

Introduction

From the beginning of the nuclear age, the United States, Britain and France sought distant locations to conduct their Cold War programs of nuclear weapons testing. For 50 years between 1946 and 1996, the islands of the central and south Pacific and the deserts of Australia were used as a ‘nuclear playground’ to conduct more than 315 atmospheric and underground nuclear tests, at 10 different sites.¹

These desert and ocean sites were chosen because they seemed to be vast, empty spaces. But they weren’t empty. The Western nuclear powers showed little concern for the health and wellbeing of nearby indigenous communities and the civilian and military personnel who staffed the test sites.

In the late 1950s, nearly 14,000 British military personnel and scientific staff travelled to the British Gilbert and Ellice Islands Colony (GEIC) in the central Pacific to support the United Kingdom’s hydrogen bomb testing program. In this military deployment, codenamed Operation Grapple, the British personnel were joined by hundreds of NZ sailors, Gilbertese labourers and Fijian troops.² Many witnessed the nine atmospheric nuclear tests conducted at Malden Island and Christmas (Kiritimati) Island between May 1957 and September 1958. Today, these islands are part of the independent nation of Kiribati.³

1 Stewart Firth: *Nuclear Playground* (Allen and Unwin, Sydney, 1987).

2 Between May 1956 and the end of testing in September 1958, 3,908 Royal Navy (RN) sailors, 4,032 British army soldiers and 5,490 Royal Air Force (RAF) aircrew were deployed to Christmas Island, together with 520 scientific and technical staff from the Atomic Weapons Research Establishment (AWRE)—a total of 13,980 personnel. Data from ‘Number of men involved in each operation, by service or employer’, Table A4.1, Appendix 4 in Lorna Arnold: *Britain and the H-Bomb* (Palgrave Macmillan, London, 2001), p. 241. They were supported by an estimated 551 New Zealand sailors, 276 Fijian soldiers and sailors and nearly 100 Gilbertese labourers.

3 The people of the Ellice Islands, largely Polynesian and Protestant, broke away from the northern atolls in the British Gilbert and Ellice Islands Colony (GEIC) to become the independent Republic of Tuvalu in 1978. The three remaining archipelagos of the Gilbert, Phoenix and Line Islands became

Some British troops remained on Christmas Island until 1962, when the United States conducted 24 further atmospheric nuclear tests at the island.

British scientists had contributed to the US atomic weapons program during the Second World War, but postwar UK governments decided to develop an independent British nuclear weapons capacity. After testing atomic weapons in the deserts and islands of Australia, Britain decided to follow the United States and Soviet Union to develop thermonuclear or hydrogen bombs, vastly more powerful than the atomic weapons that destroyed Hiroshima and Nagasaki.

Under Prime Minister Sir Winston Churchill, the Defence Committee of the British Cabinet held a meeting on 16 June 1954 and secretly decided to construct a hydrogen bomb. Churchill's successor as prime minister, Sir Anthony Eden, only made a statement to the UK House of Commons on 7 June 1956, confirming that thermonuclear weapons would be tested at a remote location in the Pacific Ocean.

By the end of that year, tens of thousands of tons of equipment had been brought from England to establish a military base and upgraded airstrip on Christmas Island in the Line Islands (the eastern archipelago of the British GEIC). A forward base and airstrip was also established on Malden Island, located 636 kilometres to the south.

In May–June 1957, the first three Grapple tests were held at Malden Island, codenamed Grapple 1 (Short Granite), Grapple 2 (Orange Herald), and Grapple 3 (Purple Granite). The nuclear devices were detonated high over the ocean after being dropped from a Valiant bomber. After the three tests, the British Government (falsely) stated that it had achieved a thermonuclear explosion in the megaton range. The *Mid-Pacific News*—a newsletter produced for staff and troops on Christmas Island—reported: ‘Bomb Gone! H-Bomb puts Britain on level terms’.⁴

the Republic of Kiribati the following year. For details, see W. David McIntyre: ‘The Partition of the Gilbert and Ellice Islands’, *Island Studies Journal*, Vol. 7, No. 1, 2012, pp. 135–146; Hugh Laracy (ed.): *Tuvalu—a history* (Institute of Pacific Studies, Suva, 1983); Howard Van Trease (ed.): *Atoll politics—the Republic of Kiribati* (Institute of Pacific Studies, Suva, 1993).

⁴ ‘Bomb gone! H-Bomb puts Britain on level terms’, *The Mid-Pacific News*, special souvenir edition, 15 May 1957, p. 1.

In fact, scientists soon calculated that none of these three detonations had a yield of 1 megaton of explosive power (equivalent to a million tons of TNT explosive). With widespread international protests against the British tests and proposals for a global moratorium on atmospheric nuclear testing in 1958, there was pressure on the Grapple Task Force to speed up efforts to develop a thermonuclear weapon.⁵

Rather than send a naval task force, aircrew and hundreds of support troops back to Malden Island, it was decided to conduct further tests at Christmas Island:

Because time is so short, it is been decided to carry out the November tests of the south-east tip of Christmas Island; it would have taken too long to set up Malden again.⁶

This decision reduced the enormous logistic problems of conducting the tests so far away from the main base. But it brought the tests closer to the camps where British, NZ and Fijian personnel were stationed and to the village housing Gilbertese workers. From August 1957, there was a major build-up on the island and another six nuclear tests were conducted: Grapple X in November 1957; the massive Grapple Y test in April 1958; and four Grapple Z tests in August–September 1958 (involving two atomic and two hydrogen bombs).

During these tests, service personnel were ordered to line up in the open, face away from the explosions and remain with their backs to the blast, with eyes closed until after the detonation. At sea, crews lined the decks of the naval task force. On land, soldiers and civilian personnel were grouped on the beaches at various points of the island, while scientific staff sheltered in a bunker closer to the test zone. The local Gilbertese population—labourers, plantation workers and their families—were initially taken offshore during the tests or housed aboard British naval vessels to avoid the blast. For the final tests on Christmas Island in 1958, these precautions were abandoned.

5 For detailed discussion of how domestic and international public opinion and the looming moratorium on nuclear testing affected the timing of Operation Grapple, see John R. Walker (Foreign and Commonwealth Office, UK): *British nuclear weapons and the Test Ban 1954–73: Britain, the United States, Weapons Policies and Nuclear Testing, Tensions and Contradictions* (Ashgate, 2010), pp. 57–70.

6 Letter from P. Rogers, Secretary of State for the Colonies, 20 September 1957, marked Top Secret. Colonial Office archives CO1036/283.

As this book will detail, the British Government continues to claim that safety preparations and the conduct of the tests minimised radioactive fallout. A 2008 fact sheet released by the UK Ministry of Defence (MoD) argues that:

Almost all the British servicemen involved in the UK nuclear tests received little or no additional radiation as a result of participation. If personnel who served at Christmas Island at that time had been stationed in the UK in an average location, their dose of naturally-occurring ionising radiation would have been three times greater than it was at Christmas Island.⁷

In contrast, many participants have testified that they were exposed to significant risk. Today, decades later, survivors suffer from serious illnesses that they attribute to exposure to hazardous levels of ionising radiation. The ageing Christmas Island participants are also fearful about the health and wellbeing of their children and grandchildren.

* * *

As a young student, I marched against uranium mining in Australia and boycotted French wines as a protest against nuclear testing on Moruroa Atoll. In 1985, the McClelland Royal Commission published its two-volume report into the 12 British atomic tests in Australia.⁸ I was stunned by revelations of the casual racism shown to the indigenous Anangu people of South Australia, as British scientists conducted hundreds of nuclear experiments on Maralinga Tjarutja land, sending plumes of plutonium-contaminated smoke across the desert.

Like most people, however, I knew nothing of the British hydrogen bomb program in the central Pacific. Most histories of Kiribati and Fiji don't mention the Grapple tests. I only really learnt about Operation Grapple when I lived in Fiji in the 1990s, working for the Pacific Concerns Resource Centre (PCRC).

From its founding in 1975, the Nuclear Free and Independent Pacific (NFIP) movement joined with the Pacific Conference of Churches (PCC) and supportive international organisations to campaign against nuclear testing. The signing of the Rarotonga treaty for a South Pacific

7 'UK atmospheric nuclear weapons tests: UK programme', Factsheet 5, UK Ministry of Defence, June 2008.

8 Government of Australia: *The Report of the Royal Commission into British Nuclear Tests in Australia* (Australian Government Publishing Service, Canberra, 1985).

Nuclear Free Zone in 1985 was an important milestone in this quest. In contrast to most international peace organisations, which focused on the health and environmental impacts of nuclear testing, NFIP also made the connection to broader Pacific campaigns for indigenous self-determination, decolonisation and political independence. As a network led by Pacific islanders, NFIP stressed that the Western powers could only test nuclear weapons in the Pacific because they were colonial powers in the region.

The slogan went: 'If it's safe, test it in Paris!' While French nuclear testing at Moruroa dominated the headlines in the 1980s and 1990s, the history of British testing in Kiribati was less well known.

As I worked at PCRC in Suva, a number of old men would wander into our library, quietly asking for Mrs Salabula. They were soon closeted with my colleague Losena Salabula, who managed PCRC's disarmament program. I soon realised that they were Fijian veterans of Operation Grapple and were seeking support for their claims: recognition of their military service and health support from the Fiji Government, as well as pensions and compensation for illness and injury from the British Government.

The sense of betrayal from these veterans, who had served God, Queen and Country, was palpable. Fiji was a British colony until 1970 and many ethnic Fijians retain strong emotional ties to the British monarchy. Young Fijian men, imbued by a culture of 'militarism, masculinity and Methodism',⁹ maintain a proud tradition of military service in the Republic of Fiji Military Forces (RFMF), through international peacekeeping with the United Nations and also enlistment in the British Army or with private military contractors.

9 The phrase comes from the late Teresia Teaiwa: 'Articulated Cultures: Militarism and Masculinities in Fiji during the mid-1990s', *Fijian Studies: A Journal of Contemporary Fiji*, Vol. 3, Issue 2, 2005. For wider discussion of Fiji's military culture, see Winston Halapua: *Tradition, lotu and militarism in Fiji* (Fiji Institute of Applied Studies, Lautoka, 2003); Nic Maclellan: 'From Fiji to Fallujah: the war in Iraq and the privatisation of Pacific security', *Pacific Journalism Review*, Vol. 12, No. 2, September 2006. Teresia Teaiwa also showed that Fijian women too are increasingly joining the British armed forces: 'What Makes Fiji Women Soldiers? Context, Context, Context', *Intersections: Gender and Sexuality in Asia and the Pacific*, Issue 37, March 2015.

As the Christmas Island veterans shared their stories, it was clear that we should record their testimony, which had never been published. Together with researcher Josua Namoce Mudreilagi, Losena and I co-authored the book *Kirisimasi*, published in Fijian and English by PCRC in June 1999.¹⁰ The impact of the book is detailed in Chapter 22.

With the collapse of the Soviet Union in 1991 and the end of French nuclear testing in 1996, many international organisations had diverted their attention and resources to other issues. But for people living near the nuclear sacrifice zones in the Pacific, as well as the civilian and military personnel who had staffed the test sites, the battle for clean-up, remediation and compensation was just beginning.

As subsequent chapters will show, it was only in January 2015 that the government led by coup leader Voreqe Bainimarama—now elected Prime Minister of Fiji—would provide financial support to the surviving Fijian veterans and the families of those who had died. The remaining British, Australian, NZ and Fijian nuclear veterans, now into their 80s, are still campaigning for compensation from the UK Government. Despite their calls, the UK MoD and successive British governments have systematically resisted legal claims from the veterans of the British tests in Australia and Kiribati.

On the 60th anniversary of the British tests in Kiribati, it's important to look back on these events of the 1950s, especially because they influenced Pacific culture in subsequent decades. Occurring in the period before TV and the internet spread across the islands, many stories from this era have been forgotten.

The Grapple tests ended more than a decade before Greenpeace was founded in 1971. Throughout the 1970s and '80s, Greenpeace's *Rainbow Warrior* and other vessels would launch sorties into the waters around Moruroa Atoll, gaining worldwide attention and popularising the campaign against nuclear testing in the international media. But few people recall that, in 1957, an English pacifist named Harold Steele dreamed of sailing a boat into the middle of the Christmas Island test zone and halting the Grapple tests.

10 Losena Salabula, Josua Namoce and Nic Maclellan: *Kirisimasi – Na Sotia kei na Lewe ni Mataivalu e Wai ni Viti e na vakatovotovo iyaragi nei Peritania mai Kirisimasi* (Pacific Concerns Resource Centre, Suva, 1999). The book would not have happened without the support of many PCRC staff, as detailed in the acknowledgements.

The 50 years of nuclear testing in the Pacific left economic and social legacies as well as environmental contamination for nations like the Marshall Islands and French Polynesia. Many people welcomed the development of nuclear infrastructure across the region, for the jobs and financial opportunities created by an influx of military personnel. Political leaders, from Prime Minister Robert Menzies in Australia to President Gaston Flosse in French Polynesia, enhanced their political careers through fawning loyalty to Empire. But there was also protest and resistance.

This contrast is a central theme throughout this book. Pacific islanders bore the brunt of the development of nuclear weapons by the United States, Britain and France, but some benefited from employment or seized the opportunity for adventure. Other islanders, facing the loss of land, home and identity, petitioned the newly created United Nations for an end to nuclear testing, even calling for the abolition of nuclear weapons.

One of the earliest indigenous antinuclear protests was in French Polynesia, when the charismatic Tahitian leader Pouvanaa a Oopa—a military veteran in both world wars—collected signatures for the 1950 Stockholm Peace Appeal.¹¹ Throughout the 1950s, though they were mostly ignored by the nuclear powers, islanders from Fiji, Cook Islands, Marshall Islands, Samoa and other colonial dependencies spoke out against the US and British nuclear programs, petitioning for an end to nuclear testing.

A key element of this story is the many ways that successive British governments have downplayed concern about radioactive fallout from the tests. Today, British authorities continue to argue that the risk of exposure to radiation was minimised throughout the testing program. However, as detailed in subsequent chapters, the archives reveal that elaborate safety precautions on paper were not matched by actual protection on the ground.

Participants in Operation Grapple have reported a range of serious health problems, including many cases of cancer, leukaemia and sterility, which they attribute to their time on Christmas Island. It is clear that for reasons of cost, time pressure and cultural arrogance—even racism—the British

11 Interview with Marie-Thérèse Danielsson, Papeete, Tahiti, September 1999. For Danielsson's memories of Pouvanaa, see Nic Maclellan (ed.): *No Te Parau Tia, No Te Parau Mau, No Te Tiamaraa—for justice, truth and independence* (Pacific Concerns Research Centre, Suva, 1999), pp. 18–19. See also Marie-Thérèse and Bengt Danielsson: *Moruroa mon amour* (Stock, Paris, 1974), republished in English as *Poisoned reign* (Penguin, Ringwood, 1986).

authorities constantly cut corners on safety. The Grapple Task Force even set different standards for radiation exposure for ‘civilised populations, assumed to wear boots and clothing and to wash’ against ‘primitive peoples who are assumed not to possess these habits ... It is assumed that in the possible regions of fall-out at Grapple there may be scantily clad people in boats to whom the criteria of primitive peoples should apply’.¹²

Some survivors argue that the US and British military planned to use troops and islander populations as guinea pigs, deliberately placing them in harm’s way. Later chapters will discuss the sorry history of medical studies on people exposed to high levels of radiation or fallout from nuclear testing, such as Project 4.1 and Project Sunshine.

Unlike the US and France, which have both established compensation schemes for nuclear survivors, the British Government has refused to establish such a scheme for all participants in the Kiribati test program.¹³ The US and France also use a presumptive list of diseases, which allows for compensation without extensive proof of causation of the disease. In contrast, the British state still expects Christmas Island veterans to bear the burden of proof when making claims for compensation and war pensions.

* * *

Attempts to hold successive British governments to account have also been hampered by a culture of secrecy.

12 Quoted from ‘Danger Area’ paper from Grapple Task Force Commander Air Vice Marshall Wilfred Oulton, 19 November 1956. See the chapter ‘Interlude: On radiation, safety and secrecy’, for details of this paper.

13 Praise for the United States and France must be tempered by the reality that they were dragged kicking and screaming to address the issue. Both countries waited far too long to adequately respond to calls for recognition, compensation and clean-up. In the 1986 Compact of Free Association, the United States and the Government of the Republic of the Marshall Islands established a Nuclear Claims Tribunal and a presumptive list of health conditions that could be compensated (although the rulings of the tribunal have not been supplied with adequate funding to pay for the compensation determined in Tribunal rulings). Following the passage of the 2010 Morin law, France established a Compensation Commission for Victims of Nuclear Testing—once again, there are ongoing efforts to strengthen the law to ensure that Pacific islanders can access the pledged compensation.

American researchers and archivists have compiled invaluable databases with un-redacted documents on the US nuclear testing program in the Pacific.¹⁴ The Municipal Archive of Girona (AMGi) in Spain has even digitalised and stored irreplaceable documents, videos and tape recordings from the Marshall Islands Nuclear Claims Tribunal (NCT) to support future nuclear claims.¹⁵

The UK, with its deep-rooted culture of state secrecy, lacks the same democratic openness and accountability. In a debate still constrained by ‘national security’ restrictions, access to evidence is still contested terrain. To tell this story, I sought files from the UK National Archives but some key documents are still closed to public access, 60 years after the tests. The full record remains contested ground, with some official reports and data still out of reach. There can be no closure, however, without full disclosure.

Interviewees often pressed copies of documents from the 1950s into my hands, pointing out examples of official perfidy. The importance of proof is a key part of the discussion, as NZ researcher Catherine Trundle argues:

Ambiguity is what gives archival documents their political potency and dynamism. Test veterans employ this ambiguity when seeking redress for past wrongs. They resist the State’s power to control documentary evidence by employing two seemingly contradictory strategies. First, they devalue State documents and contest the truth of military records, instead elevating personal and collective memories based on the idea of witness. Second, veterans believe that if documents trickle out of State files through limited relational and legal routes, then they may be considered legitimate bearers of historical truth ... Test veterans thus work both along and against the grain of the archives in order to produce evidence of deservedness and victimhood.¹⁶

Despite these gaps in the record, much of the story of Operation Grapple has come to light over the last six decades. Before her untimely death, British historian Lorna Arnold used restricted UK government archives

14 See, for example, the historic interviews and documents collated by anthropologist Glenn Alcalay at www.atomicatolls.org or the Marshall Islands Nuclear Documentation Database (MINDD) initiated by Alex Wellerstein at data.nuclearsecrecy.com/mindd.

15 Archivist Trudy Peterson, former NCT public advocate Bill Graham and the staff of AMGi deserve special honour for this work, ensuring that future generations can access these materials: www.girona.cat/sgdap/docs/Marshall_NCT_report.pdf.

16 Catherine Trundle: ‘Searching for Culpability in the Archives: Commonwealth Nuclear Test Veterans’ Claims for Compensation’, *History and Anthropology*, Vol. 22, Issue 4, 2011.

to write a series of official histories on the UK nuclear weapons program in Australia and Kiribati.¹⁷ Her books present extensive technical detail of the development of nuclear weapons, and vivid portraits of the scientists who built the British bomb under the leadership of William Penney. Other Foreign Office researchers have documented the sequencing of the UK H-bomb program in the 1950s, to learn how official enemies like Iran and north Korea might go thermonuclear in the 21st century.¹⁸

This literature, however, makes little reference to the lived experience of the thousands of British troops who staffed the test sites, let alone the NZ, Fijian or Gilbertese personnel. In her official history of the UK H-bomb program, Arnold wrote:

We should have liked to have written more about these dramatic events and the experiences of the thousands of test participants, many of them young National Service men, most of whom had never been abroad or flown in an aircraft before their long flight to Christmas Island. That would be another book ...¹⁹

Grappling with the Bomb, therefore, hopes to redress the balance in a small way, capturing personal testimonies that are not recorded in the British literature on Operation Grapple or in standard histories of New Zealand, Fiji and Kiribati. I've sought to tell some unfamiliar stories that show the human impact of the Grapple tests, with a particular focus on perspectives from the southern hemisphere.

This book draws on a patchwork of sources: from archival documents to secondary texts and first-hand interviews with the ageing survivors who witnessed the British hydrogen bomb tests. Some historians quibble about the value of personal reminiscences, given the fallibility of memory and our common tendency to exaggeration. But personal testimony and memoir can capture the lived experience of the time and breathe life into

17 Lorna Arnold: *A Very Special Relationship—British Atomic Weapons Trials in Australia* (Her Majesty's Stationery Office, London, 1987); Lorna Arnold: *Windscale 1957—Anatomy of a Nuclear Accident* (Palgrave Macmillan, London, 1992); Lorna Arnold: *Britain and the H-Bomb* (Palgrave Macmillan, London, 2001).

18 John R. Walker asks 'whether the UK experience is unique or if it instead offers insights into the potential problems faced by, or facing, other medium or aspiring nuclear weapon states' in 'Potential Proliferation pointers from the past: Lessons from the British Nuclear Weapons Program, 1952–69', *The Nonproliferation Review*, Vol. 19, No. 1, 2012, pp. 109–123.

19 Lorna Arnold: *Britain and the H-Bomb*, op. cit., p. xi.

the archives. On a topic like nuclear strategy, the bureaucratic language of the written record tends to mute the reality of thermonuclear terror that is the essence of nuclear weaponry.²⁰

The documentary record still tells tales. The minutes of the Grapple Task Force give insights to official attitudes and the Imperial War Museum in London has an array of photos and film taken by a film crew sent to Christmas Island by the Task Force. To gather information on British colonial policy in the Pacific and the treatment of Gilbertese islanders and Fijian military personnel, I've relied extensively on Colonial Office files.²¹

The Pacific hydrogen bomb tests affected people in many different ways. Chapter 1 starts with Sir Winston Churchill. The British leader's fascination with warfare began in the 19th century as a young soldier and budding author, sent to fight the 'dervishes' in Sudan. It ended with his fateful decision in June 1954 to follow the US and Soviet Union into a nuclear arms race, through the development of a hydrogen bomb after British atomic weapons had already been tested in Australia.

Chapter 2 discusses the impact of the detonation of the US hydrogen bomb, codenamed Bravo, on Bikini Atoll on 1 March 1954. This was not the first test of a US thermonuclear weapon, nor the last, but news of radioactive fallout from Bravo became the focus of international outrage in the mid-1950s. There was extensive mobilisation for disarmament in Japan, after the Bravo test showered fallout on the 23 crew members of the Japanese fishing boat *Daigo Fukuryu Maru (No. 5 Lucky Dragon)*.

20 Historians Anne Curthoys and Joy Damousi argue: 'History and memoir can work together to help later generations understand historic events and experience. While history provides the results of detailed research, using archived documents, oral histories and cultural items like novels, photographs, songs and film, memoir adds to these histories an individual and sometimes highly emotional rendering of personal experience.' Anne Curthoys and Joy Damousi (eds): *What did you do in the Cold War, Daddy? Personal stories from a troubled time* (NewSouth Publishing, Sydney, 2014), pp. 13–14.

21 A list of registered files between 1952 and 1967 from the Pacific and Indian Ocean Department of the Colonial Office and Commonwealth Office (PAC Series CO1036) can be found online at discovery.nationalarchives.gov.uk/details/r/C5225. Copies of these files are available on microfilm, and the author would like to thank the staff at the National Library of Australia (NLA), the Menzies library at The Australian National University (ANU) and the Pacific Manuscripts Bureau (PAMBU). Throughout the footnotes in this book, many documents are sourced to the CO1036 series, followed by the relevant file number. The files of the Colonial Office Intelligence and Security Department (ISD) can be found in the UK National Archives under the code CO1035. For sources of other documents and reports, see Bibliography.

As detailed in Chapter 3, Bravo sparked international protest, popularised the bikini bathing suit and inspired a series of Godzilla movies. Bravo led to more structured national peace organisations, from the creation of the Japan Council against A and H Bombs (Gensuikyō) in 1955 to the formation of the UK Campaign for Nuclear Disarmament in 1958.

After documenting the initial work of the Grapple Task Force under Air Vice Marshall Wilfred Oulton (Chapter 4), the book highlights diverse examples of people who expressed opposition to the looming testing program. These range from businessman James Burns, chair of one of the largest trading houses in the South Pacific (Chapter 5), to British pacifist Harold Steele (Chapter 6). Burns was just one of many business people concerned that Britain's 'hydrogen bomb antics' might threaten their Pacific investments, while Steele travelled from England to India and Japan, attempting to reach the test zone and halt the tests through direct action.

A range of books have gathered testimony from the British, NZ and Australian military personnel who staffed Britain's test sites in Australia and Kiribati.²² But the stories of Pacific islanders who witnessed the British tests have rarely been recorded (and they are usually presented as victims rather than participants in the operation).

Most histories of the British H-bomb also ignore the contribution of women. Operation Grapple was a largely masculine affair, but the archives of the Royal Voluntary Service (RVS) revealed letters and reports from Mary and Billie Burgess, the only two English women on Christmas Island in 1956–57, living amongst thousands of young servicemen (Chapter 10). The only woman on the first Grapple committee—Foreign Office staffer Gillian Brown – sought to calm diplomatic problems with Japan and the US (Chapter 13).

The official histories also ignore the Gilbertese on Christmas Island, and the colonial administration's debates over employment for islanders and community safety. The personal story of Tekoti Rotan (Chapter 16) reflects the many ways that military conflict, resource extraction, labour

22 See, for example, Derek Robinson: *Just testing* (Collins Harvill, London, 1985); Ken McGinley and Eamonn P. O'Neill: *No Risk Involved—the Ken McGinley story—survivor of a nuclear experiment* (Mainstream Publishing, Edinburgh, 1991); Gerry Wright: *We Were There* (Zenith Print, New Plymouth, n.d.); Roger Cross and Avon Hudson: *Beyond Belief—the British bomb tests, Australia's veterans speak out* (Wakefield Press, Kent Town, 2005).

mobility and displacement have reshaped the lives of Pacific islanders. The family of Gilbertese islander Sui Kiritome have captured her memories of the massive Grapple Y test in April 1958 (Chapter 17). Rainfall after this 2.8-megaton atmospheric test sent fallout across Christmas Island and the naval taskforce, affecting sailors, soldiers and civilians.

In other chapters, Fijian soldiers and sailors outline their role in Operation Grapple, drawing on interviews from our book *Kirisimasi* as well as new interviews conducted during recent visits to Fiji. There are reminiscences from Inoke Bainimarama, Paul Ah Poy, Amani Tuimalabe, Pita Rokoratu, Isireli Qalo, Josefa Vueti and many others, as well as the widows and family members of others who have died.

Chapter 9 introduces the story of the late Ratu Sir Penaia Ganilau, a high chief who visited the Fijian naval contingent in mid-1957 and went onto Malden Island straight after the second Grapple nuclear test—with serious consequences for his health. Later serving as Governor General and the President of Fiji, Ratu Sir Penaia's tragic death from leukaemia highlights the hazards of service to the British Empire.

The last of the Grapple tests in September 1958 is not the end of the story. There was ongoing deployment of Fijian military personnel on Christmas Island in 1959–60 (Chapter 18) and further nuclear tests at the island in 1962—this time by the US under Operation Dominic (Chapter 19).

Chair of the New Zealand Nuclear Test Veterans Association (NZNTVA) Roy Sefton (Chapter 14) and NZ geneticist Al Rowland (Chapter 20) also shared their stories. Rowland's pioneering work on the genetic damage affecting NZ sailors highlights the vital contribution of medical research to the wider campaign for recognition and compensation. Chapter 21 outlines the sorry saga of a decade-long legal challenge in the British courts (resisted every step of the way by the UK MoD), through the story of Fijian sailor Pita Rokoratu, who tragically died before a decision in his case.

Finally, Chapter 22 discusses the campaign leading up to the January 2015 ceremony where Fiji Prime Minister Voreqe Bainimarama presented financial support to the surviving Fijian veterans and their families.

While memories fail and some ageing interviewees are not great on dates and details, their vivid testimony provides important additions to the documentary record. The oral history gathered for this book is a small

contribution to the growing body of personal testimony by nuclear survivors from other parts of Oceania: women from Yankunytjatjara and Pitjantjatjara indigenous communities in South Australia;²³ Marshall islanders who lived through 67 atmospheric nuclear tests at Bikini and Enewetak atolls;²⁴ or the Maohi labourers who staffed the nuclear test sites of French Polynesia for 30 years, witnessing 193 nuclear tests.²⁵

The veterans' tales also provide important evidence for the ongoing campaign by survivors in Britain, New Zealand and Fiji to obtain recognition and compensation from the British Government for their service during Operation Grapple.

* * *

Another theme that runs through the book is the tension between different arms of the British Government over the costs and consequences of developing thermonuclear weapons.

The four prongs of the Grapple—the Atomic Weapons Research Establishment (AWRE) at Aldermaston and the three UK military services—all focused on the technical and logistical questions of developing weapons within a short time frame. The scientists and military personnel were rushing to develop an independent British nuclear capacity before a testing moratorium in 1958 (and the subsequent Partial Test Ban Treaty of 1963) could halt their atmospheric testing program.

23 For the effects of British nuclear testing on indigenous people in South Australia, see Yami Lester: *Yami—the autobiography of Yami Lester* (IAD Press, Alice Springs, 1993); Yalata and Oak Valley communities with Christobel Mattingley: *Maralinga—the Anangu story* (Allen and Unwin, Sydney, 2009); and Christobel Mattingley: *Maralinga's long shadow—Yvonne's story* (Allen and Unwin, Sydney, 2016).

24 For many years, Giff Johnson of the *Marshall Islands Journal* and Jack Niedenthal of the Bikini Atoll Council have recorded Marshallese memories of the US tests. Giff presents a moving portrait of his late wife Darlene in *Don't Ever Whisper—Darlene Keju: Pacific Health Pioneer, Champion for Nuclear Survivors* (CreateSpace Independent Publishing, 2013). Jack Niedenthal records many Bikinian memories in *For the good of mankind—a history of the people of Bikini and their islands* (Micronitor, Majuro, 2001).

25 Pieter Van der Vlies and Han Seur collate Polynesians' testimony during 30 years of nuclear testing in the French Pacific in *Moruroa and Us* (CDRPC, Lyon, 1997), a collection also available in French and Tahitian. The *Moruroa e Tātou* association, which unites Maohi workers who formerly staffed the Moruroa and Fangataufa test sites, collates extensive testimony: www.facebook.com/moruroaetatou/.

Other government departments were constantly seeking to minimise costs, including the Ministry of Supply, which was the lead ministry in the Grapple Task Force, responsible for coordinating the manufacture of nuclear weapons.

In turn, the UK Foreign Office had to deal with complex diplomatic responses to countries like Japan and the US, as public knowledge of the looming test program raised widespread opposition. The Commonwealth Relations Office faced similar concerns in Australia, New Zealand and Canada, even though the three Commonwealth governments were providing political and logistic support for the test program (atomic test sites in Australia, deployment of NZ military forces to assist the Grapple Task Force and use of Canadian air bases, as the hydrogen bomb was flown halfway around the globe from the UK to the central Pacific).

In the 1950s, there were no independent and sovereign island nations in the South Pacific. Public opposition to nuclear testing in New Zealand dependencies like Western Samoa and Cook Islands caused problems for successive NZ governments, as the Commonwealth ally sent two Royal New Zealand Navy (RNZN) frigates to join the British naval flotilla off Christmas Island, and Royal New Zealand Air Force (RNZAF) planes assisted with transport and radiation monitoring around the region.

Finally, the Colonial Office—a more junior partner in the hierarchy—had to address the costs and consequences for the British GEIC.²⁶ During the Grapple operation, Gilbertese islanders were hired as labourers for the test program, vital shipping was diverted from the Gilbert Islands to the Line Islands and the main copra plantation on Christmas Island ceased operations, losing revenue for the colony.

Western Pacific Commissioner John Gutch (based in Honiara in the British Solomon Islands Protectorate) and Resident Commissioner Michael Bernacchi (located in Tarawa, GEIC) had to deal with a series of orders from London that took little account of the logistic and financial realities of working in the Pacific, given the vast distances across the colony. Bernacchi was looking for financial and employment opportunities for

26 Until its dissolution into the Foreign and Commonwealth Office (FCO) in 1966, the Colonial Office had resisted calls from the Treasury, Foreign Office and Commonwealth Relations Office to rapidly give independence to small British dependencies. For discussion of these tensions in the Pacific, see W. David McIntyre: *Winding up the British Empire in the Pacific Islands*, Oxford History of the British Empire Companion Series (Oxford University Press, Oxford, 2014), pp. 32–39.

Gilbertese, while Governor of Fiji Sir Ronald Garvey was also pushing for the employment and training of young Fijians on Christmas Island. This led to the deployment of sailors of the Fiji Royal Naval Volunteer Reserve (FRNVR) and engineers and labourers from the Royal Fiji Military Forces (RFMF) between 1957 and 1960.

* * *

As we mark the 60th anniversary of the Grapple tests in 2017–18, the issues of British nuclear weapons, indigenous rights and a nuclear-free and independent Pacific are still with us.

There are debates in the UK parliament about the cost of renewing Trident, the heart of the UK nuclear arsenal. Post-Brexit, Scottish nationalists are calling for a nuclear-free and independent Scotland as they move towards a second referendum on independence. The Republic of the Marshall Islands—unsuccessfully—has taken Britain and other nuclear weapons states to the International Court of Justice (ICJ) over their failure to meet disarmament obligations under the Nuclear Non-Proliferation Treaty. As a consequence, in February 2017 Britain withdraw from the compulsory jurisdiction of the ICJ on matters of nuclear disarmament, in order to halt further cases that threaten its nuclear arsenal.

Eight Pacific island countries co-sponsored the December 2016 UN General Assembly resolution to establish a treaty banning nuclear weapons, with negotiations amongst 130 governments commencing in March 2017. The South Australian Government is seeking to establish a nuclear waste dump on Aboriginal land, even as the Australian Government exports uranium to fuel nuclear reactors like Daichi Fukushima, which since 2011 has continued to contaminate the land and marine environment. Meanwhile the Tokyo Electric Power Company is wondering who will pay the horrendous price tag—US\$160 billion and counting—to clean up the world's latest nuclear sacrifice zone at Fukushima. The list goes on ...

Even as some pundits call for an expansion of the nuclear industry to address the challenge of climate change, we have not addressed the costs and consequences of nuclear activities in the 1950s. As we enter a new era of uncertainty, following the Brexit referendum and the election of Donald J. Trump as US President, it is important to remember the tragedy of the nuclear era in the Pacific, so we are never forced to repeat it.

Moreover, it is time for the citizens of the United Kingdom to call on their government to do the right thing and address the legitimate claims of the Grapple survivors.

This text is taken from *Grappling with the Bomb: Britain's Pacific H-bomb tests*, by Nic Maclellan, published 2017 by ANU Press,
The Australian National University, Canberra, Australia.