overhaul as the state of the machine was never ascertained before

[576] Department of Maori and Island Affairs – New Zealand High Commission Rarotonga, 1 December 1967, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[577] New Zealand High Commission Rarotonga – Department of Maori and Island Affairs, 13 December 1967, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[578] ibid.
[579]Secretary of Maori and Island Affairs - Resident Commissioner Niue, 21 December 1967, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.; Secretary of Maori and Island Affairs – New Zealand High Commission Rarotonga, 17 January 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[580] Resident Commissioner Niue – Department of Maori and Island Affairs, 31 January 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[581] Tamahori, Department of Maori and Island Affairs – High Commission Rarotonga, 13 December 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.

the estimated costs were arrived at. The Cook Islands Government in the end agreed to pay a third of the overhaul cost due to the state of disrepair of their machine and as Island Affairs had concerns that Niue and Tokelau were being asked for too much of a contribution and they were pressed for payment.[582] On the other side of this communication, Island Affairs were corresponding with the Commissioner of Niue asking him to consider what the survey would have cost them if they had used their own equipment rather than the MMR, saying that 'the savings to you are obvious even though the repair bill exceeded the estimate' and he asked them by telegram to 'consider not argue about method apportionment further stop would like your approval for record even if protest also recorded'.[583] At the end of the day, the cost to each country ended up being $943 enabling the surveys to proceed.[584] The whole process of the surveys took longer than intended. Even though the Cook Islands Government had been told (by telegram) that their unit would 'be back in Cooks shortly after Christmas' of 1968, in May 1969 they were still trying to find its whereabouts, just as Romans had to do in 1960 when they previously lent their machine for the same purpose.[585]

These discussions between countries and the Island Affairs shows the significance of an under resourced medical service in three Pacific Nations, all of which had been colonised by New Zealand. It also shows the cooperative nature of the relationships between these countries as they try to support one another's anti TB campaigns while also protecting their own finances and people by negotiating the best deal they can. Technology was expensive and beyond the reach of Niue and Tokelau or, one would assume, they would have bought their own

[582] ibid.
[583] Tamahori, Department of Maori and Island Affairs – High Commission Niue, 15 January 1969, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[584] Note for file, Distribution of Charges Re- Cook Islands Mobile X-ray Unit and Camera, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.
[585] Tamahori, Department of Maori and Island Affairs – High Commission Rarotonga, 13 December 1968, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.; Cook Islands Government - Department of Maori and Island Affairs, 16 May 1969, Cook Islands Tuberculosis, 1965-70, IT 90/10/7, ANZ.

equipment. Added to this, the environment was extremely tough on technology as the Cook Islands experience with their MMR unit clearly shows, and perhaps the other two countries did not see it as a wise investment when finances were limited and surveys programmed for every three years. The other issue highlighted in this discussion is that although there seemed to be enough money for surveillance of the anti-TB projects in these three nations, there was not for each of the countries to have their own technology.

Developing a Public Health Strategy

As the campaign progressed and the MMR unit continued to identify large numbers of TB cases, the medical personnel had to find a way to successfully follow up on the patients who were on domiciliary care. During 1960 a Public Health Section was developed that was responsible for the 'follow-up checks on treated cases, tracking and tracing of contacts and administration of BCG where necessary'.[586] This section was perhaps operating from the hut that was opened while Tamarua was doing his TB training in Asia and building on from the public health social marketing messages Romans had translated into Maori (see Chapter Four). The 1960s saw health education becoming more of a focus as health staff promoted that 'prevention of disease is better than cure' with organised material for 'public cinema display and for a weekly health page in the daily press'.[587] As the weekly health page developed, they found that when a prize component was introduced to these health education campaigns there was a marked increase in the public response.[588] A similar situation had been introduced by Lennance with regards to the *tutaka.* He had observed that frequent *tutakas* continued but that in order to encourage a competitive spirit he induced local shop keepers and business people to contribute goods or money as prizes to the owner of the best-kept house, with very

[586] AJHR, 1961, A.3, p.39.
[587] January and March monthly reports, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.
[588] March monthly report, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ.

satisfactory results.[589] In February 1961 the Public Health education activities included weekly discussion groups at both the Teacher Trainee College and at Tereora College.[590]

By the time WHO consultants visited in 1963, health education was established as part of the medical programme. WHO commented about the substantial amount of work in health education undertaken in Rarotonga and some Outer Islands[591]. They noted that schools offered health education in their programme and teacher trainees received lectures from Cook Islands Health Department personnel, also that a course in health education had been given in Rarotonga and Aitutaki by the South Pacific Commission Health Education Officer in 1959 with health and education students and staff, along with some community groups, participating. District nurses, in addition to talks given at clinic sessions and in schools, did a considerable amount of health teaching during home visits using posters and pamphlets, mainly from the New Zealand Health Department and the South Pacific Health Service, the Pacific arm of WHO. Regular radio programmes on health were broadcast from the local station and all the sections of the Public Health Department contributed to this while the *Cook Islands Youth Magazine*, published quarterly by the Department of Social Development, included in each issue at least one article on health which was prepared by health staff.[592]

The result of this increase in Health Education is unclear. By 1966 the CMO, Dr Archie Guinea, was looking for Health Education material and asked for material from Dr Derek Taylor, the Director of Public Health in New Zealand. Taylor replied that 'Miss Leonie

[589] Lennance – Turbott, 18 March, 1962, South Pacific Health Cook Islands Health General, 1955-66, H 333/12, ANZ.
[590] February monthly report, 1961, Cook Islands Medical, 1961-1964, IT 110/5/1, ANZ. Tereora College is a secondary school.
[591] World Health Organisation Report, 17 December 1963, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[592] ibid.

Martin, Health Educator from S.P.C. developed the principle that materials are best produced locally for local needs'.[593] This probably did not help the situation Guinea was trying to address and, in his reply, Guinea mentioned that they had partly formed a section for health education with all the staff participating but that none of the staff had any training. It is unclear where those that had attended the 1959 SPC health education training had gone. Perhaps this was why he was asking for some material rather than using material locally designed. Guinea said that they had free availability of radio, but that due to staffing shortages, they had not been able to appoint an officer responsible for health education and this meant the coordination of the programme was not completely satisfactory. One of their 'main difficulties was the shortage of materials, but pamphlets and posters in Maori (Rarotongan) are slowly being produced' and he asked whether they could receive two movies per month to 'bring out the whole neighbourhood'.[594] As all of the SPC correspondence is related to health education materials it is assumed that the movies being requested are health related. Similar movies had been well received in other countries and had been utilised for TB education.[595] Guinea's request for support did not appear to have been granted, as he was advised that he needed to devise his own materials and while he seemed to be prepared to do so, it did seem that he was lacking in the essential requirements, namely staffing and training. This correspondence indicates a changing of philosophy in regional support for Pacific Nations; in the past using materials transposed from a New Zealand setting was considered reasonable. The New Zealand Department of Public Health and SPC, in this situation, were now considering the local context and clearly saw this as instrumental to a successful health education campaign.

[593] Taylor – Guinea, 20 May 1966, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[594] Guinea – Taylor, 17 June 1966, South Pacific Health Cook Islands Health General 1955-1966, H 333/12, ANZ.
[595] Teller, p.57.

Dr Tamarua Herman, who became the Director of Public Health in the 1970s, felt the department needed to maintain their focus on TB even though the number of patients was now quite low. He said the main public health message at the time was: ‘TB is an infectious disease’.[596] They decided this message was required at the time as:

> some people still believed you got TB because you did something wrong or that it was inherited. We were still trying to overcome the issue that people still thought there was nothing they could do (if they got TB) therefore the other message was ‘it’s treatable’. [597]

In this way the public were benefiting from a social marketing campaign which would hopefully change the public perception and actions around TB.[598] However, it is significant that, after fifteen years of social marketing, which stated at the beginning of the campaign in 1955, that in the 1970s these messages were still relevant.

Conclusion

The 1960s saw the medical service become confident in their practice for case finding, contact tracing and the treatment of TB. The district nurses and itinerant doctors’ service, alongside community partners also screening for TB as part of their own procedures, allowed extensive surveillance and monitoring to, almost constantly, be achieved. This surveillance occurred from both within the country and with outside agencies and offered many opportunities to look closely at the details of their programme. It also enabled the staff to adjust their programme as necessary. Interventions such as the ‘spot check’ to ensure that people are taking their medications may seem to be an authoritarian approach but it seemed to be an approach that nobody challenged, and one that made certain that people were compliant with taking their

[596] Interview T. Herman, Rarotonga, 2009.
[597] ibid. Illness within a Maori medicine paradigm is sometimes attributed to having done something ‘wrong’. One person I interviewed still believed you inherited TB in 2009.
[598] ibid.

medication. This practice seemed to help ensure the disease was treated correctly, and would not become drug resistant, which had been a goal from the start of the campaign.

The establishment of a formalised Public Health Department and training of the staff in this area indicates a move towards the prevention of disease rather than solely focussing on treatment and care. The Public Health Department had staff who were health inspectors and district nurses and their roles were focussed on the domiciliary care of TB cases. The success of the domiciliary programme can probably be attributed to these people and the relationships they had with the communities they worked in. They also utilised the other health focussed links already established in the community and developed a partnership approach. Their role also began to evolve during this period with the development of health education resources in Cook Islands Maori and population based health promotion messages.

The closing of the sanatorium due to the low numbers they were now treating, or the fact that very few people were still placed in the sanatorium after 1966 when the annual report says it officially closed, indicates the success of the domiciliary programme and probably the rising socio-economic conditions of the country. As housing improved, due to the housing loan schemes, and improving drug treatments which were carefully monitored, TB rates fell. It is unclear how long the ‘double dosing’ of medication which Herman attested to continued for, or what the impact of this was on patients, although they could have been significant and not nescessarily attributed to the ‘double dosing’ of TB medication e.g. some may have gone deaf.

Tamarua and Robati leaving medicine to enter politics in 1965 was the beginning of the many years of influence Cook Island doctors have had on the direction of the country. Dr Davis became Prime Minister in 1978 and again in 1983 when he was asked to return from the

United States to contest Albert Henry and lead the Democratic Party. Dr Robati became Prime Minister in 1987, Dr Joe Williams in July 1999, Dr Maoate in November 1999, Dr Robert Woonton in 2002, with Maoate returning as Deputy Prime Minister in 2004 and Minister of Health. Having so many people from the field of health within politics has probably enabled advocacy for health from within parliament and for it to stay at the top of the political agenda. This has supported the ongoing improvements to the medical services in the Cook Islands, although financing the improvements sought after by the public has been a challenge as depopulation has impacted on the amount of taxes available to government.

Therefore by 1975, with the programme continuing to evolve and improvements evolving continuously as they were identified, TB cases for the Cook Islands were down to 11 per annum.[599] It seems the Cook Islands had achieved in twenty years of on going challenges and problem solving, what many other countries are still trying to do.

[599] TB Register, Public Health Department, Cook Islands Ministry of Health, Rarotonga.

Conclusion

By 1975 TB was no longer the major threat it had been in 1945 for the Cook Islands. The medical service, with its anti-TB campaign had fought a war against a disease that since colonial times had devastated the population of the Cook Islands, and to all appearances, they had nearly succeeded. It was a campaign that developed in the New Zealand anti-TB campaign's shadow and had the benefit of learning from the New Zealand programme, although the complexity of delivering a campaign to the Outer Islands was a barrier that New Zealand had never had to face, and it proved to be extremely difficult. After years of planning and preparation by the Cook Islands and New Zealand administrations everything was finally in place so that the campaign could begin in 1955. The almost constant campaign reduced the rate of TB to a level where it no longer required a mass, population based campaign in 1975, even if aspects of the campaign such as BCG vaccinations remain to this day. The developments of mass X-ray, BCG vaccination, antibiotic drugs and health education combined as successful interventions alongside the improving socio-economic conditions of the Cook Islands and no one intervention can be singled out as 'the key'. However, the development of important relationships with cultural relevance to Cook Islands people, alongside these interventions, enhanced the likelihood of their success.

It is difficult to say whether the medical interventions of the campaign which were sanatorium care, MMR, BCG and drug treatment were singularly the kernels of success for the Cook Islands, which would also be true for other countries. The mass miniature X-ray component of the programme showed, for the first time, a more realistic incidence rate of TB disease for the country. Despite the ongoing difficulties with keeping the MMR unit operating, mostly due to the nature of how it was transported, it is clear from the amount of effort expended that the medical service found it useful to continue X-raying.

The continued controversy over the effectiveness of the BCG vaccination shows the complexities of attributing the success of any one particular part of a health campaign. The experience of Numa in Aitutaki with the BCG vaccinations and corresponding increased TB rates within those people recently vaccinated resonates with the findings of a recent study of Yanomami Indians of the Brazilian Amazon. In this study 80 percent of the population had been vaccinated three years prior to the discovery of 28 cases of TB – so 82 percent of the cases had received a BCG. It was noted that the 'BCG immunization produces tuberculin skin test reactivity but its protective efficacy against pulmonary tuberculosis has varied widely in different parts of the world'.[600] One possible explanation for high rates of TB after BCG vaccination in Aitutaki is that many of the children may have already been exposed to TB. They may not have been 'mycobacteria naive', and therefore did not produce a typical immune response to the BCG.[601] Fordham von Reyn and Zumla surmise a similar theory saying that the effectiveness of the BCG vaccine against TB varies a great deal in different populations. They say that previous exposure can result in a 'broad immune response that is recalled rapidly after BCG vaccination and controls the multiplication of the vaccine'.[602] Their study demonstrates that 'BCG elicits only a transient immune response with a low frequency of mycobacterium-specific cells and no protective immunity against TB'.[603]

[600] Alexandra O. Sousa, et al., 'An Epidemic of Tuberculosis with a High Rate of Tuberculin Anergy among a Population Previously Unexposed to Tuberculosis, the Yanomami Indians of the Brazilian Amazon', *Proceedings of the National Academy of Sciences of the United States of America*, 94, 24, 1997, p.13231.
[601] Lise Brandt, et al., 'Failure of the Mycobacterium Bovis BCG Vaccine: Some Species of Environmental Mycobacteria Block Multiplication of BCG and Induction of Protective Immunity to Tuberculosis ', *American Society of Microbiology*, 70, 2, 2002.
[602] Fordham von Reyn and Zumla.
[603] ibid.

Another possibility to consider is that parasite infections may have compromised the vaccinations in Aitutaki.[604] Worm or helminth infections were commonplace infections in the Cook Islands at this time and LaBeaud et al., contend that if pregnant women have parasitic infections, soluble parasite antigens can cross the placenta and prime fetal immune responses thereby ‘significantly’ impairing responses to childhood immunizations.[605] They suggest that antiparasite therapy for antenatal women and children can improve the effectiveness of childhood vaccines such as BCG.[606]

An additional significant idea, relevant to the Cook Islands, in Sousa et al.’s research is the hypothesis that in populations with long exposure to TB before the availability of anti-TB treatment in the 1950s, ‘*M. tuberculosis* infection exerted a powerful genetic selective pressure, resulting in the elimination of a significant proportion of highly susceptible individuals during their reproductive age’.[607] They assert that:

> the first exposure to infection by tubercle bacillus in a naïve population, … engenders a spectrum of host immunologic responses. Individuals producing poorly protective responses subsequently would be selected against.[608]

Therefore the ability, or inability, of people to fight TB infection could be partly due to their genetic makeup, influenced by the population’s lack of exposure to the disease. Consequently, individuals produce a higher degree of immunity specific to TB would eventually become the predominant genotype of the population. This may explain in part why some populations have less TB than others when they have had similar anti-TB campaigns. This uncertain effect of

[604] LaBeaud, et al., p.1.
[605] ibid.; Interview, Maoate, Rarotonga 2009.
[606] ibid., p.2.
[607] Sousa, et al.
[608] ibid.

the BCG vaccine points to how, despite effective moves on the social, economic and biomedical fronts, the biology of the infection still created challenges in the Cook Islands.

The introduction of effective drug therapy profoundly altered the medical services, and the patients, experience of TB. The wonder of these multi-drug treatments enabled patients to rapidly become non-infectious and allowed them to return to a full health and normal life which had been so elusive previously. Although the ongoing treatment was often unpleasant patients were, more often than not, compliant. Subsequently, although the biomedical services were important within the campaign, they had also been successful in other countries but had not managed to eradicate TB. Consequently a purely biomedical explanation for the Cook Islands success against TB is not enough.

Relationships at many and varied levels seem to be the possible key to the success of the Cook Islands campaign. The importance of relationships to successful treatment completion has been well recognised and the multi level relationships within the Cook Islands programmes appeared pivotal to its success.[609] Tom Davis, with his charismatic nature, created professional relationships with the Native Medical Practitioners and nurses during the late 1940s, and worked alongside *ta'unga* to create a partnership approach to caring for people. His understanding of the cultural ties to Maori medicine made him aware that is was unlikely to be able to be swept aside as previous European medical officers had tried to do, so he found a way for their care and treatment to be honoured which ultimately meant that referrals for health care went both ways. Subsequent doctors took similar approaches while also embracing their western medicine training.[610]

[609] A. Searle, J. Park, and J. Littleton, 'Alliance and Compliance in Tuberculosis Treatment of Older Pakeha People in Auckland, New Zealand', *International Journal of Tuberculosis and Lung Disease*, 11, 1, 2007, p.75.
[610] Interviews, T. Herman, Maoate, N. Herman, Koteka, Rarotonga, 2009.

The dedication of many expatriate CMOs is also obvious within this story. Ellison's influence in shaping the medical service and creating partnerships with grassroots organisations before the advent of Davis; alongside Romans' dedication and persistence to get the anti-TB campaign actually started, show their professionalism and commitment to the people of the Cook Islands. Romans also advocated the merits of Cook Islands medical staff which in turn declared his positive relationships. Turbott and Wogan, although in New Zealand, also extended themselves to improve conditions in the Cook Islands.

It appears that the Cook Islands did have a high rate of compliance with taking the medication required for treating TB and perhaps this can be attributed to the relationships established at the different levels of the campaigns. The Tamarua husband and wife team were highly influential in the anti-TB campaigns; Pari, as nurse and matron at the sanatorium, and Manea as doctor in charge of TB treatment, care and prevention. This partnership trained, or cared for, almost everyone who had anything to do with TB for many years. The on-going nature of TB treatment enabled medical staff and patients to have extended periods of time together where it was probably inevitable that relationships developed. Doctors Maoate, Herman and Koteka attribute positive relationships, and 'the personal touch', to their success as doctors and to the effective eradication of TB from the Cook Islands; as do several of the nurses from the same era.[611] Herman and Heather, nurses, and Tai Nootai, a TB Officer, all considered the relationships that district or public health nurses had with their patients as pivotal to the successful compliance of patients taking their medication for TB.[612] Nootai said that of 'everyone that I have spoken to, nobody refuses' to take their medication, and others also commented that 'people wanted to go home to their families so they always took their

[611] ibid.
[612] Interviews N. Herman, Nootai, Heather, Rarotonga, 2009.

medicine'.[613] It seems that although the treatment was lengthy and unpleasant the lure of wellness induced patients to persevere with taking their medication most of the time.

Dunsford commented about the importance of relationships to compliance within the New Zealand anti-TB campaign for New Zealand Maori, stating that when the 'survey was organised by the Maori themselves' it achieved a much better response.[614] The 'face' of the Cook Islands campaign was always a Cook Islander's face, mainly that of Dr Manea Tamarua, but also the nurses, Native Medical Practitioners, as well as health inspectors, making Dunsford's reflection appropriate for this campaign also. Every village had a health committee, an antenatal clinic, and a child welfare clinic which meant that every village was always connected with medical interventions, all of the time. The people working in those clinics in small villages, had established, long term relationships with most families in the village. These relationships would make the chance of someone not being picked up if they were unwell, very difficult, although as has been noted, TB was very difficult to diagnose. They would also support the compliance of medication being taken, as in a small village setting, most people would know if someone was on TB medication or not. Extended families were enlisted in supporting compliance and also caring for their family members when they were unwell. The pasinah urine testing experience of the 1960s, while perhaps an intervention that may not be considered appropriate in some countries' seemed to be acceptable in the Cook Islands and this may have been due to the relationship that nurses had with their patients at the time.

There were also 'behind the front line' relationships between the health department and regional agencies such as SPC and WHO which contributed to the lowering TB rates as did

[613] Interview, Nootai, Adamson, Rarotonga, 2009
[614] Dunsford, p.114.

the visiting research teams, who informed practice and also developed professional relationships. SPC and WHO clearly saw the Cook Islands campaign as something that they could learn from to then enable better support of other Pacific nations. The bilateral relationship the Cook Islands had with New Zealand was another important relationship. New Zealand's influence both as coloniser of the Cook Islands and also as advisor after independence was vast. The changing nature of the Cook Islands and New Zealand's relationship after self governance enhanced their links. The choice the Cook Islands made to be self governing, and in free association with New Zealand, enabled annual 'grants-in-aid' to now be given from the New Zealand governments annual budget.[615] This financial support of the fledgling independent nation continues and New Zealand, to this day, supports the Cook Islands social and economic development through its aid programme.

All these efforts are set against a necessary background of improving social conditions. Rising hygiene and sanitation standards, through *tutaka* inspections, and increasing economic opportunities also contributed to the improving health status of Cook Islanders as did local partnership organisations such as Child Welfare, *Au Vaine,* and antenatal clinics in each village. Perhaps one of the keys to the success of the Cook Islands anti-TB campaign was that the health department developed working relationships from grass roots, through to regionally. In a small country with few resources and one which was so physically spread out, it was impossible to do it on their own. The health department needed the support of the non-government and government organisations which had connections and traditional links with village communities and who interacted in culturally appropriate ways.

[615] C. C. Aikman, 'Constitutional Development in New Zealand's Island Territories and in Western Samoa,' in *New Zealand's Record in the Pacific Islands in the Twentieth Century*, Angus Ross, ed., Auckland, 1969, pp.334, 8.

At a broader level the availability of the subsidised housing loans in the 1960s alongside the anti-TB campaign had a significant effect on the overall health of Cook Islanders and subsequently TB rates. Migration of Cook Islanders to New Zealand or Australia also probably affected on the numbers of people in each home, until 1975 when there were more Cook Islanders living in New Zealand than there were in their home country.[616] The transnational nature of Cook Islanders led to TB disease travelling both to New Zealand and back to the Cook Islands. As the rates of TB in Pacific Island communities rose in New Zealand, due to their socio-economic conditions, this probably led to more transnational transference of the disease, especially as those travelling from New Zealand to the Cook Islands did not need a clearance for TB. Poverty has always been a close ally of TB and even though the Cook Islands are considered a developing nation, and therefore poor, or not as wealthy as other western nations, people have always had a home to live in and plenty of food to eat.[617] This also, undoubtedly, supported the success of the campaign.

This study reveals much about Cook Islands society from World War Two until 1975 though the lens of TB. It illustrates the complex relationship between New Zealand as coloniser, and the Cook Islands administration. The advent of self determination and becoming an independent nation began to see the health department wanting to become more autonomous of New Zealand but wanting, at the same time, to retain the advantages of their close relationship as they realised their limitations. The TB rates are now almost non-existent in the Cook Islands and no one intervention can be singled out as key. It is more likely due to the ambitious and ongoing campaigns alongside the rising socio-economic capability of the country.

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[616] New Zealand and Cook Islands Census reports, 1945-1976.
[617] Interview N. Herman, Rarotonga 2009.

Yet this is no time to rest on our laurels as there are new challenges arising. The high incidence of TB during the lives of those who are now becoming elderly, alongside other forms of illness that compromise the immune system such as diabetes, and the transnational nature of Cook Islanders, means that the TB rate could again rise.

Appendices

Appendix I

List of Senior Officials and Ministers of the Cook Islands

Resident Commissioners

1901 - 1909	Lt.-Col. Walter Edward Gudgeon
1909 - 1913	Capt. James Eman-Smith
1913 - 1916	Henry William Northcroft
1916 - 1921	Frederick William Platts
1921 - 1923	John George Lewis Hewitt
1923 - 1937	Hugh Fraser Ayson (1st time)
1937 - 1938	Stephan John Smith
1938 - 1943	Hugh Fraser Ayson (2nd time)
1943 - 1951	William Tailby
1951 - 1960	Geoffrey Nevill
1961 - 1965	Albert Oliver Dare

High Commissioners

1965	Albert Oliver Dare
1965 - 1972	Leslie James Davis
16 Nov 1972 - 19 Jan 1975	George James Brocklehurst
19 Jan 1975 - 10 Feb 1976	Vacant

New Zealand Representatives

10 Feb 1976 - 1978	Terence C. O'Brien
21 May 1978 - 1980	Brian William Peter Absolum
16 Feb 1980 - 1982	Lindsay Johnstone Watt
7 Mar 1982 - 1985	Paul A. J. Tipping
1 Apr 1985 - 1987	Lance A. Beath
12 Dec 1987 - 1990	Adrian George Simcock
22 Nov 1990 - 1993	Tim Caughley

High Commissioners

1993 - 1994	Tim Caughley
16 Feb 1994 - 1997	Darryl Dunn
Feb 1997 - 1998	James Kember
Jul 1998 - Jul 2001	Rob Moore-Jones
6 Jul 2001 - 29 Aug 2005	Kurt Meyer
6 Sep 2005 - Feb 2008	John Bryan
21 Feb 2008 - Aug 2008	Brian Donnelly
Aug 2008 - Jan 2009	Sophie Vickers (f)(acting)
Jan 2009 - 15 Nov 2009	Tia Barrett
15 Nov 2009 -	Nicola Ngawati (f)(acting)

New Zealand Government Ministers charged with the Administration of Islands Affairs

1901 R.J. Seddon

1903	C. H. Mills
1906	J. McGowan
1909	Sir James Carroll
1912	Sir Maui Pomare
1928	Sir Apirana T. Ngata
1934	M. J. Savage
1940	F. Langstone
1943	Peter Fraser
1949	F. W. Doidge
1952	T. Clifton Webb
1955	T. L. Macdonald
1958	J. Mathison
1961	Sir Leon Gotz
1964	J. R. Hanan

Premiers

4 Aug 1965 - 25 Jul 1978	Albert R. Henry, from 1974, Sir Albert R. Henry
25 Jul 1978 - 1981	Dr Thomas 'Tom' Davis

Prime Ministers

1981 - 13 Apr 1983	Thomas "Tom" Davis (1st time), from 1981, Sir Thomas Davis
13 Apr 1983 - 2 Aug 1983	Geoffrey Arama Henry (1st time)
19 Aug 1983 - 16 Nov 1983	Geoffrey Arama Henry (2nd time)
16 Nov 1983 - 29 Jul 1987	Sir Thomas 'Tom' Davis (2nd time)
29 Jul 1987 - 1 Feb 1989	Dr Pupuke Robati
1 Feb 1989 - 29 Jul 1999	Geoffrey Arama Henry (3rd time), from 13 Jun 1992, Sir Geoffrey Arama Henry
29 Jul 1999 - 18 Nov 1999	Dr Joseph 'Joe' Williams
18 Nov 1999 - 11 Feb 2002	Dr Terepai Maoate
11 Feb 2002 - 11 Dec 2004	Dr Robert Woonton
14 Dec 2004 -	Jim Marurai

Medical Officers

1896 (May) – 1897 (Jan)	Joseph Edmond Caldwell
1897 (April) – 1901	George Craig
1901 – 1902 (Feb)	William Bannerman Craig
1902 – 1908	Henry Ralph Gatley
1909 (Jan) – 1910	Charles McBeath Dawson
1909 (relieving)	Edward Yeates
1910 (relieving)	Peter Henry Buck (Te Rangi Hiroa)
1910 (June) – 1911 (Jan)	Hebert Chesson

Chief Medical Officers

1911 (March – Oct)	Montague William Cairns Perceval
1911 (Sep) – 1914, 1915-1917	George Pearce Baldwin
1914 (Dec) – 1915 (May) (acting)	Reginald Leslie Norman
1917 – 1925 (June)	Robert Samuel Trotter
1921 – 1922 (relieving)	Betrand Charles Alexander Leeper
1925 (June) – 1926 (May) (acting)	John Paterson Donald
1926 (May) – 1927 (June)	Edward Pohau Ellison
1927 – 1931	Robert Lyall Christie
1931 – 1945 (Dec)	Edward Pohau Ellison
1934 (acting)	William Crawford Macknight
1935 (acting)	Frederick Walter Whitney Dawson
1946 (July) – 1947	Farquhar Matheson
1948 – 1951	Thomas Robert Alexander Davis
1951 – 1952 (acting)	B. Scott
1952 – 1961	T.T. Romans
1952 – 1953 (acting)	B. Scott
1961 - 1965	Dr G. A. Lennance/Dr Simpson
1965 – 1968	A. Guinea
1968 (April) – 1969 (March) (acting)	D. Peyrouy*
1969 (April) – 1972 (Dec)	J. Williams
1973 – 1975	N. Tou**

* Title changes from Chief Medical Officer to Director of Health
** Title changes from Director of Health to Secretary of Health

Assistant Medical Officers

1911 (January – September) (acting)	Alfred Cuthbert Story
1912 – 1914	Alfred Robert Maclurkin
1916 – 1917	Robert Samuel Trotter
1917 (Dec) – 1918 (May)	D. Matheson
1918 (May) – 1919	Edward Joseph Moore
1919 – 1922	James Collins
1922 – 1924	Alan McKenzie
1925 (June – November)	Leonard Lamming Burton
1926 (July) – 1927	Brian George Thompson
1927 – 1930	Alister James Brass
1936 (May – December)	Muir
1938 (May) - ?	Rose
1946 (July) – 1948	Thomas Robert Alexander Davis

Appendix II

Thesis Timeline

1821 Arrival of 1st Missionaries who probably brought TB with them
1835 4 deaths from Consumption recorded by Missionaries
1859 The 1st sanatorium opened in Poland
1882 Koch discovered the bacterium *Mycobacterium tuberculosis*
1885 The 'Long Depression' started in NZ lasting until about 1900
1887 Koch discovered the vaccine tuberculin
1893 Dr Andrews, H.M.S. Ringdove, conducted a health survey of Rarotonga finding TB as the main complaint
1896 5-bed hospital in Rarotonga was opened
1898 The Medical Officers Act passed
1898 The Public Health and Quarantine Act passed
1900 The Medical Officers Inquiry Act passed, directed against *ta'unga*
1901 NZ Dept. of Public Health main focus is TB
1901 Cook Islands annexed from Britain to NZ
1906 Sir Maui Pomare conducted a health survey, reporting many cases of TB
1908 Mantoux formed the basis of the Mantoux test
1911 New hospital in Rarotonga was built to replace the older 5 bed building
1911 The Hospital Ordinance Act was passed – free attention for all Natives
1912 Assistant Medical Officer post filled for the 1st time
1914 World War I started
1915 The Cook Islands Act was passed
1915 2 hutments were built on hospital grounds for advanced cases of TB
1917 European nurses were stationed on Aitutaki and Mangaia
1918 End of World War I
1919 Discussions regarding the building of the sanatorium commenced
1919 Chesson, a NZ District Health Officer, submitted a report to Chief Health Officer in Wellington with recommendations for a sanatorium
1921 The 1st BCG vaccine was given in the western world
1925-26 Lambert, of the Rockefeller Foundation, visited the Cook Islands. He advocated Native Medical Practitioners Training in Fiji. Also investigated hookworm
1926 Dr Ellison arrives as CMO – a NZ trained Maori doctor
1926 1st extension of the Rarotonga hospital
1926 *Au Vaine,* Women's Committees were formed, supported by CMO Ellison who also helped establish the baby and children's welfare clinics
1929 1st 2 Cook Island candidates were sent to Fiji for training at the Central Medical School
1929 The 'Great Depression' started lasting until late 1930s/early 1940s
1930s (early) *Tutaka* put in place
1931 AMO dropped to junior post leaving only 1 doctor for whole country
1931 1st Native Medical Practitioners returned from their training in Fiji
1933 Sir Apirana Ngata, NZ Minister of Native Affairs accredits value to the domiciliary approach
1930s (mid) CMO Ellison performing pneumothoraces around this time
1935 X-ray machine now at the hospital
1935 Lambert carries out tuberculin-tests to evaluate extent of TB problem

1939 2nd extension of the Rarotonga hospital

1939 World War II started bringing US Army to the Outer Islands of Aitutaki & Tongareva

1940 CMO Ellison laid out another proposal for a sanatorium

1942 Dr Tamarua becomes Native Medical Practitioner on Mangaia (there for 4 years)

1943 Waksman discovered streptomycin

1944 Para-aminosalicyclic acid (PAS) was 1st trialled as an oral TB therapy in the western world

1944 Building of the sanatorium was finally approved by Fraser, NZ Prime Minister

1944 NZ Government starts to supply milk to schools to combat child malnourishment

1940s (mid) Rarotonga hospital obtains x-ray unit left by US Army in Aitutaki

1940s (mid) Native Medical Practitioners started to communicate using the Inter-Island radio system put in place in the 1930s

1945 Opening of the sanatorium in 1945 – 16 beds

1945 End of WWII

1945 Dr Thomas Davis was appointed Assistant Medical Officer

1946 Taylor visited Rarotonga to investigate TB and made 16 recommendations

1946 NZ Health Depart. began importing streptomycin

1940s (late) 3 year training of the 1st 25 Cook Island student nurses commenced

1940s (late) Committee of health started by Dr Tom in each village

1940s (late) PAS found to be more effective when used in combination with streptomycin proposal with some alterations

1947 National Airways Corporation of NZ started the 'Coral Route' flight network

1948 Dr Thomas Davis was promoted to CMO

1948 A waiting list had to be initiated for the sanatorium

1949 – 1950 Otago University health survey undertaken with confusing results

1950 Turbott, Director-General of Health supported refusal of entry policy to keep numbers down at the sanatorium

1950 3rd extension of the Rarotonga hospital

1950 A drop in TB morbidity from 111 per thousand deaths in 1949 to 62 per thousand in 1950

1950 Question of assistance to a family if breadwinner was an inpatient of the sanatorium arose

1950 Improved detection and examination of contacts programme put together and the conversion of existing x-ray equipment carried out to undertake MMR

1950 A TB register was started

1950s Large-scale migration of Cook Islanders to NZ for work

1951 Sanatorium extension built in response to overcrowding but no equipment e.g. beds had been provided for the space

1951 Dr Tamarua after completing post-grad specialist TB training in Suva moves to Rarotonga to take charge of the sanatorium. His wife Pari is a nurse at the sanatorium

1951 Dr Davis outlines pros and cons of developing MMR programme to Resident Commissioner

1951 Isoniazid (INH) was found to be effective against TB in the western world

1951 13 TB cases had to be pre-maturely discharged from the sanatorium when the *kikau* huts became unusable. Staff were also laid-off

1951	Dr Davis starts to lobby NZ for a comprehensive TB Campaign including BCG vaccinations in-line with NZ which had just started a nationwide vaccination in schools
1952	Dr Davis left the Cook Islands
1952	Dr Scott, acting CMO, advocated extra staff and facilities for the sanatorium to Neville, Resident Commissioner. The sanatorium at this time catered for 40 patients with staffing pressures, but could with extra equipment accommodate 64 due to extension in 1951
1952	Dr Romans appointed as CMO
1952	NZ began treating patients with INH
1952	Dubos published The White Plague: Tuberculosis, Man and Society – which included the identification of TB as a social disease
1952 (late)	Dr Scott, relieved CMO Romans for another year
1953	Dr Tamarua trials INH in the sanatorium
1953	Dr Davis' proposed anti-TB campaign was agreed
1953	Neville proposes 2 answers to Dr Scott's request; Wogan feels they are too expensive
1953	Dr Scott highly recommended Dr Tamarua for 6 months TB training in NZ but objected to by Turbott who preferred that he was trained in Fiji
1953	Dr Romans returned as CMO and supported Dr Scotts' NZ preference for training, a rare challenge to NZ Administration. This was disregarded and Tamaruas' training took place in Fiji
1954	Dr Romans re-examined Dr Scotts' figures from his request to Neville and put forward another request for facilities and staff for the sanatorium
1954 (end)	13 infectious TB patients were now in the general hospital due to lack of space in the sanatorium
1954	Dr Romans' requested support from Turbott for the anti-TB campaign that had been approved and if the request for MMR was being considered
1954	Wogan replied in Turbotts' absence and said that no progress in the design of the MMR had been made but that a company prepared to build it had been found
1954	Visit by Webb, Minister of Island Territories, and Wogan, Director of TB Division of Health, amongst others to the Cook Islands resulted in the Council having increased responsibilities and authority
1954	Wogan reported on his visit and included a recommendation that the planned alterations to the sanatorium were implemented and that present X-ray equipment was inadequate and suitable X-ray equipment would be available by April 1955. Also mentioned concerns regarding social conditions such as housing that were connected to TB
1954-55	Cautious start in instituting home treatment for select cases. Weekly TB outpatient session starts
1950s (mid)	Nurse Pari Tamarua becomes Sister-in-charge of the sanatorium and Dr Tamarua becomes specialist TB officer
1955 (April)	Wogan died suddenly aged 39, Laing took over his position
1955	Mr Mahoney was recruited as radiographer and in the use of BCG equipment
1955	Permanent medical staff (dressers or Native Medical Practitioners) were now stationed on all inhabited islands
1955	Health Education started before the campaign by Dr Romans

1955 (end)	Anti-TB Campaign started on Rarotonga under supervision of Laing to find existing cases using MMR and carry out Mantoux testing with BCG being administered to all non-reactors
1955	NZ Government commissioned economic survey of the Cook Islands. Results showed that limited standard of living of the people had a direct impact on the health status of the population and therefore impacted also on its economic viability
1956	Anti-TB campaign moved out to Outer Islands. An Outer Island Treatment handbook was given to patients found to have TB who were instructed to live in separate shacks as part of their treatment. Islands covered included Manihiki and Atiu
1956-58	Dr Maote was posted to Manihiki and carried out TB survey using MMR and Mantoux testing
1957 (start)	Works to sanatorium had been carried out and now catered for 68 patients.
1957	Dempster who had replaced Laing visited Rarotonga, Aitutaki and Mangaia to review the campaign and was pleased with progress although made some recommendation
1957	Social marketing programme in place to follow-up pre-campaign education
1957	Dr Romans applied for fund to build an occupational therapy room at the sanatorium which was granted
1957	Housing Scheme of aided self-help for home builders approved by Dept. of Island Territories, included free roofing material
1957 (July)	MMR unit sent to Niue which meant that the survey of the rest of the Cook Islands was unable to be completed
1957	A re-check of Aitutaki took place when Cook Islands Medical Practitioner was sent to look at leprosy there (in absence of MMR), he recommended BCG for all contacts under 30 and for all children at school entry
1957	Death from heart disorders almost equalled deaths from TB in Rarotonga for the first time
1958	The January monthly medical report commented on possible financial support for families where the main breadwinner had TB
1958	Housing Improvement Scheme 'Proper' was established for erection or repair of housing
1958	SPC TB conference for the South Pacific was held with the Cook Islands invited to give a paper
1959	NZ Federation of TB Associations enquired whether Cook Islands would like assistance in setting up their own Association; this was not seen as beneficial and didn't take place.
1960	MMR unit finally back in the Cook Islands – a new, lighter model as the previous one had been damaged in transit coming back from Niue
1960	Government ship *Moana Roa* begins sailing assisting migration
1960	Authorisation for a new hospital in Rarotonga was given, but no action was taken for more than a decade
1960s	Number of TB new cases drops dramatically. Health education becomes more of a focus
1962	Dr Tamarua spends time in South-East Asia to observe TB control programmes
1962	A small hut was converted into a TB outpatients clinic – the start of the Public Health approach to TB
1962	CMO Lennance reported that the hospital was substandard in size and facilities

1962	Pasinah was introduced to Rarotonga for home treatment, along with daily dose supervision and spot-checks
1962	MMR survey on Pukapuka, Nassau, Manihiki, Tongareva (Penrhyn) and Rakahanga
1962	Mobile X-ray clinic ordered for Rarotonga
1962 (end)	MMR survey halts due to equipment failure, sent to NZ and then Japan to be fixed
1963	Discussion over closure of the sanatorium quickly stopped
1963	WHO representatives visited the Cook Islands investigated the status of maternal and child health
1963	CMO starts to develop a TB laboratory
1964	Dr Neave undertook a survey of the health of children on the Cook Islands to see if there was a disparity in health in the other islands when compared to Rarotonga
1964	Modern equipment added to the TB laboratory
1964 (April)	MMR unit finally back from Japan
1965	Cook Islands Independence
1966	1st published record of the Cook Islands population in the census
1966	Annual report indicates sanatorium closes in this year, although subsequent reports state that patients were treated at the sanatorium until 1974
1966	NZ High commissioner requests WHO TB team visit the Cooks Islands to accelerate the local TB programme
1966	CMO requests Health Education material from NZ which is refused as NZ believed that the material should be in a local context
1967	Discussions commenced regarding lending of the MMR to Niue and Tokelau
1966	Microscopes supplied to the Outer Islands
1968	NZ closes its Dept. Of TB
1970s	Dr Herman, Director of Public Health, maintains focus on TB 'TB is an infectious disease'
1972	2 out of 5 phases of the new hospital in Rarotonga opened
1974	International Airport opened in Rarotonga
1975	TB cases in the Cook Islands down to 11 per annum

Appendix III

See CD inside back cover for ancillary data related to TB in the Cook Islands.

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