

Candidate's declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma. I declare that this thesis is my original work and that I have not used any other source of knowledge or information, except where this is referred to in the text.

Atoms and empty space

**Media and the most dangerous scientific
experiments in Australia**

Elizabeth R Tynan

Elizabeth Tynan

**A thesis submitted for the degree of Doctor of Philosophy at
The Australian National University**

ANU National Centre for the Public Awareness of Science
January 2011

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I have been assisted greatly by a number of people during my research. The first person I thank is responsible to all for my life. To the members of my family, my mother, Rosemary, and my father, John, who have always been there for me, I would not be here but also offered freely for their support and guidance and intellectual and practical assistance to make it possible for me to do this work.

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Elizabeth Tynan

I thank the rest of my family – Dad (Frank), Mom (Annette), Andrew, Natalie and Sophie – for their unconditional love. To Mary, who built our little oasis in the tropics – our sanctuary – and as a result, a very peaceful and quiet needed for this work, thank you for your loving support.

To Sue Stockmayer who heads ANU’s National Centre for Public Awareness of Science, doyenne of Australian science communication and someone I am proud to call my supervisor, thank you for your continuing enthusiasm and your expert assistance throughout. Thanks also to Will Grant from the Centre, who provided much sensible advice and guidance.

To Rosemary Dunn and Sylvia Kalso, I am indebted for your assistance, suggestions and your solidarity at crucial moments during the preparation of this work.

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Elizabeth Tynan
Tynanella Thelma

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I have been assisted greatly by a number of people during my research. The first person to thank is responsible, in all sorts of ways, for the existence of this thesis. My mother, Rosemary Jennings, not only is my beloved Mum without whom I would not be here but also offered freely her first rate professional guidance and intellectual and practical assistance to make it possible for me to do this work.

I would also like to thank the rest of my family – Dad (Frank), Inta, Meredith, Andrew, Narelle and Sophie – for their unconditional love. To Brett, who built our little ecohouse in the tropics – our sanctuary – and so created an oasis of peace and quiet needed for this work, thank you for your loving support.

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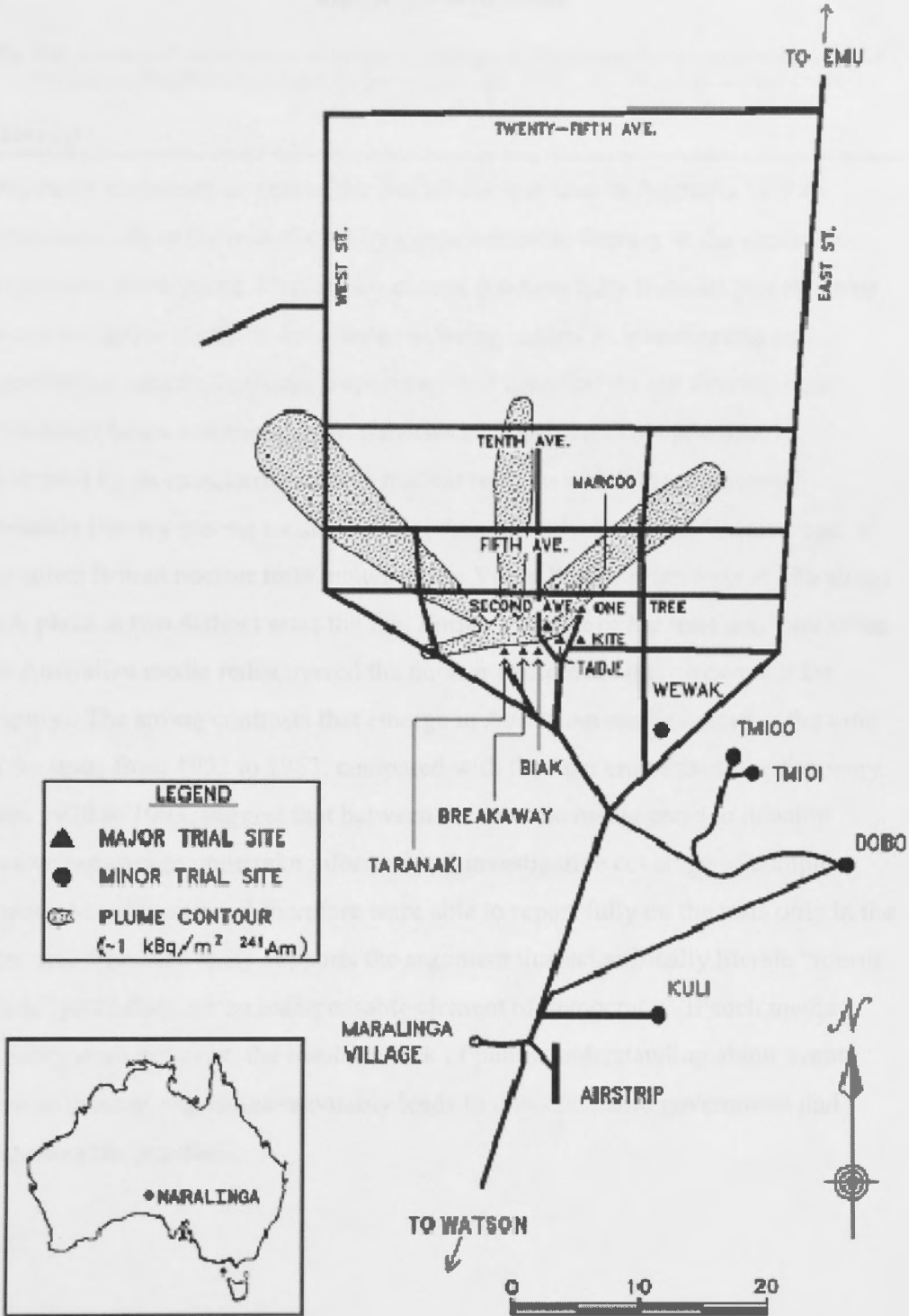
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Map of South Australia. The Maralinga test range is indicated by arrow
(Source: <http://www.satravel.net.au/images/maps/south-australia-map.pdf>)



Map of test sites at the Maralinga range
(Source: <http://www.arpansa.gov.au/radiationprotection/basics/maralinga.cfm>)



Atoms and empty space

Media and the most dangerous scientific experiments in Australia

The first principles of the universe are atoms and empty space. Everything else is merely thought to exist.
Democritus, Greek mathematician and philosopher, 460-370BC, from Diogenes Laertius IX, 44.

Abstract

This thesis examines aspects of the British nuclear tests in Australia to draw conclusions about the role played by media scientific literacy in the conduct of democratic government. Democracy cannot function fully if media practitioners do not recognise scientific knowledge as being central to investigating and reporting on issues of national importance and therefore do not develop their knowledge bases and frame their activities accordingly. This principle is illustrated by an examination of the nuclear tests, in which the absence of scientific literacy among media had long-term ramifications. Media coverage of the entire British nuclear tests including the Vixen B plutonium tests at Maralinga took place in two distinct eras: the first during the time of the tests and later when the Australian media rediscovered the nuclear test series and re-opened it for enquiry. The strong contrasts that emerge in Australian media output at the time of the tests, from 1952 to 1963, compared with the later era of media rediscovery from 1978 to 1993, suggest that between the eras the media came to develop greater capacity to undertake informed and investigative coverage of complex science-based topics and therefore were able to report fully on the tests only in the later era. The case study supports the argument that scientifically literate “fourth estate” journalists are an indispensable element of democracy. If such media capacity does not exist, the resulting lack of public understanding about events such as those at Maralinga inevitably leads to unaccountable government and undemocratic practices.

Chapter One

Prologue: Science literacy in the media

...it's very much in the public and national interest to have a corps of science writers who understand what they are writing about, have simultaneous appreciation for skepticism and wonder, and who are talented in metaphor and analogy and the ability to make the complex understandable.

Carl Sagan, Foreword, *A Field Guide for Science Writers*, 1997

The awesome capacity of atomic fission had changed fundamentally the relationship between science and society.

C B Schedvin, *Shaping Science and Industry*, 1987

Secrecy strikes at the very root of what science is, and what it is for.

Robert Oppenheimer, Los Alamos, 2 November 1945

Media are best able to hold democratic governments¹ to account when they possess a broad frame of reference that includes knowledge and, especially, understanding of science and science-based policy. This argument is based upon the case study of the Vixen B plutonium experiments conducted by British atomic weapons test authorities at Maralinga in the South Australian desert in the early 1960s. This test series was held at the end of an 11-year program of British nuclear tests in Australia that had begun in Western Australia and later moved to South Australia, an era that I describe later in this thesis (see p. 51) as belonging to a time of “nuclear colonialism”, with implications for the way the tests were approached by the Australian media. Vixen B was conducted during the final stages of the British tests. These experiments, which I contend were the most dangerous ever conducted in Australia, were not reported by the media at the time they were underway. This study reveals fundamental differences in the behaviour of media towards the British nuclear test program between the two eras under examination, the first from 1952 to 1963 and the second from 1978 to 1993. The first era involved secrecy and an ineffective and largely ignorant media; the second involved an incremental but relentless uncovering, driven both by a Royal Commission that reported in 1985 and by unprecedented investigative media

¹ While questioning aspects of the conduct of Australian democratic government, this thesis proceeds from the assumption that Australia is a constitutional democratic nation with a parliamentary system of government that was designed as a blend of the British Westminster system and the United States model of federalism. In the Australian federal system, elections are held to select representatives to a bicameral parliament, with the House of Representatives representing the people and the Senate representing the states. Stuart Macintyre, *A Concise History of Australia*, Second Edition, Cambridge University Press, Port Melbourne, 2004, p. 137.

scrutiny². The case study shows that when media lack scientific literacy, public understanding of important events is deficient and informed consent for all government activities becomes impossible. Therefore, scientific literacy in the media has significant consequences overall for the conduct of democracy.

These consequences are clearly visible in an examination of the British nuclear tests in Australia. Throughout the whole nuclear test program, beginning at the Monte Bello Islands off Western Australia in October 1952 and continuing until the final plutonium test at Maralinga in April 1963, the Australian media reacted almost exclusively to official statements about activities at the test sites and did not seek independent sources of information. Their level of scientific literacy was low and their stories were correspondingly shallow and ill-informed. This contrasts with media behaviour and output in the later era when the stories displayed substantial understanding of the scientific and technological issues involved in nuclear weapons testing and the implications of radioactive contamination. The evolution in reporting capacity that is evident between these periods suggests that Australian media were subject to both internal and external forces that drove higher standards of scientific literacy and investigative capacity and led to greater effectiveness in holding the Australian government to account.

One area where this study shows a distinct evolutionary change in media activity is the greater ability of later journalists to pursue diverse unofficial sources rather than passively receive and publish government media statements. When journalists act as conduits for official information, the providers of the information control and dictate the message that the journalists report. Because political motives dictated much of the public information released by official sources concerning the British nuclear test program, the information that reached

² This thesis places the final stage of uncovering of the Vixen B story near the beginning, in Chapter Three "Dirty Deeds: Ian Anderson and the uncovering of Maralinga". Chapter Three focuses on a landmark 1993 story that showed the extent of plutonium contamination at Maralinga caused by Vixen B. This story, which appeared eight years after the McClelland Royal Commission that investigated the entire test series, provided the final major revelation about the British tests after a sequence of revelations begun when the national Australian media came to the story with fresh eyes in 1978. This structure is intended to show first the moment where the media did their best work regarding the British nuclear tests, before going back to the earlier era to show where they did their worst.

the media conformed to these political aims and was not challenged. This study shows that the British test authorities and the Australian government were by far the dominant sources of information for contemporary media covering the nuclear tests, and both these sources were determined to limit the information that was made available to the public. This had the effect of restricting reporting capacity, ensuring that many events at Maralinga were invisible to the public.

Interaction between reporters and their sources is one important determinant of reporting capacity. Ideally, journalists seek diverse, well-informed and authentic sources for their stories to help ensure comprehensive coverage, or at least a reasonable breadth and diversity of views. The coverage of science-based stories in the media likewise requires diverse, well-informed and authentic sources. Science journalism has the particularly difficult task of bridging the “Two Cultures” divide³, a cultural and intellectual rupture related to the advent of nuclear weapons physics and technology. It was said to pit the increasingly specialised and complex scientific research enterprise against non-scientists, specifically those from the Humanities intellectual tradition or with a broad Humanities outlook. As one commentator puts it, “...the laboratory [is] on one side of the fault line, and the newsroom the other.”⁴ It has always been, and remains, a difficult balancing act for a journalist with little or no scientific training to negotiate the complexities of scientific method, culture, language and increasingly specialised and arcane knowledge. When this is added to political and military imperatives at the highest level of secrecy, media without the knowledge base to explore difficult or contentious scientific and technological concepts or to develop strong sources able to guide their understanding become compliant and passive, unable to fulfil their traditional democratic role as the

³ The “Two Cultures” divide was first postulated by the British physicist and novelist C P Snow in a lecture he gave at the University of Cambridge in 1959, coincidentally at precisely the time that the most dangerous Maralinga plutonium experiments were in the final stages of planning. “What Snow observed was a cleavage that would grow for the remainder of the [20th] century. Our culture was separating into two parts, scientists and everyone else. Most people were technologically ignorant. Those in the know composed an increasingly elite aristocracy that held power by its command of counterintuitive knowledge.” Jon Franklin, “The End of Science Writing”, The Alfred and Julia Hill Lecture, University of Tennessee, 17 March 1997, <http://nasw.org/endsci.htm>.

⁴ *Ibid.*

people's witness, the essence of "fourth estate" journalism⁵. This thesis examines a particular instance of a deficit of reporting capacity and reflects upon the implications of this deficit for the complex relationships between science, the media and government.

That is not to say that the task of covering the British atomic tests adequately was a straightforward matter that was wilfully abrogated by the media at the time. The encounter between nuclear weapons science and Western media had from the beginning required negotiation and accommodations. Secrecy inevitably, and (to a certain extent) properly, has always accompanied weapons development. Nevertheless, as this case study shows, total lack of scrutiny of dangerous scientific experiments associated with atomic weapons development meant there was no public accountability even for matters where ongoing secrecy was questionable. Covering the complexity of nuclear weapons development comprehensively and with insight is difficult for journalists but, as the later era shows, is possible even when information restrictions are in place. In effect, scientific knowledge among media practitioners later assumed a greater role in driving public accountability by guiding the journalists in their choice of stories and sources.

This more effective form of reporting could only happen when the media became fully aware of the need to understand science-based issues. Franklin asserts that the pace of technological development associated with nuclear weaponry drove the US media to begin taking specialised coverage of science seriously⁶, leading directly to the growth in science journalism in the US media. The evidence presented in this thesis, based upon Australian media output at the time of the British tests, suggests that these pressures may not have been felt so strongly in Australia at that time. The nation had a notably compliant media (see Chapter Four) and no tradition in science journalism. One implication of a lack of scientific literacy, I contend, was that the 1950s Australian media were not

⁵ The term "fourth estate", which had its origins in the eighteenth century and is linked to the blossoming of democratic ideals, can be simply expressed as the idea that to ensure a functioning democracy the wielders of power in society must be held to account by an independent witness, the media.

⁶ Franklin, *op cit*.

sufficiently competent to deal with the program of British nuclear tests and to write about them with insight and knowledge. The tests took place during a time referred to as the “cheerleading”⁷ phase of media coverage of science, both in Australia and in other Western democracies.

“During this time, science writers and reporters were advocates of science. They believed that every new discovery or technological breakthrough would benefit humankind, and journalists tried hard to gain the respect of scientists.”⁸

The cheerleading phase of science coverage gave way in the 1970s to the “watchdog” phase when:

“...rather than advocating science, reporters became advocates of the public interest.”⁹

This media evolution meant that reporting became notably “less respectful”¹⁰ than the form of science reporting that had preceded it. This was an important development in public service reporting: true critical science journalism must ask hard questions not just of the scientists but of the governments that fund and support their activities. Being overly respectful of any group in society, including scientists, makes for ineffective media. The only way to overcome an excess of respect, thus enabling the surface of the story to be breached, is to possess scientific knowledge that can inform digging, questioning and journalistic writing.

Further, the Maralinga case study strongly suggests that this form of knowledge is an indispensable tool for all journalists, not just science specialists, because science is essential to modern life.

“If science was ever a thing apart, a special way of living and seeing things, that time is past. Today, science is the vital principle of our civilization. To do science is critical, to defend it the kernel of political

⁷ Nicky Phillips, “What’s in store for science journalism?”, *Issues*, Vol. 87, June 2009, p. 45.

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ Stephen McIlwaine, “Science and journalism: A Mexican stand-off?”, *Australian Journalism Review*, Vol. 23 (2), December 2001, p. 174.

realism. To define it in words is to be, quite simply, a writer, working the historical mainstream of literature.”¹¹

By neglecting (and being thwarted in) comprehensive coverage of significant political, scientific and technological events in the South Australian outback, the Australian media at the time effectively and by default were complicit with the British and Australian governments in pushing Maralinga out of that historical mainstream, excluding it from the national record until much later. This was at its heart an undemocratic act. I contend that the Maralinga saga is not a curiosity safely consigned to history – events of equal or greater import could easily take place beyond the gaze of ill-equipped media. Only accountable government can be democratic and accountability is achieved, in large part, through informed media scrutiny.

Consequences of media marginalisation

The marginalisation evident in the Maralinga case study was no trivial matter. It was not just an unfortunate oversight but indicative of a major deficiency in how the Australian media operated, because the events under consideration were of immense and long-lasting national importance. Public understanding of how the nation functions at any particular point in its history is to a large extent governed by the media, which is why journalism is often described as “the first draft of history”¹². A true account of national events must be incomplete without public understanding of science-based activities and policies. As Stockwell suggests, a regular flow of public-interest information is essential to the most basic processes of democracy and true democracy cannot function without it¹³. This case study therefore is an illustration of a principle promulgated by the prominent Australian investigative journalist Bob Bottom, who claimed:

“Journalists in the truest sense are public servants with a great sense of citizenship. They can bring about significant change.”¹⁴

¹¹ Franklin, *op. cit.*

¹² Jason Bainbridge, Nicola Goc and Liz Tynan, *Media and Journalism: New Approaches to Theory and Practice*, Oxford University Press, Melbourne, 2008, p. xviii.

¹³ Stephen Stockwell, “Beyond the fourth estate: Democracy, deliberation and journalism theory”, *Australian Journalism Review*, 21(1) 1999, p. 41.

¹⁴ Bob Bottom, 1996, quoted in David Conley, *The Daily Miracle*, Second Edition, Oxford University Press, Melbourne, 2002, p. viii.

The corollary, of course, is that when journalists are absent, the public servant role is also absent and the changes that journalists are capable of bringing about through initiating and maintaining the flow of information cannot occur. This goes to the very foundations of democratic government.

“[D]emocracies can only work if citizens have the information they need to participate effectively in the political process. The availability of information concerning the activities and decisions of their representatives is vital to the proper functioning of representative democracies.”¹⁵

An effective fourth estate

The nub of the argument in this thesis, therefore, is that science, the media and democracy are intertwined and interdependent. When journalists are incapable of reporting complex scientific issues, this has an unbalancing effect on the nation’s democratic processes. Scientific and technological activities are increasingly central to Western government and governments generally initiate, fund and regulate these activities. It follows that the media must be competent to carry out the required scrutiny of these activities. This thesis tracks changes in Australian media that are clearly related to the improvement in media capacity to report on science, with a concomitant improvement in capacity to fulfil a fourth estate role. I acknowledge, however, that scientific knowledge for its own sake is insufficient to ensure true democratic accountability. Indeed, the story of the Maralinga minor trials and the British tests generally is not only – or even primarily – about science alone. A “straight up and down” physics lesson for 1950s and 1960s Australian media consumers would not have helped much in itself to properly inform them of the implications of the British tests. As asserted earlier, I take the view that science is bound up with civic issues generally in a democracy and that, to properly inform the public, a level of scientific literacy is needed to discern the full implications of a story. Media examination of science-based issues extends to whether the scientists involved are colluding in keeping their activities away from the public sphere, as was the case at Maralinga. Secrecy and scientific research tend not to co-exist comfortably, given the scientific tradition of open exchange of information. When secrecy does enter into scientific activity, as it did in relation

¹⁵ Ian Cook, Mary Walsh and Jeffrey Harwood, *Government and Democracy in Australia*, Second Edition, Oxford University Press, Melbourne, 2009, p.206.

to the development of nuclear weapons, it has tended to have a distorting or even a corrupting effect – “the taint of secrecy” as Schedvin put it¹⁶. Among other things, the absence of public information about scientific research activity becomes highly significant in terms of public consent for government decisions.

“...without a voice in the science discussion, citizens also find themselves without a voice in the larger political debate in which the scientific debate is embedded.”¹⁷

The stark differences in the way the Australian media of the two eras approached the British nuclear tests, as identified in this study, suggest implications for Australian media today. This dramatic difference in media activity points to deeper truths about the operation of media and democracy and what can happen in a democracy when the full range of government activity is not open to fourth estate media scrutiny.

Research questions

I address the issue of how an absence of scientific literacy may affect the conduct of democracy by answering two main questions connected to the Maralinga case study:

- What were the differences in media coverage of the British nuclear test program, particularly the Vixen B minor trials, between the two eras?
- What were the implications of these differences?

These questions are designed to provide a framework for examining in detail the output of media activity in the two eras, seen in relation to the official account of the British nuclear tests and to scholarly analyses of the tests. This framework provides a way of probing how scientific literacy operated in practice in

¹⁶ C B Schedvin, *Shaping Science and Industry: A History of Australia's Council for Scientific and Industrial Research, 1926-49*, Allen and Unwin, North Sydney, 1987, p. 332.

¹⁷ Stephen McIlwaine and An Nguyen, “Science, journalism, democracy and technology”, paper presented at the Journalism Education Conference, Griffith University, 29 November – 2 December 2005, p. 3.

Australian media coverage of a nationally important but deliberately obscured event. The detailed historical narrative that appears in Chapters Two to Seven provides the evidence for the conclusions and recommendations that are set out in Chapter Eight.

Methodology

This study is essentially a narrative treatment of the topic, examining two distinct eras to build a comparative history of media reporting of an ongoing major story with a science component. Both eras are viewed through the lens of Australian media activity as revealed by published news and feature stories and editorial comment in mainstream media. This media output is analysed in relation to official accounts of the events and supplemented by the insights of participants and the perspectives of scholars. The evidence in this case study may be grouped into seven main categories:

- Australian media news stories, features and editorials from both eras of the study, mostly obtained from the National Library of Australia;
- Official documents such as letters, cables, memoranda, minutes of meetings, government reports, Cabinet submissions, media publicity statements and transcripts connected to the British nuclear tests and to the D-notice system, obtained from the National Archives of Australia;
- The published Report of the Royal Commission into British Nuclear Tests in Australia (the McClelland Royal Commission), and associated more detailed testimony on file at the National Archives of Australia;
- Interviews with key participants, conducted either by me or by the late journalist Ian Anderson (the latter interviews accessed in the form of audio recordings);
- Extracts from both Australian and UK parliamentary Hansard;
- Unpublished briefing material prepared by the late John Moroney, former secretary of the Australian Atomic Weapons Test Safety Committee; and
- Secondary source material including scholarly articles, conference papers and books, as well as relevant biographies, websites and reference texts.

This material was used in the following ways in specific chapters:

Chapter Two: Introduction: The road to Maralinga

This scene-setting chapter describes the establishment of the British nuclear test program in Australia and introduces the key participants and issues. It is based upon a wide variety of material, in many cases secondary sources that provide necessary context and background information. Primary source material such as the Royal Commission report, briefing material prepared by John Moroney and some interview transcripts have also been used here to assist in establishing the broad framework for the nuclear tests.

Chapter Three: Dirty Deeds: Ian Anderson and the uncovering of Maralinga

This chapter has as its central source the *New Scientist* story written by Ian Anderson and published on 12 June 1993, titled “Britain’s dirty deeds at Maralinga”. In addition, a wide range of other media articles or broadcast transcripts dealing with Anderson’s Maralinga revelations are featured, as is extensive material from the Moroney papers and from interviews that both Anderson and I conducted with key participants such as the radiation scientists Geoff Williams and Peter Burns. Other items from Ian Anderson, such as his application for a journalism award and the original draft of his Maralinga story, annotated by John Moroney, are also important sources here.

Chapter Four: Managing the 1950s media

This chapter is based upon consideration of (mostly) Australian mainstream newspaper coverage of the British test series during the 1950s. It also features relevant official correspondence obtained from National Archives of Australia files, in particular correspondence and reports from the Department of Supply and its Minister Howard Beale, the Department of Defence and Ministers Phillip McBride and Athol Townley and the Department of Prime Minister and Cabinet and from the Prime Minister Robert Menzies. Relevant extracts from the Royal Commission Report are also used, as is analysis and commentary from secondary

sources. Material prepared by key Maralinga participant Professor Ernest Titterton – both newspaper articles and his book – is also featured.

Chapter Five: Voluntary censorship: D-notices

This chapter is based in large part upon declassified material from the National Archives of Australia showing how the D-notice system came to be established in Australia and how it was operated. This includes extensive correspondence between the Prime Minister Robert Menzies and his ministers and bureaucrats with leading members of the Australian press and with overseas media representatives. It also makes use of the minutes of the first meeting of the D-notice committee and the content of the atomic weapons test D-notices, again from the Archives. Secondary source analysis and commentary is also included.

Chapter Six: The most dangerous scientific experiments in Australia: Vixen B

This chapter makes extensive use of primary source documents from the National Archives of Australia, particularly once-secret correspondence between members of the Atomic Weapons Research Establishment in the UK and between Ernest Titterton and members of the Australian government and bureaucracy. In addition, the Royal Commission report provides considerable detail on the Vixen B experiments. The interviews with Williams and Burns provide further evidence regarding the nature and consequences of Vixen B, as do the Moroney documents and various secondary source accounts. A particularly important piece of evidence in this chapter is the sequence of correspondence between Australian and UK authorities discussing the media statement prepared in the event of Vixen B becoming public, but which was never used. This sequence is contained in a file at the National Archives of Australia.

Chapter Seven: Maralinga reporting from 1978

The central evidence in this chapter is drawn from published media reports, in particular stories written by the investigative journalist Brian Toohey in 1978 and 1984. Many other media reports that appeared once the story broke in the Australian media are also examined. In addition, government responses to the Maralinga issue are used extensively, sourced from the National Archives of

Australia or from Hansard. Secondary sources such as the autobiographies of several key players such as Tom Uren and Peter Walsh provide further insights.

Appendices

Supplementary information has been placed into three appendices. The dates and locations of all the British nuclear tests in Australia, both major and minor trials, may be found at Appendix A. Appendix B contains a glossary of all technical terms and names, whether generic (such as fission and fusion) or specifically related to the British tests in Australia (such as forward area, minor trials or the clean-up operations). Appendix C lists all the acronyms used in this thesis, alongside their full names.

Chapter Two

Introduction: The road to Maralinga

*It was a dry wind,
And it swept across the desert
And it curled into the circle of birth
And the dead sand,
Falling on the children
The mothers and the fathers
And the automatic earth*

Paul Simon, "The Boy in the Bubble", from *Graceland*, 1986

I'd learned by the bitter path that to touch the pitch of secrecy was to be contaminated for a very long time, that governments and politicians wanted not men who believed in the integrity of natural knowledge but men who would tell them what they want to hear, and that the truth has no meaning for a Churchill...[or] a Menzies, if it is politically inconvenient.

Australian physicist Professor Mark Oliphant, 1956

In its lack of concern at the sheer profligacy of atmospheric nuclear testing and callous disregard for human health, the Australian government reflected the ignorance and complacency of most governments in the world at the time.

Richard Broinowski, *Fact or Fission?* 2003

Maralinga, or "Fields of Thunder", was the name given by anthropologists to part of the traditional home of the Pitjantjatjara and Yankunytjatjara (also known as the Tjarutja) peoples, 1,000 km northwest of Adelaide, on the verge of the Nullarbor and just north of the Indian-Pacific train line¹. It is not the Indigenous peoples' own name for the area, but was borrowed from a Northern Territory language group to give a more colourful moniker to an area known to surveyors simply as X300². Its new name was made official in November 1953³, as secret plans for a permanent British atomic test site in Australia gathered pace. By this time, the British atomic test series in Australia had been underway for a year: Britain exploded her first nuclear bomb, codenamed Operation Hurricane, from a navy vessel docked at the Monte Bello Islands off the northwest coast of Western Australia in October 1952. In October 1953, more ambitious bomb tests known

¹ Ray Acaster, "Worlds Apart: Atom Bombs and Traditional Land Use in South Australia", *Limina*, Vol. 1, 1995, http://limina.arts.uwa.edu.au/previous/volumes_15/volume_1?f=73885. See p. 6 for a map of the Maralinga test range. There is some disagreement over who suggested the name "Maralinga". While Acaster suggests the name came from anthropologists, the official British historian of the test program, Lorna Arnold, asserts that it was proposed by an Australian member of the Atomic Weapons Test Safety Committee and scientific adviser to the Australian Department of Supply, Alan Butement. Lorna Arnold and Mark Smith, *Britain, Australia and the Bomb: The Nuclear Tests and Their Aftermath*, Second Edition, Palgrave Macmillan, New York, 2006, p. 28.

² Acaster, *op cit*.

³ *Ibid*.

as Operation Totem had been held not far from Maralinga, at a remote desert site called Emu Field (see below). It was to be at Maralinga, however, where the British chose to establish the full infrastructure for extensive, long-term atomic weapons testing in Australia. The 3,200km² desert site was to be a permanent base for these tests, although it was shut down permanently in 1963 as new international bans on atomic weapons testing were put in place. While Maralinga was active from 1956 to 1963, it hosted no more than two series of mushroom cloud atomic bomb tests. It was used much more extensively for the totally secret and significantly more dangerous “minor trials”.

The permanent test site location was chosen by the head of the British atomic weapons tests, Professor Sir William Penney. Emu Field had proven to be unsuitable because of its extreme inaccessibility and lack of water, but Maralinga would be more easily established with facilities and amenities for the tests themselves and for the service personnel who would execute the tests. For the personnel who were posted there, especially the British servicemen, it had its challenges. The place fits the archetypal image of Australian outback landscape, as well as becoming true to its made-up name of fields of thunder when the bombs were exploded. It is dusty, flat, extremely hot, barren, (seemingly) lifeless and waterless; it is a long way from anywhere. In those days (only a couple of generations ago), it was convenient vacant land, sufficiently far away from the British voting public, for that country to assert its nuclear-age ambitions.

Those extensive ambitions, intended to arm Britain with a nuclear arsenal, had been somewhat thwarted by a paranoid USA under its post-war Atomic Energy Act, commonly known as the McMahon Act, that put a stop to sharing of nuclear secrets⁴. The passing of the McMahon Act in the United States effectively created the conditions necessary for the establishment of a British test site at Maralinga. If the McMahon Act had not been created, Britain would have continued to work with the Americans on nuclear weapon development and, in fact, this would have

⁴ P N Grabosky, “A Toxic Legacy: British nuclear weapons tests”, Chapter 16 of *Wayward governance: illegality and its control in the public sector*, Australian Institute of Criminology, Canberra, 1989, p. 1.

been Britain's preferred option⁵. America and Britain had parted company when it came to matters atomic soon after the Second World War. Although British physicists had been major participants in the wartime Manhattan Project to produce the atomic bombs dropped on Hiroshima and Nagasaki, there had been instances of espionage among the ranks of the scientists. The British physicist Allan Nunn May, who had worked on the Manhattan Project, was a communist ideologue who gave atomic secrets to the Soviets out of conviction that it was the right thing to do, not for payment⁶. It is said that his unmasking in 1946, the first of the British physicists convicted of spying, was a catalyst for the McMahon Act⁷ that kept the British away from US atomic weapons research for at least a decade. In 1950, another British physicist, Klaus Fuchs, also a communist as well as a brilliant scientist who was central to the Manhattan Project, was arrested and served nine years in jail. In his confession he said that he had committed espionage "in the name of historical determinism"⁸. Fuchs and Nunn May siphoned highly technical scientific information directly from the Manhattan Project to the Soviet leadership in Moscow. Nunn May even gave enriched uranium to his Soviet "handler"⁹. Revealed later still (between 1951 and 1963), though they were active before and during the war, were the infamous Philby, Burgess, McLean and Blunt¹⁰, members of the Cambridge-educated British establishment¹¹ who worked for the British security services while being paid as spies by the USSR. They passed a variety of non-technical nuclear secrets to the

⁵ J L Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985, p. 6.

⁶ "Alan Nunn May, 91, Pioneer in Atomic Spying for Soviets, Is Dead", Associated Press, 25 January 2003, www.nytimes.com/2003/01/25/world/alan-nunn-may-91-pioneer-in-atomic-spying-for-soviets.html.

⁷ *Ibid.*

⁸ Christian Allen, *Atom spy Klaus Fuchs jailed*, History Today, LookSmart, 2000, http://articles.findarticles.com/p/articles/mi_m1373/is_3_50/ai_60081470

⁹ "Alan Nunn May, 91, Pioneer in Atomic Spying for Soviets, Is Dead", *op. cit.*

¹⁰ Allegations about a "fifth man" Soviet agent, Roger Hollis, were made in the 1980s by a former agent of the British spy service MI5 Peter Wright in his book *Spycatcher*. Hollis, who had headed MI5, had visited Australia in the late 1940s to investigate the allegations of espionage that had become the impetus for the creation of the Australian Security Intelligence Organisation, ASIO. David McKnight, *Australian Spies and their Secrets*, Allen and Unwin, St Leonards, 1994, p. viii and p. 239. The allegations against Hollis had in fact been made earlier still, by the British journalist Chapman Pincher. Pincher also reported on the British atomic tests in Australia, as mentioned in Chapter Four.

¹¹ Author unknown, "Terrorists, Spies and Assassins: The Cambridge Spies", www.crimelibrary.com/terrorists_spies/cambridge/3.html?sect=23.

Soviet Union; political and tactical information that kept the USSR informed about the strength of the US atomic arsenal¹². The nuclear spies were an important factor in the Soviet Union quickly attaining nuclear weaponry after the war and the United States was increasingly fearful of continued leakage of top-secret information.

“The powerful [US] Congressional sentiment for maximum security was to grow during the postwar years as fresh revelations of espionage and security breaches in both countries [UK and US] came to light.”¹³

The era of the spies has become known as “a catastrophic time for British intelligence”¹⁴. The US did not feel inclined to trust its trans-Atlantic ally, despite its own spy scandals. For example, the American scientific prodigy who was only 19 when he joined the Manhattan Project during World War II, Theodore (Ted) Hall, supplied technical information to the Soviets on the plutonium bomb that was dropped on Nagasaki¹⁵. He was never charged, although his spying had more serious consequences than that of the better-known American couple Julius and Ethel Rosenberg, who were both executed for espionage¹⁶. As revelations of espionage grew, the US tightened its security and withdrew from scientific collaboration on atomic weaponry. Britain, despite the nuclear physics brain-power it had contributed to the Manhattan Project, was isolated and on its own.

This was a time of increasing international paranoia as the Cold War set in. The Soviet Union, with considerable input from the spies, was able to test its own atomic bomb in 1949¹⁷. This dropped the Cold War temperature still further and put a chill through Britain, which was still a few years away from testing a nuclear bomb. A considerable amount of nuclear weaponry knowledge from the wartime

¹² *Ibid.*

¹³ Alfred Goldberg, “The Atomic Origins of the British Nuclear Deterrent”, *International Affairs*, Vol. 40, No. 3, July 1964, p. 416.

¹⁴ McKnight, *op. cit.*, p. 239.

¹⁵ Brian Cathcart, “Obituary: Theodore Hall”, *The Independent*, 12 November 1999.

<http://www.independent.co.uk/arts-entertainment/obituary-theodore-hall-1125267.html>. The obituary stated: “Of all the scientists, diplomats and others who passed atomic secrets to Moscow – Fuchs, Maclean, Nunn May...and the rest – it is likely that only Fuchs was more valuable [than Hall] to the Soviet bomb programme.”

¹⁶ McKnight, *op. cit.*, p. 11.

¹⁷ Grabosky, *op. cit.*, p. 235.

project was in Britain's possession already, providing a strong starting point for a nuclear program, both civilian and military. After the war the country set up three new installations for the task: the Atomic Energy Research Establishment (AERE) at Harwell, near Oxford; the Windscale facility (later renamed Sellafield) in Cumbria, established to manufacture the required radioactive material, including plutonium; and the Atomic Weapons Research Establishment (AWRE) at Aldermaston to build the bombs themselves¹⁸. The director of AWRE, Professor Sir William Penney, features prominently in Chapter Four of this thesis as he was the British public face of the UK tests and appeared regularly in the Australian media between 1952 and 1956. Penney had been one of the UK physicists working on the wartime Manhattan project¹⁹ and in fact had been aboard an observer aircraft over Japan as the atomic bomb was dropped on Nagasaki²⁰. Penney, a former mathematical physics academic, was part of the scientific establishment in Britain with an unequalled reputation in nuclear weapons development and experimentation²¹. The country was at the forefront of the fundamental physics research that had made atomic weaponry possible, and so had some decided intellectual and technical advantages when planning its own nuclear program.

What Britain did not have, though, was space. When the UK prime minister at the time the atomic weapons development program was being designed, Clement Attlee, wrote to the Australian Prime Minister Robert Menzies on 16 September 1950²², seeking permission to use Western Australia's Monte Bello islands for atomic testing, Menzies was eager and readily agreed²³. This swift and apparently

¹⁸ Robert Milliken, *No Conceivable Injury*, Penguin Books Australia, Ringwood Victoria, 1986, p.27.

¹⁹ Lorna Arnold and Mark Smith, *Britain, Australia and the Bomb: The Nuclear Tests and Their Aftermath*, Second Edition, Palgrave Macmillan, New York, 2006, p. 14.

²⁰ *Ibid.*

²¹ *Ibid.* As Arnold reports, UK Conservative politician and science adviser Lord Cherwell commented to Winston Churchill about Penney: "He is our chief (indeed our only real) expert in the construction of the bomb and I do not know what we should do without him."

²² The Report of the Royal Commission into British Nuclear Tests in Australia, Vol. 1, AGPS, Canberra, 1985, p. 10.

²³ *Ibid.*, p. 11. Australian science journalist Ian Anderson, who uncovered the extent of plutonium contamination at the Maralinga test site, would later assert in a media interview that "the arrangement to do the testing...was stitched up in a telephone call between Robert Menzies and Clement Attlee..." (see p. 71).

single-handed assent was not all based on sycophantism – there is evidence that Australia under Menzies had aspirations to become a nuclear armed and powered nation in its own right, and co-operating with British atomic weapons development was a way to ensure support for this ambition and the development of the necessary knowledge and resources²⁴. In 1949, extensive uranium deposits had been discovered in the Northern Territory, at Rum Jungle. There would later be further discoveries in South Australia²⁵. These discoveries prompted serious reflection and speculation among Australian politicians about the prospects for future energy production from atomic power. In 1953, the Australian Parliament passed the Atomic Energy Act that established the Australian Atomic Energy Commission (AAEC), which was responsible for overseeing the development of atomic power²⁶, indicating a commitment to an atomic future²⁷. There are also suggestions that agreeing to assist Britain with its nuclear program would help guarantee protection by at least Britain and possibly the US as well if nuclear war loomed²⁸. Cawte asserts that Menzies had considerable nuclear ambitions on Australia's behalf, not just to do with weaponry but also in energy production and revenue from the export of uranium²⁹. She comments:

“As [Menzies] saw it, Australia's assent to the hosting of the British tests represented part of an unspoken agreement which obliged Britain to assist Australia's own atomic energy industry”³⁰.

In fact, in the mid-1950s, well into the British nuclear test program in Australia, Menzies – acting on the advice of Cabinet Minister Athol Townley and with support from influential people in his own party – sought to buy atomic weapons for the nation and approached then UK Prime Minister, Harold Macmillan, to

²⁴ Alice Cawte, *Atomic Australia 1944-1990*, New South Wales University Press, Kensington, 1992, p. xi.

²⁵ Tim Sherratt, “A Political Inconvenience: Australian Scientists at the British Atomic Weapons Tests, 1952-53”, *Historical Records of Australian Science*, 6(2), December 1985, p. 142.

²⁶ *Ibid.*

²⁷ During the later era of revelations about atomic matters, in the 1980s, it was revealed that one of the purposes of the proposed nuclear power reactors that Menzies was keen to build was the capacity to create weapons-grade plutonium for atomic weaponry. Paul Malone, “Bomb option for our reactors”, *The Canberra Times*, 19 May 1984, p. 1.

²⁸ Jacques Hymans, “Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949-1999”, *The Nonproliferation Review*, Spring 2000, p. 4.

²⁹ Cawte, *op.cit.*, p.xii

³⁰ *Ibid*, p.xi

discuss this prospect³¹. Evidence is strong and growing that “Menzies wanted the bomb”³², as well as wanting civilian forms of nuclear technology. One explanation for this active pursuit of a nuclear capability for Australia at that particular time was fear about the sudden and worrying rise of China as a communist, potentially nuclear-armed, power not far away geographically³³. An initial response from the UK Prime Minister Macmillan indicating that the US would not welcome the entry of another nuclear power to the small existing coterie of atomic nations later turned into some interest in creating a new market for British weapons, but in the end the push for Australia to be nuclear-armed came to nothing³⁴. Co-operating with Britain on nuclear weaponry did not in the end lead to an “atomic Australia”, although the aspirations Menzies had at the start of the agreement with the British to test nuclear weapons apparently were high. Menzies may not have been expected to know at the beginning of the nuclear test program just how tight the British would be with their information. But the evidence suggests that Menzies did not ask too many questions either³⁵. Most of what Menzies agreed to was not publicised at the time, and, as the Royal Commission into the British nuclear test program makes clear, he and his senior officials made active attempts to limit or deny media access to information. Indeed, in line with his long-standing willingness to impose restrictions on what the media could publish, Menzies consented to a new apparatus of information control that did limit how much the Australian public would know about the tests while they were underway, D-notices (see Chapter Five). Public information about the tests was so limited that the history of the British nuclear tests in Australia inevitably raises questions about the conduct of democracy at that time. In effect, the democratically elected Prime Minister of Australia, Robert Menzies,

³¹ Walsh, Jim, “Surprise down under: the secret history of Australia’s nuclear ambitions”, *The Nonproliferation Review*, Fall 1997, p. 4.

³² Wayne Reynolds, “Rethinking the Joint Project: Australia’s bid for nuclear weapons, 1945-1960”, *The Historical Journal*, 41, 3, 1998, p. 868.

³³ Hymans, *op. cit.*, p. 6. China became a communist state in 1949, and tested its first nuclear weapon in 1964.

³⁴ Walsh, *op. cit.*, p.4.

³⁵ The official historian of British nuclear industry, Margaret Gowing, said that Menzies had made an agreement to allow nuclear weapons testing “without striking a hard bargain over technical collaboration”. This quote was seized upon by McClelland during the Royal Commission, as Alice Cawte notes. Cawte, *op. cit.*, p. xi.

“lent Australia to Britain to test weapons”³⁶, without the consent of the people. As is outlined in Chapter Four, while there were some protests from the media about the near-complete silence that prevailed over the test program, little information emerged and the Australian public was largely oblivious to anything but the most superficial outline of the nuclear testing activities.

While Robert Menzies had responded to Clement Attlee’s 1950 request for a nuclear test site by offering Monte Bello without informing or consulting his Cabinet³⁷, when the time quickly came for the British to go much further into nuclear weapon development than they had been able to in the Hurricane test, some discussion about this did take place between Menzies and members of his Cabinet, though none outside. The McClelland Royal Commission concluded that the selection of a mainland test sites, first at Emu Field and later at Maralinga, had been made with “no independent advice or analysis and little consideration and consultation”³⁸. A special committee of Cabinet was set up to discuss the request from the UK government to establish a permanent site at Maralinga. After some wrangling, particularly on the issues of future possible compensation for service personnel and decisions over who should foot the bill for the test program (the UK wanted some Australian financial involvement), Cabinet entered into a formal agreement in 1956³⁹.

Clement Attlee had initiated the proposal to test British nuclear weapons in Australia, but he was defeated at a UK general election in October 1951, a year

³⁶ Author/s unknown, various articles under the heading “The A-bomb report”, *Sydney Morning Herald*, 6 December 1985, pp. 8-9. This terminology echoes the first conclusion of the McClelland Royal Commission into the British nuclear tests, which stated “The Royal Commission received no evidence to disturb the overwhelming impression that the original decision to lend Australia to the United Kingdom for the purposes of the latter’s nuclear tests program was taken by Australian Prime Minister Menzies without reference to his Cabinet.” *The Royal Commission into British Nuclear Tests in Australia Conclusions and Recommendations*, Australian Government Publishing Service, Canberra, 1985, p. 7

³⁷ Royal Commission Report Vol. 1, *op. cit.*, p. 11. While Cabinet was later allowed knowledge of the test program, not all members of Cabinet were kept informed of all relevant matters. A small sub-group of Cabinet, known as the Maralinga Committee of Cabinet, dealt with Maralinga decisions and in many cases did not consult with their wider Cabinet colleagues. This committee was made up of the Prime Minister Robert Menzies, the Minister for Supply Howard Beale, the Deputy Prime Minister Arthur Fadden and whoever held the positions of Defence Minister and either the Treasurer or Finance Minister. Milliken, *op. cit.*, p. 177.

³⁸ Royal Commission Report Vol. 1, *op. cit.*, 8.

³⁹ Milliken, *op. cit.*, p. 178.

before the first bomb was tested⁴⁰. This election returned to office the wartime UK Prime Minister, Winston Churchill, who, with the enthusiastic championing of his chief adviser Lord Cherwell, was as committed to Britain being a nuclear power as his predecessor Attlee had been⁴¹. The sentiment was shared in Australia and Australian zeal for working with the British on atomic weaponry and energy was broadly bipartisan at the time – in fact, under the Chifley Labor government in the immediate postwar years, steps had been taken to give Australia a role in nuclear technology. The then Minister for External Affairs, Herbert “Doc” Evatt, had declared just after the war that Australia was:

“...vitally interested in atomic energy, not only because of its military applications but also because of the vast industrial possibilities so important to a country which was believed at that time to have no indigenous oil and a limited supply of coal.”⁴²

Robert Menzies began his 16-year second tenure as Prime Minister in 1949 with a similar mindset, and in fact became well-known for his enthusiastic embrace of nuclear testing co-operation with Britain. Later, the Australian judge and former federal Labor politician who was to lead the 1985 Royal Commission into Maralinga, James McClelland, described Menzies’ actions in making Australian territory available for the tests as both “grovelling” and “insouciant”⁴³. This was by any measure a damning appraisal, but may need to be balanced by considering the climate of the time. As one of the Australian participants, the secretary of the Atomic Weapons Test Safety Committee (AWSTC) John Moroney (see Chapter Three), remarked in 1993, the times were different at the start of the agreement to test British weapons:

“[An] important ingredient in the general background is the closeness and strength of feeling between the two countries [UK and Australia]. It was a very tangible thing then, but virtually incomprehensible to many now”⁴⁴.

⁴⁰ Symonds, *op.cit.*, p. 10.

⁴¹ Milliken, *op. cit.*, pp. 38-39.

⁴² Symonds, *op. cit.*, p. 4.

⁴³ James McClelland, *Stirring the Possum: A Political Autobiography*, Penguin, Ringwood, 1988, p. 227.

⁴⁴ John Moroney, “Aide Memoire on Health Control and Surveillance in the Nuclear Tests in Australia”, unpublished briefing document, ARL, 24 December 1992, p. 1.

This close relationship certainly helped to secure the original agreement and set in train a long series of events that are still in the process of being resolved. The relationship between the UK and Australia, as described by Moroney, would alter during the nuclear tests saga and its aftermath. The initial willingness to agree to British requests would become less ardent over time, though it was still fairly apparent at the time the permanent site was ready for nuclear tests in September 1956. That year would become the apogee of official publicity for the atomic test program and for the UK-Australian relationship that had made it possible, as Chapter Four will show.

The name Maralinga has become shorthand for all British nuclear tests in Australia, but as mentioned previously tests were conducted at two other locations as well. The first British bomb was exploded aboard a Royal Navy frigate anchored at the Monte Bello islands, a low-lying, uninhabited island group about 120km off the northwest coast of Western Australia⁴⁵. The British returned to Monte Bello in 1956 for the two Mosaic bomb tests as well. The test series moved temporarily to Emu Field in 1953. This site is further inland than Maralinga in the South Australian desert and part of the huge Woomera guided missiles test range. Neither of these earlier sites was left as contaminated as Maralinga would become, largely because they were used for tests that involved only short-lived radio isotopes. It was only at Maralinga that a series of innocent-sounding “minor trials” – distinct from the mushroom-cloud atomic bomb blasts – released more than 20kg of one of the deadliest materials known, an isotope of plutonium known as plutonium-239 or ²³⁹Pu. The radioactive half-life⁴⁶ of this substance is more than 24,000 years. Plutonium is created in a reactor by bombarding uranium with neutrons. One of the team of physicists who created it in February 1941, Glenn Seaborg, said:

“[Plutonium] is unique among all of the chemical elements. And it is fiendishly toxic, even in small amounts.”⁴⁷

⁴⁵ Royal Commission Report Vol. 1, *op. cit.*, p. 103.

⁴⁶ Half-life: the time required for half of the nuclei of a radioactive isotope to undergo radioactive decay. See Appendix B for a glossary of terms.

⁴⁷ Glenn Seaborg, quoted in Jeremy Bernstein, *Plutonium: A History of the World's Most Dangerous Element*, University of New South Wales Press, Sydney, 2001, p. 105. In an earlier textbook on plutonium, Seaborg also commented that “[working] with plutonium is not an easy matter because of its radiological toxicity.” Glenn Seaborg, Foreword, in O J Wick, *Plutonium Handbook: A Guide to the Technology*, American Nuclear Society, Grange Park, 1980, p. v.

The plutonium-239 used in the Vixen B experiments at Maralinga was especially dangerous because of the persistence of its radioactivity. These days this isotope is subject to the strictest of controls on how it may be used (see p. 179 for a footnote that mentions current practice). The fact that the Maralinga plutonium was turned into a form that could be inhaled made it hazardous for anyone who encountered the dust of the area; the risks associated with inhaling it are well known:

“Inhaling [plutonium-239] would be very dangerous. It is estimated that if you inhaled 20 milligrams you would die of fibrosis in something like a month. Inhaling a milligram would certainly lead to lung cancer.”⁴⁸

More information about the specific dangers posed by the Vixen B plutonium tests at Maralinga may be found in Chapter Six.

Before the Maralinga site was commissioned the British test authorities had quickly become well versed in managing their atomic tests to their requirements, with little input from the Australians. In October 1953, a year after Hurricane, the Totem series of two tower-mounted atomic bomb tests was held at Emu Field. This was a comparative trial to examine the merits of two bomb types, the product of rapid British progress in nuclear weaponry research and development⁴⁹, already greatly advanced from the bomb of the Hurricane test the year before. William Penney, who had been knighted in recognition of his success in leading Operation Hurricane, was again trial director⁵⁰ and the operation was under strict British control. Nevertheless, Professor Ernest Titterton, who would in 1957 become head of the Australian Atomic Weapons Test Safety Committee (AWTSC), was given access to documents that set out the firing conditions and predicted contamination for the Totem series⁵¹, and generally was drawn into aspects of planning for the series. Titterton's role in the conduct of the British nuclear tests in Australia grew substantially and rapidly, and he became the most

⁴⁸ Jeremy Bernstein, *Plutonium: A History of the World's Most Dangerous Element*, University of New South Wales Press, Sydney, 2001, p. 158.

⁴⁹ Royal Commission Report Vol. 1, *op. cit.*, p. 137.

⁵⁰ Arnold and Smith, *op. cit.*, p. 49.

⁵¹ Royal Commission Report Vol. 1, *op. cit.*, p. 139.

knowledgeable of any member of the Australian test authorities. His AWTSC colleagues, Professor Leslie Martin and Alan Butement, witnessed the Hurricane and Totem tests, but were not party to the detailed information that Titterton received (see below). The fact that Titterton was a distinguished British nuclear physicist who had in May 1951 moved to the Australian National University in Canberra to head the department of nuclear physics meant that he had an existing connection to the British nuclear authorities, particularly through his work at the Atomic Energy Research Establishment at Harwell⁵². His association with the nuclear tests was firmly established well before Maralinga was commissioned.

The British authorities were keen to supplement the program of major bomb trials with smaller-scale experiments on a range of associated issues. Some early minor trials, code named “Kittens”, were held at Emu Field. These experiments were designed to test aspects of the design of bomb triggering devices known as initiators⁵³. Despite the obvious inadequacy of the Emu Field site, five Kittens experiments were held there. The Emu Field site posed significant logistical difficulties that ruled it out as a permanent test venue. Supply Minister Howard Beale told Menzies:

“Emu Field seems to be out of the question, mainly through shortage of water and difficulty of access...A...site north of Ooldea on the Trans-Continental Railway line has been selected as the one offering the most advantage.”⁵⁴

The search for the most suitable permanent test site began even before the Totem series was carried out at Emu⁵⁵, and Maralinga was quickly identified. It was still remote, but more amenable than Emu Field, with better roads and reliable water supplies, and enough flat land to construct an airstrip, a railway siding and a

⁵² Ernest William Titterton 1916-1990, Australian Academy of Science Bibliographic Memoirs of Deceased Fellows, Australian Science Archives Project, <http://asap.unimelb.edu.au/bsparcs/aasmemoirs/titterto.htm>. Ernest Titterton’s central role in the conduct of the nuclear tests in Australia features in various places in this thesis, most notably in Chapters Four and Six.

⁵³ Royal Commission Report Vol. 1, *op. cit.*, p. 141.

⁵⁴ Howard Beale, letter to Robert Menzies, “Future atomic tests in Australia”, 12 November 1953, National Archives of Australia Series No. A6456, Item R075/062.

⁵⁵ Royal Commission Report Vol. 1, *op. cit.*, p. 278.

village⁵⁶. The site was officially named Maralinga a month after Operation Totem and preparations began to test the local meteorological conditions for their potential effect on fallout⁵⁷. A formal agreement to carry out atomic tests at Maralinga was signed by the UK and Australian governments on 7 March 1956⁵⁸. The Memorandum of Arrangements indicated that Maralinga would be available to the British “for a period of 10 years which may be extended by mutual agreement”⁵⁹, and the area was made available rent-free⁶⁰. The agreement specified that no hydrogen (thermonuclear, fusion) weapons would be tested there, and that each test to be carried out would be separately agreed by the Australian government⁶¹. The document also provided for data from the tests to be shared with the Australians⁶². Later, the fact that this often did not take place increasingly became a point of contention for the Australian Government, as is shown in Chapter Six.

Maralinga had been decided upon as the permanent British nuclear test location despite what would these days be considered challenging, if not insurmountable, barriers. Such late 20th century notions as informed consent or occupational health and safety simply did not arise for Aborigines in the area or for service personnel who were posted to the test sites. The land selected was not uninhabited, but the Maralinga test series was being planned in the days when *terra nullius* was accepted in law⁶³, Aborigines were not counted in the national census and did not have the vote⁶⁴. This makes a comment by former head of the

⁵⁶ Arnold and Smith, *op. cit.*, p. 92.

⁵⁷ *Ibid.*

⁵⁸ Memorandum of Arrangements between the United Kingdom and Australian Governments, reproduced in Arnold and Smith, *op. cit.*, p. 287.

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² *Ibid.*, p. 288.

⁶³ Stuart Macintyre, *A Concise History of Australia*, Second Edition, Cambridge University Press, Port Melbourne, 2004, p. 32. The concept of *terra nullius*, or empty land, that gave a legal basis to crown ownership of Australian land on the grounds that the territory was uninhabited when claimed by the British, was overturned by the High Court of Australia in 1992.

⁶⁴ *Ibid.*, p. 234. Australian Aborigines started to get the vote, state by state, only from 1962, and it was not until a referendum in 1967 that they were finally included in the census. That referendum also changed the Australian Constitution to allow the Federal Parliament to enact legislation on Aboriginal affairs. Before this, legislation concerning Aboriginal life was the domain of State governments, and in some places Aboriginal people were governed under State Flora and Fauna Acts.

Atomic Weapons Test Safety Committee Ernest Titterton to the Royal Commission into the British Atomic Tests – that if the Aborigines in the area hadn't liked the testing they could have voted the government out – somewhat fanciful, since they did not have the right to vote at the time⁶⁵. The Royal Commission would reserve some of its most robust criticism for the way the Aboriginal peoples of the area were treated, with Commission chair James McClelland stating that:

“...the inescapable conclusion is that if Aborigines were not injured or killed as a result of the explosions, this is a matter of luck rather than adequate organisation, management and resources allocated to ensuring safety⁶⁶.”

The lands were not settled in the way most Westerners would think of settlement. Rather, they were traversed by people pursuing a lifestyle tens of thousands of years old, for hunting, water gathering or ceremonial purposes. Before the major tests began, the area had to be cleared and most Aboriginal people found there in various sweeps through by military personnel were either directed to a mission called Yalata, far south on the Great Australian Bight (there in many cases to later be ravaged by alcohol abuse⁶⁷), or were encouraged to make their way to the legendary Irish missionary Daisy Bates' old mission about 40km to the southeast, Ooldea, which had been officially closed down in 1952⁶⁸.

There is ample evidence, however, that individuals and small groups still walked across the lands after the tests began. In one incident revealed in the Royal Commission, the Milpuddie family – a man, a pregnant woman, two children and two dogs – was found huddled in a bomb crater by a member of the Royal Australian Engineers and hastily showered and shipped out (the dogs were said to have been shot in front of the family⁶⁹). The pregnant woman's baby was born dead⁷⁰. The Milpuddies, along with some other Aboriginal people found from

⁶⁵ Grabosky, *op. cit.*, p. 240.

⁶⁶ Royal Commission Report Vol. 1, *op. cit.*, p. 323.

⁶⁷ Milliken, *op. cit.*, p. 99.

⁶⁸ Royal Commission Report Vol. 1, *op. cit.*, p. 165.

⁶⁹ Grabosky, *op. cit.*, p. 238.

⁷⁰ Milliken, *op. cit.*, p. 221.

time to time in various contaminated areas, were given showers and driven out of the vicinity, a drive that often caused severe car sickness among people who had never travelled in a vehicle before⁷¹. In most cases, however, official ground patrols of the Maralinga range and adjacent areas simply turned Aboriginal people away, directing them to leave the test site⁷². The locals who had lived around the Maralinga lands were scattered north and south, some never to return, others eventually to find their way to an impoverished settlement that continues to struggle at Oak Valley, 160km northwest of Maralinga⁷³. Social problems have dogged the people of the Maralinga lands since the time of the tests. It was three decades before the Maralinga peoples were compensated: a \$13.5 million settlement was awarded by the Australian government in November 1994⁷⁴. On 18 December 2009 the Maralinga lands were officially handed back to the Tjarutja people⁷⁵.

During the time that the Maralinga site was active, a total of about 35,000 military personnel were based there⁷⁶. The personnel were mostly from the UK (about 25,000), bolstered by a smaller contingent of Australian personnel, with occasional attachments of military personnel from Canada, the US and New Zealand⁷⁷. All personnel were male, most were young and all were physically fit. A significant number of them were undertaking National Service⁷⁸. A small settlement was built to accommodate people working at the site, including a number of facilities intended to encourage camaraderie, such as a swimming pool, playing fields and theatre. By the Range Commander Colonel Solomon's account, it was a place of high morale:

“Considering the isolation of the area, the very trying climatic conditions for part of the year, and the diversity of the groups that make up the population, morale has been, and continues to be, remarkably high. Much

⁷¹ Grabosky, *op. cit.*, p. 238.

⁷² Royal Commission Report Vol. 1., *op. cit.*, p. 374.

⁷³ David Porter, “Atomic bomb lessons in the desert”, *Sydney Morning Herald*, 22 June 1988, p. 2.

⁷⁴ Sujatha Fernandes, “Maralinga: nuclear testing in Australia”, *Green Left Weekly*, 2 August 1995, p. 11.

⁷⁵ David Nason, “Owners to reclaim Maralinga bomb site”, *The Australian*, 10 November 2009, p. 7.

⁷⁶ Arnold and Smith, *op. cit.*, p. 255.

⁷⁷ Royal Commission Report Vol. 1, *op. cit.*, p. 277.

⁷⁸ Arnold and Smith, *op. cit.*, p. 255.

of this is due to the good ration scale, basic amenities provided, and the financial gain made by the majority serving in the area...”⁷⁹

The first major trial at Maralinga, Operation Buffalo, was held in September and October 1956 and involved four atomic bombs, one dropped from an aircraft, one exploded at ground level and two detonated from towers on the ground⁸⁰. The site had already been used for some early “minor trials”, non-nuclear tests of various kinds, but Buffalo was the first of the Maralinga mushroom cloud tests. The site was used only once more for major trials, Operation Antler in September and October 1957 involving three bomb firings (two on towers, one from a tethered balloon⁸¹), before an international agreement on a test ban moratorium, and a revived relationship between the UK and the US on nuclear testing, put an end to the major bomb tests, as will be recounted in Chapter Six.

On 21 July 1955, during preliminary surveying and commissioning of the Maralinga test range, the Australian Atomic Weapons Test Safety Committee (AWTSC) was formed⁸². The committee’s role was ambiguous and its establishment was not sought by the British test authorities. The Australian Government set up the AWTSC because it wanted to have a distinct part to play in the tests other than just providing the venue. Ostensibly, the AWTSC was established to evaluate safety aspects of the tests from 1955 onwards, including the minor trials, and to act as a conduit between the UK test authorities and the Australian government. In reality, at least according to some participants, it did not play a significant role in advising the British on safety matters.

“The Safety Committee was...used as a means of reassurance, to convince the public that its fears were groundless...[T]he Safety Committee’s role was as much concerned with public relations as it was with scientific safeguards.”⁸³

⁷⁹ Colonel G D Solomon, Range Commander, Report on the Maralinga Range, 9 December 1959, National Archives of Australia, Series No. A6456, Item R047/022.

⁸⁰ Royal Commission Report Vol. 1, *op. cit.*, p. 277.

⁸¹ *Ibid.*, pp. 351-352.

⁸² *Ibid.*, p. 234.

⁸³ Sherratt, *op. cit.*, p. 149.

This view was not shared by the Safety Committee members themselves, who saw the maintenance of safety standards as the prime motivation for the committee's existence. A journal article published in October 1958 and written by Ernest Titterton and his fellow AWTSC members indicates that in their view the committee:

“...was responsible for ensuring that chosen firing conditions [for nuclear tests] could not lead to damage of life or property on the continent [of Australia].”⁸⁴

The committee was established to report to the Prime Minister, through the Minister for Supply⁸⁵. Prime Minister Menzies, in a letter to his then Minister for Civil Aviation (later Defence Minister) Athol Townley in May 1955, specifically requested that the new safety committee:

“...must include members who are sufficiently well-known to command general confidence as guardians of the public interest, and who are not in any way to be identified as having an interest in the defence atomic experiments.”⁸⁶

The AWTSC was a contentious body in the context of this case study, particularly when headed by the British physicist Ernest Titterton from 1957 onwards. The 1985 McClelland Royal Commission concluded that Ernest Titterton was responsible for keeping the flow of information between the AWRE and the Australian government to a minimum during the tests at Maralinga, most particularly crucial details about the dangerous nature of the minor trials. This was found by the Royal Commission to be contrary to the intended role of the AWTSC, to oversee all aspects of safety for the test program and to keep Australian authorities informed about safety measures. The AWTSC was initially chaired by Professor (later Sir) Leslie Martin and had four members: Ernest Titterton, Department of Supply public servant Mr Alan Butement, director of the

⁸⁴ Atomic Weapons Test Safety Committee draft of journal article, “Radioactive Fallout Australia from Operation Buffalo”, later published in the *Australian Journal of Science* Vol. 21 No. 3, October 1958, in National Archives of Australia Series No. A6456, Item R055/011.

⁸⁵ Royal Commission Report Vol. 1, *op. cit.*, p. 234.

⁸⁶ Menzies letter to Townley, 16 May 1955, quoted in J L Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968, National Archives of Australia, Series No. A6456/3, Item R023/003.

Commonwealth X-ray and radium laboratory in Melbourne Dr Cecil Eddy and vice-chancellor of the University of New South Wales and deputy chair of the Australian Atomic Energy Commission Professor Phillip Baxter⁸⁷. Martin, Titterton, and Butement had all witnessed the Hurricane and Totem tests⁸⁸, as noted earlier, although their roles at those tests – before the establishment of the AWTSC – were undefined. Of all the members of the AWTSC, Titterton was closest to the British and enjoyed their trust and high professional standing.

“The invitation from Penney [for Titterton to attend Hurricane] appeared to be part of a ‘private arrangement’...Titterton was a knowledgeable and articulate man who had a thorough understanding of atomic weapons. Although only a fairly recent arrival from Britain, he had been accepted as a senior Australian academic and scientist. In addition, he had worked on one of the world’s most highly secret projects and thus his reliability seemed assured.”⁸⁹

This high opinion was shared by his Australian employers, who recognised that his level of experience and competence in atomic weaponry was unmatched by any other scientist at that time in Australia. It seemed that the AWTSC was an ideal place for his talents and experience to be utilised by the Australian government. The committee dealt with scientific and technical detail that Titterton was well placed to understand. As the long-time AWTSC secretary John Moroney recalled:

“...while the AWTSC had no responsibility on-site, it was often consulted by the Government for advice on operational matters at Maralinga because it was the only Australian agency informed on the scientific aspects of the trials and their likely impact.”⁹⁰

Titterton developed a strong power base within the AWTSC. He witnessed all the major trials⁹¹ and was to become the sole official Australian conduit for test information from the AWRE. As will be shown in the chapter on Vixen B (Chapter Six), the officials from the Australian government departments who dealt with Maralinga came to regret ceding so much control to Titterton and ultimately

⁸⁷ Symonds, *op. cit.*, p. 267 and Milliken *op. cit.*, p. 77.

⁸⁸ Sherratt, *op. cit.*, pp. 144-148.

⁸⁹ *Ibid*, p. 144.

⁹⁰ Moroney, Aide Memoire Health Control, *op. cit.*, p. 1.

⁹¹ Arnold and Smith, *op. cit.*, p. 28.

severely curtailed his power. Both the Royal Commission and Titterton's former colleague John Moroney later concluded that Titterton closed off information to the detriment of the Australian government. Moroney, whose work in the early 1990s to uncover British deceit about the level of plutonium contamination informed the landmark Maralinga story by Ian Anderson (see Chapter Three), was intimately acquainted with the atomic test program at Maralinga. Not long before his death in 1993, Moroney was planning to write about what he knew and had prepared several aides memoire to this end, as well as to assist Anderson by providing background. These materials reveal that Moroney was always careful to ensure that the latter day reader would understand the mindset of the times that led to the creation of the Maralinga test site:

“A major ingredient in depicting the general background is to convey some sense of the perceptions of the period, which, I suppose, allowed these nuclear tests to be conducted essentially as military operations, with the expectation on personal compliance and commitment that this implies.”⁹²

Ernest Titterton was notably willing to behave with the strictest of secrecy, in some cases against the interests of the Australian government. The ramifications of Titterton's approach to information flow were particularly serious in relation to the later minor trials that were instigated only after the major bomb tests had ended (see Chapter Six). Once Operation Antler was completed in October 1957, the Maralinga site did not shut down. On the contrary, it was busier than ever with hundreds of tests that continued until April 1963. The minor trials, also known by several other innocuous names such as “assessment tests” or “the Maralinga Experimental Programme” and conducted in various stages and locations from 1953 to 1963, had diverse objectives and a variety of enigmatic code names such as Kittens, Tims and Rats. The minor trials that left the biggest legacy of radioactive pollution were called Vixen B and involved hundreds of non-nuclear explosions and deliberate destruction intended to test how bombs and related paraphernalia would behave if, for example, a plane laden with nuclear warheads crashed on take-off. All 12 Vixen B experiments were undertaken between 1960 and 1963 from firing pads at the far north-west of the Maralinga

⁹² John Moroney, Aide Memoire on Health Control, *op. cit.*, p. 1.

range at a site called Taranaki⁹³, which was the focus of later concern about the most severe plutonium contamination at the test ground. According to evidence presented to the Royal Commission, a survey of the Taranaki site by the then Australian Radiation Laboratory (now ARPANSA):

“...estimated that there were between 25 000 and 50 000 plutonium-contaminated fragments in the Taranaki area, although the number might need to be doubled if missed and buried fragments were included...The finding of this large number of plutonium-contaminated fragments was a surprise and changed the whole concept of hazard assessment of the plutonium-contaminated areas.”⁹⁴

This reassessment involved considering issues beyond inhalation of plutonium-contaminated dust, but also whether other ingestion pathways, such as through open wounds, might be possible:

“...because many of the fragments contained more [radio]activity than an individual was allowed to ingest over a year.”⁹⁵

Vixen B involved blowing up ²³⁹Pu with conventional explosives. Nuclear warheads strapped about two metres above the ground to metal frameworks called “feather beds” were subjected to so-called “one-point” safety trials; detonating one point in a matrix of, say, 32 points of high explosive that must all explode in a rapid sequence in order to ignite an atomic blast⁹⁶. Contained within the bundle of explosives was a sphere of plutonium and a number of surrounding rods of the metallic substance. When the high explosive was detonated, the plutonium was compressed and became molten. The plutonium aerosol was blown high into the sky, into narrow plumes stretching many kilometres out in a hand-like shape over the northwest to northeast from the Taranaki site⁹⁷. The one-point trials were intended to show that igniting one point in the matrix was not sufficient to set off the nuclear fission of an atomic blast, and in this aim they were successful, at least

⁹³ See site map on p. 6.

⁹⁴ Royal Commission Report Vol. 2, *op. cit.*, p. 550.

⁹⁵ *Ibid.*

⁹⁶ Peter Burns and Geoff Williams, interview with Liz Tynan, ARPANSA, Melbourne, 15 April 2004.

⁹⁷ Alan Parkinson, *Maralinga: Australia's Nuclear Waste Cover-up*, ABC Books, Sydney, 2007, p. 6.

for low-yield weaponry⁹⁸. The one-point problem had been a significant issue in US weapons testing⁹⁹, requiring considerable experimentation to prove that transporting nuclear warheads was safe. The British followed the lead of the Americans in seeking to determine the risks associated with transportation¹⁰⁰. It is (fortunately) quite difficult to set off a nuclear bomb, even in the event of an accident, as the Vixen B series showed. More detailed information on Vixen B may be found in Chapter Six.

As a direct result of the Vixen B tests, the feather beds, and lots of other equipment and buildings in the area, became impregnated with the most dangerous isotope of plutonium, ²³⁹Pu, as the explosions created a kind of “dirty bomb”, releasing significant quantities of radioactive material into the atmosphere and subsequently onto the ground surrounding Taranaki. While these tests were not intended to produce nuclear reactions, in the event, and as had been secretly predicted by the British – see Chapter Six – fission and fusion reactions did occur during these experiments and this fact led to considerable later condemnation of the Vixen B tests, particularly in the Royal Commission and in later detailed media analyses.

While the Vixen B test series used the bulk of the ²³⁹Pu that contaminated the site, various isotopes of plutonium were used extensively in other minor trials. In one trial known as Tims, half a kilogram of weapons-grade plutonium was fired into a pad filled with salt, and six drums containing the contaminated salt were then buried at the Maralinga airport cemetery. This plutonium was mostly ²³⁹Pu, but contained some shorter-lived plutonium isotopes, ²⁴⁰Pu and a tiny amount of ²⁴¹Pu¹⁰¹. The plutonium from this test was repatriated to Britain in 1979, the only plutonium from Maralinga that was recovered¹⁰². This plutonium also became the centre of a media controversy in 1978 when its airport burial site was revealed in a

⁹⁸ John Moroney, “Aide Memoire on the nuclear tests in Australia in the context of the British weapons development program”, unpublished briefing document, 24 December 1992, p. 7. Moroney states: “The 12 [Vixen B] ‘one-point’ tests were apparently successful, although what they specifically achieved has not been revealed.”

⁹⁹ Arnold and Smith, *op. cit.*, p. 224.

¹⁰⁰ *Ibid.*

¹⁰¹ Geoff Williams, ARPANSA, pers. corres. 27 July 2010.

¹⁰² Milliken, *op. cit.*, p. 268.

secret Cabinet submission that was leaked to the journalist Brian Toohey (see Chapter Seven).

Many of the Vixen B tests melted the plutonium and sent it up to 1,000 metres into the air. Plutonium is pyrophoric – it burns on contact with air – and when blown up with explosives in the test program it produced an aerosol of plutonium oxide particles that spread out from the Taranaki site¹⁰³. These high explosive tests, which went on after the major atom bomb tests had finished, were brought to a halt only in 1963 when both Britain and Australia became signatories to the United Nations partial test ban treaty that outlawed atmospheric testing¹⁰⁴. An earlier moratorium on nuclear weapons testing, instituted in 1958 and running to 1961¹⁰⁵, may have been knowingly subverted by the British test authorities in the case of Vixen B tests, largely through the use of innocuous names (“minor trials”, “assessment tests”) and by keeping the Australian government surprisingly ignorant of what the tests involved.

“Both [the UK and US] believed that these [one-point] studies were not nuclear weapons tests within the terms of the moratorium, but they were anxious not to be seen to be infringing the terms in any way. Accordingly, they performed the tests on reduced assemblies of the fission triggers to ensure that any nuclear yield was small, and conducted them under tight security, away from prying eyes.”¹⁰⁶

By the time the Vixen B series began in 1960, Britain had established an agreement with the newly-amenable Americans and had returned to Los Alamos and Nevada to carry out underground bomb testing as well as embarking upon a series of almost identical safety tests¹⁰⁷. These trials conducted with the Americans and code named Roller Coaster were to prove significant when *New*

¹⁰³ Interview with Williams and Burns, 2004, *op. cit.*

¹⁰⁴ Symonds, *op. cit.*, p. 533. The official name for the partial test ban treaty was: Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water. It was signed in Moscow on 5 August 1963.

¹⁰⁵ John Moroney, Aide Memoire on Health Control, *op. cit.*, pp.1-2.

¹⁰⁶ *Ibid.*

¹⁰⁷ Moroney provides an overview of these one-point trials in his “Aide Memoire on the nuclear tests in Australia in the context of the British weapons development program”, unpublished briefing document, 24 December 1992. In this he states that the Los Alamos equivalent of the Vixen B tests, Operation Roller Coaster, were conducted in 1960 and 1961 and involved 35 tests. A smaller number of tests was carried out at Nevada.

Scientist's Ian Anderson later came to write about how much the British knew about contamination at Maralinga, as Chapter Three shows.

At the conclusion of the Vixen B minor trials, a substantial area around the Taranaki test site at Maralinga was saturated in plutonium. Plutonium is picked up readily in dust and can swirl around the landscape, inhaled into the lungs of anyone in the vicinity. It is an insoluble particle that, if breathed in, lodges in the lungs where it can stay throughout a person's lifetime and irradiate its surroundings, possibly causing lung cancer. The risk is precisely proportional to dose. If a person breaths in enough plutonium-239 to receive a dose of one millisievert (a unit of biological absorption of ionising radiation) the risk that he or she will get lung cancer is about one in 20,000¹⁰⁸. If a person ingests or inhales enough to receive a dose of 100 millisieverts then the risk is one in 200 of getting cancer¹⁰⁹. As Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) scientist Peter Burns says, "it is not the sort of thing you can leave lying around the surface"¹¹⁰. Burns was a member of a small team of radiation scientists from what was then called the Australian Radiation Laboratory (ARL) who went to Maralinga in 1984 to measure residual radiation. They found that the plutonium on the ground at Maralinga was not enough to kill people "in the here and now" through radiation sickness, but if swirled around in dust and inhaled, it could lodge in human lungs and cause cancer over time. Given the "dusty lifestyle" of the original inhabitants of the area, this was a major, unacceptable risk according to accepted international guidelines on the use of radioactive substances¹¹¹.

¹⁰⁸ Interview with Williams and Burns, 2004, *op. cit.*

¹⁰⁹ *Ibid.*

¹¹⁰ *Ibid.*

¹¹¹ While the AWRE maintained at the time of the Vixen B tests that protocols laid down by the International Commission on Radiological Protection (ICRP) had been followed (see Pilgrim, R, Maralinga Experimental Programme 1960 Safety Statement, National Archives of Australia Series No. A6455, Item RC371), subsequent revelations in the early 1980s about the amount of plutonium contamination around Taranaki showed that these assurances were unfounded. The ICRP protocols relevant to the British tests had been established in 1950 and were updated several times during the test program, most notably in 1958. By the time of Vixen B these protocols clearly differentiated between stochastic and deterministic radiation effects (see Chapter Six) and had established that there was no threshold above which exposure became dangerous. Royal Commission Report Vol. 1, *op.cit.*, pp. 70-71. The Royal Commission concluded that "There were departures, some serious and some minor, from compliance with the prescribed radiation protection policy and standards during the test program." Royal Commission Conclusions and Recommendations, *op. cit.*, p. 12.

The other risk, of visitors to the site picking up “souvenirs” to place on the mantelpiece, from where the objects would emit their radiation, was also unacceptable under these guidelines. To this day, no-one knows if such mantelpiece ornaments are still out there – there was a period of several years during the 1970s when the test range was not patrolled and anyone visiting the area could have picked up a lump of plutonium-soaked rock¹¹². Scientists later found that rabbits around the Taranaki site had taken up a variety of radioisotopes in their fur, including ²³⁹Pu, and this was cause for some consternation in 1979 as the Maralinga story was breaking in the Australian media¹¹³.

The conduct of the British atomic test program in Australia was found by the 1985 McClelland Royal Commission to be deeply flawed. The program was also found to have left an unacceptable level of contamination that required remediation. The Royal Commission did allocate some blame for the way the tests were conducted. The report of the Royal Commission reserved a large part of that blame – particularly concerning government-to-government communication – to Ernest Titterton in his role as head of the AWTSC. While he is not directly mentioned in Ian Anderson’s pivotal 1993 *New Scientist* story, Titterton’s role in the Maralinga saga and the cover-up that Anderson found many years later is critical for understanding the context for the story that finally appeared. Titterton became head of AWTSC in 1957, taking over from Professor Leslie Martin of Melbourne University, who (as mentioned previously) had chaired the AWTSC since its formation in 1955¹¹⁴. Titterton had been a member of the AWTSC from its inception, and remained chair until it was

¹¹² The Commonwealth Police had provided security services at the Maralinga site throughout the test program and after, until 1 March 1974. In December 1976, the Australian Federal Police resumed surveillance of the site. In the intervening two and a half years, two civilian caretakers were present on site. P C Crouch, F J P Robotham and G A Williams, Submission to the Senate Foreign Affairs, Defence and Trade Committee on the Australian Participants in British Nuclear Tests (Treatment) Bill 2006; and the Australian Participants in British Nuclear Tests (Treatment) (Consequently Amendments and Transitional Provisions) Bill 2006, 25 October 2006.

¹¹³ A report by South Australian scientists in 1979 raised fears over the rabbit issue. They said in part: “It is possible for rabbits, that are notorious for their ability to excavate burrows in almost any material, to gain access to the [Taranaki test debris burial] pits by simply burrowing under the six inch concrete slabs...As we are discussing products that have half a life of 24,000 years, it would seem almost a statistical certainty that in some time in the future the rabbits may have access to a pit.” Quoted in Milliken, *op. cit.*, p. 270.

¹¹⁴ Royal Commission Report Vol. 1, *op. cit.*, p. 235. When Titterton became AWTSC chair in 1957, the committee was reconstituted to have three, instead of five, members. As well as Titterton, the members were L J Dwyer, director of the Commonwealth Bureau of Meteorology, and Donald Stevens, Director of the Commonwealth X-ray and Radium Laboratory.

reconstituted as the Australian Ionising Radiation Advisory Council (AIRAC) in 1973, at which point he was not invited to continue¹¹⁵. He had originally come to Australia in 1950 at the invitation of Professor (later Sir) Mark Oliphant, the great Australian physicist who had first made his name at the legendary Cavendish Laboratory at Cambridge, working with nuclear physics pioneer Ernest Rutherford¹¹⁶. Oliphant wanted Titterton to become foundation chair of nuclear physics at the new Australian National University (ANU) in Canberra, where tempting new research in nuclear and particle physics was planned: big, accelerator-based physics that continues to this day. Oliphant, once a scientific insider in the race to create a nuclear weapon, later became an opponent of such weapons, and hence fell out with Titterton, and was effectively barred from any involvement in the British tests¹¹⁷. A “creature of the British atomic weapons testing establishment”¹¹⁸, Titterton had been part of the wartime Manhattan Project, a brilliant young physicist who had developed an expertise in high-speed electronic triggering mechanisms. He detonated the world’s first ever atom bomb, in the Trinity test in the New Mexico desert on 16 July 1945¹¹⁹. He had later contributed to the US bomb tests at Bikini Atoll in the Pacific, as an adviser on instrumentation and assistant to the scientist in charge¹²⁰, before taking up a position with the UK Atomic Energy Research Establishment at Harwell¹²¹. His career record shows someone committed to the development of Western nuclear weaponry. According to a nuclear physics colleague from the ANU, Professor John Newton:

“Unlike some of his contemporaries, [Titterton] felt no guilt regarding his part in the development of these weapons...He was of the opinion that it was much better that the Allies first produced them rather than Hitler’s

¹¹⁵ J O Newton, “Ernest William Titterton 1916-1990”, *Historical Records of Australian Science*, Vol. 9, No. 2, 1992, p. 179. AIRAC, which later produced a report on radioactive fallout from the Maralinga tests that was much-criticised by the Royal Commission, had a broader remit than that of the AWTSC. It was established to assess any uses of ionising radiation in Australia. It initially reported to the Minister for Environment and Conservation, Moss Cass. Cabinet Minute, 16 April 1973, Decision No. 522. National Archives of Australia Series No. A5915, Item 258.

¹¹⁶ Trevor Ophel and John Jenkin, *Fire in the Belly: the first 50 years of the pioneer School at the ANU*, ANU, Canberra, 1996, p. 136.

¹¹⁷ Milliken, *op. cit.*, p. 87. See also, Sherratt, *op. cit.*, p. 148.

¹¹⁸ Williams interview, 2004, *op. cit.*

¹¹⁹ Milliken, *op. cit.*, p. 66.

¹²⁰ Sherratt, *op. cit.*, p. 144.

¹²¹ *Ibid.*

Germany, that their use in Japan had saved many US and Japanese lives, and that fear of their use had kept, and would most probably continue to keep, the peace between the major powers.”¹²²

Titterton strongly defended his role at Maralinga when questioned by the Royal Commission. He bristled under questioning by counsel assisting the Royal Commission about his role in denying information to the Australian government and pointed to US and UK secrecy agreements to which he had been subject¹²³. He went on defending his actions at Maralinga throughout the aftermath of that enquiry, including in the post-Royal Commission media stories that dissected the British tests (see Chapter Seven). The 1985 Royal Commission report, a document that displays an uncommon level of ironic humour and controlled outrage, mentions in several places Ernest Titterton’s “special relationship” with the British Atomic Weapons Research Establishment (AWRE) in the UK¹²⁴. The Royal Commission effectively found that Titterton’s role at Maralinga was to be the AWRE man on the ground, and thereby to limit the information provided to the Australian government. McClelland would later write that:

“[i]t would be hard to imagine anyone less suitable than Titterton to be entrusted with a task which called for disinterested concern for the safety of the Australian population from nuclear radiation”¹²⁵.

The extent of the Royal Commission’s report criticism of Titterton has led to some suspicions that the process was something of a political witch-hunt. One commentator described the Royal Commission itself as “a spectacle of national revenge”¹²⁶, and part of that revenge was taken on one of the most prominent participants. An account of Titterton’s career, written two years after his death by John Newton, tells a somewhat more sympathetic story. In disputing the criticism of Titterton in the Royal Commission report, Newton says:

¹²² Newton, *op. cit.*, p. 173.

¹²³ Milliken, *op. cit.*, p. 85.

¹²⁴ Royal Commission Report, Vol. 2, *op. cit.*, p. 515.

¹²⁵ McClelland, *op. cit.*, p. 216

¹²⁶ Graeme Turner, “Of rocks and hard places: The colonized, the national and Australian cultural studies”, *Cultural Studies*, 6: 3, 1992, p. 429.

“The statement that Titterton was ‘from first to last, “their man” ‘ rejects any other interpretation of his actions. It appears contrary to the attitude that the Commission adopted in other cases.”¹²⁷

ANU colleagues, who in many cases knew Titterton well, have consistently defended him, while acknowledging his shortcomings. The late Professor Trevor Ophel, a nuclear physicist who had been a student of Titterton’s and went on to co-write a history of the ANU Research School of Physical Sciences and Engineering, said regarding the character assassination of Titterton in the Royal Commission:

“[r]arely has it been more evident that the past is the proper territory of thoughtful historians. Hindsight, conditioned by political and scientific changes evolving over a thirty year period, cannot and should not be used to judge the past”¹²⁸.

Ophel noted that Titterton had been “accused of near treason” by the Royal Commission¹²⁹. It is striking to see how far his reputation had deteriorated by then, from respected scientist and confidante of the British nuclear weapons establishment at the time of the tests to Australian pariah much later. Nevertheless, a certain relish for the battle can be detected in Royal Commission chair James McClelland’s account of his joust with Titterton. McClelland described Titterton as “[o]ne of the most interesting witnesses on the scientific side”¹³⁰. He went on to say:

“[i]n the witness box Dr Ernest Titterton came across as a sort of Dr Strangelove figure. So gung-ho about all things nuclear that he gave me the impression that radiation was nothing to worry about and could almost be considered good for people”¹³¹.

And this: “Titterton, to me, represents the archetype of the morally obtuse specialist”¹³². Years after Titterton’s death, McClelland’s assessment of the former head of the safety committee had not softened. In a comment that

¹²⁷ Newton, *op. cit.*, p. 179.

¹²⁸ Ophel and Jenkin, *op. cit.*, p. 138.

¹²⁹ *Ibid.*

¹³⁰ McClelland, *op. cit.*, p. 213.

¹³¹ *Ibid.*, p.214.

¹³² *Ibid.*, p.216.

encapsulates something of the scientific elitism that the Royal Commission Chair had so disliked and had endeavoured to expose, McClelland said:

“[Titterton had] become totally obsessed with nuclear physics.”¹³³

One prominent chronicler of the British nuclear tests, the Australian journalist Robert Milliken, asserted that at the time of the Royal Commission “both men [Titterton and McClelland] were then aged 69, robust, vain and possessors of particularly sharp and competitive minds”¹³⁴. They were bound to clash, he maintains, because they were so similar. Whatever the rights and wrongs of the case against Titterton in the Royal Commission, there is little doubt that Titterton made a strong impression on people. Nearly everyone who came into contact with him has a story to tell, and not all stories are flattering¹³⁵. This man was in charge of the flow of all test information from the British to the Australian government at the time of the minor trials and afterwards. As radiation scientist Peter Burns puts it:

“...he knew all the British weapons people and they told him what they were doing and he told the Australian government that it was all right. A lot of information closed off there”¹³⁶.

Strictly limited flow of information is one of the prime characteristics of the Maralinga story. The British nuclear authorities kept the detailed information about their test activities largely to themselves, although they did admit Titterton into the small group of people who were permitted a detailed understanding of the tests. Although Titterton was given responsibility by the Australian government to act as a trusted intermediary between the two governments, the evidence

¹³³ James McClelland, transcript of interview with Robin Hughes, Australian Biography Project, www.australianbiography.gov.au/subjects/mcclelland/interview6.html.

¹³⁴ Milliken, *op. cit.*, p.67.

¹³⁵ The overall impression from the many accounts of Titterton's behaviour is that he was a larger than life, insensitive and opinionated man with considerable intellectual snobbery who crashed through any barrier. Sometimes he crashed through physically. Radiation scientist Peter Burns tells of working for the AWTSC where he had an office right next to the front door, “...and you would know when Titterton had arrived because the front door would rocket back on its hinges and smash against the back wall, and he would stomp up the stairs snivelling and snorting. At the end of the day he would stomp down the stairs and smash the door open to make this exit.” Peter Burns, interview with Elizabeth Tynan at ARPANSA, 15 April 2004.

¹³⁶ *Ibid.*

suggests that he restricted the amount of information made available to the Australian government. While Titterton was not directly responsible for dealing with the Australian media at the time of the tests, the AWTSC was the sole Australian-based scientific authority that could authorise media statements on scientific aspects of the tests, so there was an indirect information pathway between Titterton and the media. Also, Titterton himself did participate in carefully managed media activities, most particularly the provision of feature articles that were published under his byline (see Chapter Four). These articles were filled with assertions about the safety of nuclear testing in Australia, assertions that were not seriously challenged by the media. By the time of Vixen B, however, all of those officially concerned with the tests, including Titterton and the Safety Committee, were silent in the media and the utmost secrecy prevailed over Maralinga. This legacy of secrecy provided the backdrop for Ian Anderson's 1993 story in *New Scientist*, as the next chapter reveals.

Chapter Three

Dirty deeds: Ian Anderson and the uncovering of Maralinga

I was really angry when I read all the reports, then we got out there and suddenly found ourselves knee-deep in plutonium.

ARPANSA scientist Peter Burns, part of a team of radiation specialists who surveyed the Maralinga test site in 1983-84, 2004

The scene is set for a heated debate.

Ian Anderson, "Britain's dirty deeds at Maralinga", *New Scientist* June 1993

Uncovering the true nature of the plutonium tests at Maralinga was a significant and celebrated journalistic achievement. It required sophisticated journalistic skills, informed by a strong understanding of science and an ability to get at hidden information and make sense of it. The story titled "Britain's dirty deeds at Maralinga" that appeared in the British-based weekly science magazine *New Scientist* on 12 June 1993 was considered by the people who provided its source material, and by the peers of the journalist who wrote it, to be a landmark story that went further than ever before in uncovering the truth of the hidden atomic tests, the minor trials. It was written by Ian Anderson, Australian editor of *New Scientist* and a pioneering science journalist who played a significant role in establishing science journalism as a distinct profession in Australia¹. The story received two major Australian awards for science journalism and appears to have been a factor influencing the course of ministerial level talks between Australia and the UK to negotiate a monetary contribution from the UK government to help clean up the Maralinga site. This story marked the first time that the extent of contamination of the infamous desert test range had been made public. Maralinga secrets had been revealed incrementally over many years since the tests were held between 1952 and 1963 but Anderson was the first to show publicly how much plutonium contamination remained at the site. More than that, Anderson's story revealed that the true level of contamination had been known by the British

¹ Ian Anderson was a leading contributor to the development of Australian science journalism, not only through his position as Australian editor of *New Scientist* but also through foundation and leadership roles in the main professional organisation for science journalists and communicators, Australian Science Communicators, and his initiation of ScienceNOW, the festival of new science held in Melbourne. In Anderson's obituary in *New Scientist*, Tim Thwaites said: "No-one has contributed more than Ian to the promotion of Australian science and technology to the world. Through the excellence of his reports in *New Scientist* and other publications, he presented Australian research to an international readership." Tim Thwaites, "In Memoriam", www.sciencenow.org.au/in_memorium.htm

authorities but covered up. The story contributed “moral pressure”² at a crucial moment, opening for public debate disturbing new information that raised fundamental questions about the very nature of the Australia-UK relationship.

Anderson had a ready analogy when he discussed his story publicly: at that time the Australian cricket team was at Lords cricket ground in London playing England in an Ashes series. He reminded listeners on several radio shows that Australia was facing “the old enemy in another arena”³. The theme of ongoing battle between traditional adversaries was especially resonant as Anderson was publishing his bombshell in a popular British publication with a large British readership. An editorial comment piece in the same edition supported Anderson’s story but contained a qualifier that hinted at the publication’s British loyalties⁴. As the Australian cricket team faced the bowling attack at Lords, Australian ministers Simon Crean and Gareth Evans were about to hold meetings with their British counterparts in the finale of a long-running dispute to obtain monetary compensation for the contamination at Maralinga to fund a large-scale clean-up operation. The then-armed forces minister for Britain, Archie Hamilton, had stated in the UK House of Commons on 1 April 1993 that Britain had no further obligations in relation to Maralinga⁵. Minister Hamilton and others in the UK government believed that all responsibility had been signed away in a joint agreement in 1968 based upon a report prepared by the nuclear scientist Noah Pearce for the UK’s Atomic Weapons Research Establishment (AWRE) and following what later proved to be an ineffectual clean-up called Operation Brumby at the Maralinga site in 1967⁶. While a document absolving Britain of further responsibility had indeed been signed at that time, Anderson’s story asserted that Australian government did not know when they signed that document that the British test authorities were aware that Maralinga would remain toxic for tens of thousands of years into the future. Anderson’s story helped

² Ian Anderson, Statement in support of application for a Michael Daley Award, 29 September 1993.

³ Ian Anderson, commentary on The Science Show, host Robyn Williams, ABC Radio National, 12 June 1993.

⁴ See p. 70 of this thesis for the quote from the editorial.

⁵ Ian Anderson, “Britain’s dirty deeds at Maralinga”, *New Scientist* 12 June 1993, p. 13.

⁶ Royal Commission Report Vol. 2, *op. cit.*, p. 541.

establish that the 1968 agreement should be set aside in the light of clear evidence that the contamination was more severe than the Australian government had been informed at the time of the agreement.

Ian Anderson was not the first to write about the Cold War-era Maralinga atomic tests in the South Australian desert, and he will not be the last. Books, learned articles, radio shows, TV documentaries and newspaper stories started emerging in 1978 as the story opened up for belated public scrutiny. The issue remains contentious, with people such as Alan Parkinson, sacked from the late 1990s cleanup project⁷, and Jim Green, an anti-nuclear activist⁸, continuing to engage in public criticism of what then Australian Prime Minister John Howard called the “world’s best practice clean up” at its completion in 2000. A Background Briefing documentary on ABC Radio National in 2000 showed much ongoing controversy⁹. Nevertheless, Anderson’s story appeared at a crossroads moment in the history of this particular example of nuclear colonialism, on the eve of bilateral talks on the still-festering problem of the toxic old site. Anderson’s story made public strong evidence that the British nuclear authorities had lied to the Australian government. Their motives for doing this were less to do with malice and more to do with colonial pragmatism – the British wanted nuclear weapons, they could not by law develop them in collaboration with the Americans and they needed a large, remote place to do the dirty work that inevitably accompanies nuclear weaponry development. Neither the Australian government nor the Australian media provided much scrutiny at the time. By the time of Ian Anderson’s story, however, the lax attitude towards the British tests had gone completely and the Australian media had been calling for accountability for 15 years. Anderson provided final confirmation that the recent public outrage over Maralinga had been justified. The evidence Anderson presented was compelling and ultimately compensation had to be paid.

⁷ Cf Alan Parkinson, *Maralinga: Australia’s Nuclear Waste Cover-up*, ABC Books, Sydney, 2007.

⁸ Jim Green is the nuclear campaigner for the environmental group Friends of the Earth. <http://www.foe.org.au/anti-nuclear/>. Accessed 5 December 2010.

⁹ Gregg Borshmann, “Maralinga: The Fall Out Continues”, Background Briefing, ABC Radio National, 16 April 2000.

Anderson was a doyen of Australian science journalism, having made his name reporting for *New Scientist* from California before returning to his hometown, Melbourne, in 1989 where he was to set up the Australian edition of the publication¹⁰. Anderson's particular talent was for writing science journalism that had implications outside the world of scientific research. This chapter considers Anderson's Maralinga story as a study of the need for a scientifically literate media watchdog by considering its central role in revealing previously secret national-interest information. It also examines the mechanisms involved in preparing the story and the way it influenced other media coverage and possibly government negotiations for a Maralinga compensation agreement.

The story, "Britain's dirty deeds at Maralinga", earned Anderson two Michael Daley science journalism awards and became a prominent news item throughout the Australian media upon its release. Like many influential stories, it had a serendipitous beginning. When Anderson took his car to Heidelberg Mitsubishi in Melbourne's north-eastern suburbs for a service one day in early 1993 he presumably did not go with the intention of finding a story that would shake two governments. He was sitting in the waiting room when a scientist came in, also waiting for his car to be fixed. Geoff Williams was one of a small team of radiation specialists who had gone to Maralinga in 1984 as part of a sign-off expedition. They thought they would be conducting routine investigations of the site before it could be handed back to the traditional owners of the Maralinga lands, who had been displaced and dispersed by the tests. At that time, the organisation he worked for was called the Australian Radiation Laboratory (ARL), but it later changed its name to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and Williams still (as of 2010) works there. Soon Williams and his colleagues found that the routine inspection of the area turned into the beginning of a saga. To their alarm, they were kicking plutonium-soaked lumps of rock and soil with their boots. Their Geiger counters were "going berserk"¹¹. They found radioactive material everywhere they looked

¹⁰ Robin Anderson (Ian Anderson's widow) interview with Elizabeth Tynan, Melbourne, 20 February 2004.

¹¹ Peter Burns and Geoff Williams, interview with Elizabeth Tynan, ARPANSA, Melbourne, 15 April 2004.

around the Taranaki firing pads¹², where the Vixen B minor trials had been conducted. They, like all Australian officials, had believed that the plutonium was safely buried in the 21 pits at Taranaki, not spread around the landscape. After the scientists reported what they found there, pressure mounted on the then Federal Government of Bob Hawke and soon after a Royal Commission was set up to systematically review what had happened during the atomic tests and what still had to be dealt with at Maralinga.

The Royal Commission had provided a mechanism to call witnesses, review thousands of pages of documentary evidence and ultimately attempt to breach the secrecy that had proven so persistent around the British tests. However, it was not sufficient on its own to fully establish the aftermath of the tests. A deeper scientific analysis was required. By the early 1990s, ARL had obtained newly declassified US documents on similar radiological tests in the United States and the Australian scientists were starting to understand what had been left behind by the tests at Maralinga: radioactive contamination far greater than they had originally believed. At the Heidelberg garage, Geoff Williams and Ian Anderson recognised each other from some other long-forgotten *New Scientist* story, and began talking about Maralinga. Williams knew enough of Anderson's work to trust him with material this complicated and important, and in fact Anderson had reported on Maralinga a few years previously¹³. Williams told Anderson about the new analysis of safety trial data from the US and that these data had implications for understanding the plutonium contamination at Maralinga. By the time Anderson drove his freshly serviced Mitsubishi home, he had the beginnings of a story.

Williams had suggested that Anderson would need to contact a key figure in that story, John Moroney, former secretary of the Australian Atomic Weapons Test Safety Committee (AWTSC). Moroney did indeed provide the data that made the *New Scientist* story possible. As it turned out, and much to Moroney's own

¹² See site map on p. 6.

¹³ Ian Anderson, "Australia counts the cost of Maralinga cleanup", *New Scientist*, 17 November 1990, at www.newscientist.com/article.mg12817430.400-australia-counts-the-costs-of-maralinga-cleanup.

frustration, illness prevented him playing the truly central role he believed he warranted. As indicated in Chapter Two, Moroney had fulfilled the role of AWTSC secretary from August 1957 until the Committee was disbanded in July 1973 and reconstituted as the Australian Ionising Radiation Advisory Council (AIRAC)¹⁴. At the time he was appointed to the Safety Committee in 1957 he was considered an efficient, intelligent and science-literate young man. He had been studying physics as a Masters student under Leslie Martin at Melbourne University¹⁵, who was just retiring as AWTSC chair. Moroney gave up the chance at a higher degree by joining the AWTSC team – a role that would nevertheless enable him to become one of the world's leading authorities on atomic fallout¹⁶. Moroney came to resent deeply the British lies over Maralinga and to feel that he, personally, had been misled. After being a loyal servant throughout his duty on the safety committee and long afterwards when he worked for ARL, he finally became a bitter crusader for accountability. He nearly single-handedly pointed out all the ways that the British test authorities had been deceitful, in a series of reports, analyses and memos that summarised the issue in a way that lawyers representing Australia's interests were able to use. Moroney's analysis of about 2,500 pages of declassified nuclear contamination data from the US/UK Roller Coaster trials in Los Alamos and Nevada (held in 1961 and 1962, after the repeal of the McMahon Act) finally revealed the truth – that the British atomic test authorities had knowingly left substantial and potentially extremely dangerous amounts of plutonium at or near the surface of parts of the Maralinga test site. Although tests almost identical to Vixen B were held in the US, the British were required to conform to much more rigorous American safety standards and as a result those safety tests were managed more effectively and more transparent records were kept. The thoroughness of the Roller Coaster documents was in contrast to the documents associated with Vixen B, as Moroney came to see¹⁷. The Roller Coaster data had to be declassified in the early 1990s for Moroney to make a detailed scientific case. This meant that while the 1985

¹⁴ Royal Commission Report Vol. 1, *op. cit.*, p. 236.

¹⁵ Geoff Williams, interview 15 April 2004.

¹⁶ *Ibid.*

¹⁷ Moroney said of the 2,500 pages of Roller Coaster data: "Typically, they are thorough records of the Operation, going into infinite detail." John Moroney, letter to Pat Davoren, 28 November 1991.

Royal Commission was exhaustive, the full story did not emerge from that process.

By the time the ARL scientists were on the ground at Maralinga in 1984, the measurement and analysis methods to which they had access were far superior to those available to Noah Pearce and colleagues who prepared the AWRE report in 1968 that cleared the UK of any further responsibility at Maralinga¹⁸. However, the British still would have known about the likely levels of plutonium because of extensive testing carried out in the United States following the Roller Coaster trials. The ARL scientists used gamma ray detectors to measure a product of plutonium decay, americium-241, which could be extrapolated to give an exact measurement of plutonium. As Anderson explained in his story, “The British had to rely on alpha particle [ionising radiation] emissions from plutonium which are difficult to detect.”¹⁹ Radiation scientist Peter Burns is quoted in the article saying, however, “...they could have done radiochemistry analysis of the soil which would have given a more accurate reading of plutonium.”²⁰

A long period of analysis of the Maralinga site ensued after the ARL visit. The ARL scientists found a major discrepancy between the levels of contamination claimed in the Pearce report and what they were finding on the ground, sparking years of investigation that was to be assisted in the early 1990s by John Moroney’s detailed examination of Roller Coaster records. The americium-241 levels obtained by the ARL scientists showed that the Pearce report data about plutonium levels was incorrect. Moroney’s analysis of Roller Coaster would later confirm that they were in error by a factor of 10: there was 10 times as much plutonium at the site as the Pearce report had declared.

The Maralinga Rehabilitation Technical Advisory Committee (MARTAC), set up in 1993 to oversee clean-up of contamination at the site, extended and corroborated the readings that had begun emerging after that 1984 ARL visit and from Moroney’s analysis. The MARTAC team would find that:

¹⁸ Anderson, “Britain’s dirty deeds at Maralinga”, *op. cit.*, p. 13.

¹⁹ *Ibid.*

²⁰ *Ibid.*

“[t]he contamination of the lands consisted of fine particulate of plutonium and fragments of paraffin wax, lead, light alloys and plastic with plutonium plated on them.”²¹

Through examining the contemporary records and carrying out its own measurements, MARTAC estimated that 22kg of plutonium-239 had been explosively dispersed around Taranaki by the 12 Vixen B experiments. Because of the nature of the experiments – explosions that created fine contaminated dust that formed into long plumes before settling on the ground – this radioactive material was widely dispersed:

“It was the experimental set-up of the *Vixen B* trials that made them the principal source of lasting environmental contamination.”²²

Although the influential Pearce report had claimed at the time of Operation Brumby (see more about this clean-up operation on p. 201) that about 20kg of the 22kg of plutonium had been placed into 21 shallow pits adjacent to the Taranaki firing range after the Vixen B experiments, thus rendering it harmless, in fact most of the plutonium (estimated to be about 20kg) was later found by the Technical Assessment Group (TAG) to be scattered around the site²³, mostly in form of small particles. Some of the plutonium had also contaminated items such as the frameworks known as feather beds, making them radioactive as well. MARTAC confirmed that the plutonium contamination at Taranaki, as described by the Pearce report, was wrong by a factor of 10:

“The monitoring results obtained after the event [that is, after the Vixen B experiments had concluded] contained systematic errors greater than a factor of ten as a result of the methods used. A comparison between the levels reported by the UK at the time (Pearce 1968) and the field results reported by the Australian Radiation Laboratory...(Lokan 1985) demonstrates an underestimate of the plutonium contamination by about an order of magnitude.”²⁴

²¹ Department of Education, Science and Training, “Rehabilitation of Former Nuclear Tests sites at Emu and Maralinga (Australia) 2003”, report by the Maralinga Rehabilitation Technical Advisory Committee, Commonwealth of Australia, Canberra, 2002, p. xii.

²² *Ibid.*, p. 27.

²³ *Ibid.*, p. 130.

²⁴ *Ibid.*, p. 13.

The MARTAC report further noted that:

“Taranaki was the site most extensively contaminated with plutonium and, therefore, represented the greatest potential health hazard to workers and to Aboriginals living an outstation lifestyle.”²⁵

According to Moroney’s briefing paper prepared in response to the developing *New Scientist* story:

“The inadequacies and gross inconsistencies in [the set of plutonium field data taken by the AWRE and used for Operation Brumby] were not resolved between the UK and Australia at the time, even after extended re-analysis and debate.”²⁶

Moroney maintained that this was not a simple mistake:

“AWRE knew of...the error involved. The proof of this lies in the Roller Coaster results which have recently been declassified by U.S.D.O.E [United States Department of Energy]; they were the subject of military security at the time and not accessible to Australia.”²⁷

These errors resulted in considerable confusion and misinformation about plutonium contamination at Maralinga for many years, despite John Moroney’s vigorous efforts immediately at the conclusion of Vixen B (see pp. 194-195), and his much later uncovering of the true level of contamination, to ensure a proper account of the aftermath of Vixen B. Moroney’s frustrations with the unsatisfactory sharing of crucial contamination information by the British is echoed in the MARTAC report:

“Poor British records impeded MARTAC from its first meeting to its last.”²⁸

Moroney came to the view, as recorded in various briefing notes, that Operation Brumby in 1967 was based on AWRE data that “[were] so poor as to be useless”²⁹.

²⁵ *Ibid.*, p. 27.

²⁶ John Moroney, Briefing for Geoff Williams and Pat Davoren: Statement on the disagreement in the plutonium data at Maralinga in the discussion with the Australian editor of *New Scientist*, 3 June 1993.

²⁷ *Ibid.*

²⁸ MARTAC report 2002, op. cit., p. vi.

²⁹ *Ibid.*

Analysis of the Roller Coaster trials gave Moroney the ammunition he needed to convince the Australian government to place considerable pressure on the UK government and to refuse to accept that the 1968 agreement was still binding. This information was also later to form the basis for Ian Anderson's *New Scientist* story. In a letter to Pat Davoren (then Counsellor (Nuclear) at the Australian High Commission in London) on 28 November 1991, Moroney gave what he described as "a fast first pass through the Roller Coaster information"³⁰. He concluded:

"(10) The bottom line then is that we can now show that, before commencing RADSUR & BRUMBY [1966 radiological survey and 1967 clean-up], AWRE certainly knew that:

- α^{31} -survey monitoring of Pu [plutonium] fallout on soil can be expected to underestimate the Pu surface density by an order of magnitude, even when the survey is made in the day or so immediately following deposition; and
- less than 20% of the Pu used in the Vixen B trials can be expected to have remained in the debris in the locality of the firing pads.

It follows from this that AWRE also knew that:

- all of the post-firing α -survey data from Vixen B trials were low by at least a factor of ten;
- the areas of Pu contamination at Taranaki to be cleaned up in BRUMBY were greater, by an order of magnitude, than as indicated by the results of the post-firing α -surveys; and
- the burial pits at Taranaki contained no more than 15% to 20% of the Pu used in the 12 firings."³²

These findings underpinned Moroney's analysis that the reported plutonium contamination at Maralinga was grossly underestimated. Moroney subsequently supplied this information to Ian Anderson and it went on to provide the backbone for Anderson's story. Moroney's findings were corroborated by MARTAC in 2002 in its report, which stated in relation to the Vixen B tests:

"An attempt was made at the time to measure ground deposition associated with one of the 1960 Vixen B detonations but the resulting plume apparently did not overlay the sampling array. The monitoring results obtained after the event contained systematic errors greater than a factor of ten as a result of the methods used."³³

³⁰ John Moroney, letter to Pat Davoren, 28 November 1991.

³¹ Greek letter for alpha, representing alpha particles.

³² Moroney, letter to Davoren, *op. cit.*

³³ MARTAC report, *op. cit.*, p. 27.

In his letter to Davoren, Moroney summed up:

“I know that the Pu survey work in RADSUR & BRUMBY had its problems, but I still find it galling that it was so bad that it couldn’t even pick-up an error of such huge dimensions”³⁴.

Moroney signed off his letter with the handwritten words “good luck”.

This analysis clearly indicated that the agreement to relinquish responsibility for the site had been signed without the Australian authorities possessing all relevant facts. When these Roller Coaster data were added to the on-the-ground data accumulated throughout the 1980s by Australian radiation scientists, they produced an irrefutable case for British responsibility to help fund a major site clean-up. As Williams summed it up:

“[Moroney] presented four or five very well argued and researched facts [showing] that the British must have known the situation out there but had not passed it on to Australia. [It was] a well researched case which the lawyers were able to use.”³⁵

The Australian government ministers Crean and Evans had been armed with these facts as they prepared to negotiate with the British for compensation, and behind-the-scenes wrangling over this issue had been going on for several years, with expert input from Moroney. The Australian government had first alerted the British government to the fact that it had the Roller Coaster data as early as December 1991³⁶. However, it wasn’t until Anderson’s *New Scientist* story was published that this information would be made public for the first time. Moves had begun well before this time to deal with the known contamination at Maralinga. The McClelland Royal Commission had recommended the establishment of an organisation to manage the clean up of the site. While McClelland’s specific recommendation for a Maralinga Commission did not eventuate, the group that was established came to be called the Technical Assessment Group (TAG), and was made up of UK, US and Australian scientists

³⁴ Moroney, letter to Davoren, *op. cit.*

³⁵ Williams, interview, *op. cit.*

³⁶ Patrick Davoren, pers. corres., 13 May 2004.

and technicians who undertook extensive tests across a range of issues³⁷. TAG worked from 1986 to 1990 and carried out six studies, including inhalation studies, flora and fauna surveys and an anthropological survey³⁸. The group devised 27 options for the clean up, expressing a preference for an option that involved, in part, immobilising the waste using an expensive electronic technique known as *in situ* vitrification (ISV), a method that was later used³⁹. (It did not go as planned and had to be abandoned before all 21 pits were vitrified, resulting in many of the waste pits being simply capped with concrete – one of the sources of continued controversy around Maralinga.⁴⁰) Ian Anderson had reported on the outcome of the TAG investigations, in a *New Scientist* story published on 17 November 1990. In this, he highlighted TAG findings suggesting that:

“Aboriginal children would receive doses of radiation more than 300 times the accepted limit if they were to live in the most highly contaminated regions of the former British nuclear test site at Maralinga in South Australia.”⁴¹

Anderson’s 1990 story indicates that the Australian government was attempting to seek compensation from the UK government to help cover the cost of the clean-up. However, there was to be a three-year lag between TAG reporting and making its recommendations and the British agreeing to pay compensation to allow this option to be implemented. During those frustrating three years – 1990 to 1993 – Moroney did his most detailed work in analysing the Roller Coaster data and comparing it with the 1968 Pearce report and data generated by his ARL colleagues in 1984 and by TAG. He also kept his government contacts informed about what he had found, usually via Pat Davoren.

³⁷ Royal Commission Conclusions and Recommendations, *op. cit.*, p. 31. Specifically, Recommendation 4 proposed a “Maralinga Commission” that would also include representatives of traditional owners. The modified version of this group that was set up, TAG, did not include formal Indigenous representation. Instead, it was made up of two Australian, two British and one US scientists. Darcy O’Shea, “Maralinga: Righting the Wrongs”, *Habitat Australia*, Vol. 19, No. 3, June 1991, p. 22.

³⁸ Rehabilitation of the former nuclear tests sites at Maralinga and Emu, Annual Report of the Chief Executive Officer of ARPANSA, 1998-1999, ARPANSA, Melbourne, p. 36.

³⁹ Department of Education, Science and Training, “Rehabilitation of Former Nuclear Test Sites at Emu and Maralinga (Australia) 2003, Report by The Maralinga Rehabilitation Technical Advisory Group, Report by The Maralinga Rehabilitation Technical Advisory Committee (MARTAC), http://www.ret.gov.au/resources/radioactive_waste/maralinga/Pages/MaralingaRehabilitationProject.aspx].

⁴⁰ *Ibid.*

⁴¹ Ian Anderson, “Australia counts of the cost of Maralinga cleanup”, *op. cit.*

In the process of analysing the Roller Coaster data, John Moroney's attitude to the British tests changed. ARPANSA scientist Geoff Williams confirms that Moroney was angry with the British:

"It was a great eye-opener to John Moroney that we did get out there [to Maralinga in 1984] and find stuff that he wasn't aware of. Ultimately it led him to feel that the state in which the British had left the range must have been known to them and they'd entirely hoodwinked him and his committee, not letting them know the true situation. So he felt very disillusioned."⁴²

He went on:

"John felt very let down by the British because he felt that it was a relationship of trust. He trusted the British, he felt the British trusted him, and there was this great breach of trust where they had really done things out at Maralinga that he wasn't aware of."⁴³

Ian Anderson, acting upon by his chance conversation with Geoff Williams, decided to pursue the story and sought interviews with the scientists who were directly involved. In a taped interview with Peter Burns and Geoff Williams, he quietly but determinedly directs the two radiation scientists to tell their detailed and damning story. The scientists come across as calm but angry. They were frustrated that their work back in 1984, the following Royal Commission and then the extensive, exhaustive work by the TAG people seemed to be coming to nothing. As Geoff Williams said in 2004, "We all felt originally that the British were going to get away scot-free again."⁴⁴ At the time of the series of interviews with Anderson, it was by no means certain that the truth would out:

"It was fine for us to know, but there wasn't ever anything written about it – probably to this day it is [Anderson's] article that [presented the truth] – I don't know that there has been anything ever since."⁴⁵

Anderson portrayed his interviews in 1993 with the ARL scientists as "a cat and mouse game"⁴⁶ that resulted from him being denied direct access to the

⁴² Burns and Williams interview, 2004, *op. cit.*

⁴³ *Ibid.*

⁴⁴ *Ibid.*

⁴⁵ *Ibid.*

⁴⁶ Ian Anderson, Statement in support of application for Daley Award, *op. cit.*

declassified Roller Coaster documents. He said “my sources wouldn’t always tell me what was right, but would indicate when something I put to them was wrong”⁴⁷. It has to be said that the existing tape recording does not wholly bear this statement out – it sounds like a more open interview than that, with both Williams and Burns being talkative, informative and expansive. But that does appear to be how Anderson perceived the overall process, maybe because he was unhappy that the actual Roller Coaster documents were not made available to him. Anderson had tried to get hold of these documents and believed that he had been prevented from doing so by someone he described as a “senior bureaucrat” in Canberra⁴⁸.

There was more clearly a “cat-and-mouse” game evident in another taped interview Anderson carried out by telephone with a contact who was obviously a ministerial adviser. The exact identity of this person is unclear: it could have been any of several who were advising Minister Crean at the time. In this interview, Anderson tried to get some indication of how much compensation was being sought from the UK:

Ian Anderson: So are we going for this \$101 million?

Unknown interviewee: Thereabouts, yes.

IA: But how much are we asking them for?

UI: A substantial contribution. You would have seen the newspaper reports about that.

IA: There was something in the *Canberra Times* about \$60 million I think it was.

UI: That’s inaccurate. In fact most of the newspaper reports are inaccurate – most have guessed at what a “substantial proportion” is.

IA: Okay, well what is it then?

UI: Well, that’s the Australian government’s position and up to negotiation between the two governments. We’ve told them what we are expecting – all we’ve been saying is that we are expecting a substantial...

IA: So the idea of it being 50 per cent is not necessarily correct?

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

UI: No, in fact that is quite incorrect. It is certainly a lot more than that.

IA: A lot more than 50 per cent?

UI: Yeah. Simon [Crean] spoke to a number of reporters who were out at Maralinga and they reported figures of anywhere from 50 per cent to three-quarters. I would suggest that three-quarters was a far closer figure.⁴⁹

In his story, Anderson noted a likely compensation payment of £33 million, a figure clearly based on the idea of roughly three-quarters of the estimated total cost. The final amount provided by the UK government was somewhat less – £20 million or about \$A45 million⁵⁰.

In about March 1993 Moroney became ill and Anderson never met him. They did speak by phone several times while Anderson was researching “Dirty Deeds”. What had seemed to be a severe case of pneumonia turned out to be multiple myeloma and Moroney died within days of Anderson’s article coming out, aged only 63⁵¹. Moroney did see a draft of the story that Anderson had sent to ARL for checking and clearance. The annotated draft of this document – constituting a revealing three-way conversation between Anderson, Moroney and the *New Scientist* editor in London, Jeremy Webb – shows Moroney, in diplomatic language, savaging an early version of Anderson’s story, suggesting that large swathes be removed. He also made declarations about what he thought the focus should be and recommended that emphasis be removed from the Pearce report, a report that by now he had personally dismissed:

“I don’t completely understand why we spend so much time debunking Pearce. Is this because the Brits still think this is the definitive study on Maralinga?”⁵²

In fact, the document shows that Moroney suggested that nearly 50 per cent of the draft article be cut out or greatly altered⁵³. Anderson disregarded most of these

⁴⁹ Ian Anderson, interview with unknown interviewee (ministerial staffer), 1993 – exact date unknown.

⁵⁰ Lorna Arnold and Mark Smith, *Britain, Australia and the Bomb: The Nuclear Tests and Their Aftermath*, Second Edition, Palgrave Macmillan, New York, 2006, p. 244.

⁵¹ Burns and Williams interview, 2004, *op. cit.*

⁵² Annotated draft of Ian Anderson’s *New Scientist* story, John Moroney, unpublished, 2 June 1993.

suggestions, and only changed things that Moroney had definitely shown were wrong or skewed⁵⁴. Apart from some affront Moroney expressed to one of his colleagues for allegedly stealing the limelight by being quoted in the article, he appeared happy with Anderson's work, as were the other scientists who informed the story⁵⁵, although Moroney's quest to remove the emphasis from the story on the Pearce report, and some of his own colleagues' quotes, did not succeed. Anderson did not mention Moroney by name in his article, despite extensive dealings with him, which is a bit of a puzzle. Anderson himself claimed that Moroney did not want his name to appear in the story (he wrote later "The story was confirmed by Moroney over the phone, although he did not want his name mentioned."⁵⁶), hence the use of the names of others as sources, yet the gusto with which Moroney approached his "edit" of the draft story tends suggest that Moroney was not timid and media-shy. A terse – indeed, rather plaintive – briefing note prepared for his colleague Geoff Williams and for his main Departmental contact Pat Davoren, in response to his questioning by Anderson, outlines the basis of his argument about the fact that British measurements at Maralinga were wrong and that they knew they were wrong. At the end Moroney says:

"I request that my name be attached by way of attribution for this and subsequent statements on the issue. You will appreciate that I have strong personal reasons for making this request."⁵⁷

His strong personal reasons were that he was closely involved with the Maralinga test program, he had believed the British and he had been shocked by the betrayal that he later played a crucial role in revealing. But he did not, himself, insist that his name be added when he had Anderson's draft in front of him, despite suggesting major changes. The contradiction may be explained by Moroney's longstanding career in secret nuclear business, cut across by his anger at the

⁵³ *Ibid.*

⁵⁴ Science writers who routinely send draft copy to scientists for clearance will recognise the nature of this process – big sweeping changes suggested by the scientist but only factual errors actually corrected by the writer keen to maintain his autonomy and professional standards.

⁵⁵ Burns and Williams interview, 2004, *op. cit.*

⁵⁶ Ian Anderson, statement in support of application for Daley Award, *op. cit.*

⁵⁷ John Moroney, Statement on the disagreement in the plutonium data at Maralinga in the discussion with the Australian editor of New Scientist, *op. cit.*

British and his defensiveness at perhaps being seen as gullible as the lies were revealed. There is also some hint that Anderson himself did not take kindly to the brutal edits that Moroney suggested and preferred to keep his name out of the finished product. The truth is unclear – Moroney was a complex character and may not have given Anderson a definite signal about what he wanted in terms of credit for uncovering the deception surrounding Maralinga contamination. He undoubtedly provided the deep background that gave Anderson's story a measure of its authority, even though he is not mentioned in it. Anderson did, however, mention Moroney in his ABC Radio Science Show piece on Maralinga, and in his application for the Daley awards for science journalism that he subsequently won. An agreement for Moroney to appear on ABC TV's *7.30 Report* upon release of the *New Scientist* story was cancelled due to Moroney's ill health⁵⁸.

Anderson's article was published at a crucial time in the Australian ministerial level negotiations with the British government on Maralinga compensation. The story appears to have had a significant impact, though the exact extent of it is difficult to measure. Anderson, a modest man, confirmed later that year that:

“...the article played a...general role – it added to the moral pressure that parliamentarians and others were bringing to bear on the British government to acknowledge its responsibilities and pay up”.

The article was faxed to Simon Crean by his staff, when the Minister was in Europe⁵⁹. Anderson acknowledged that the timing of the story might look like a deliberate strategy in league with the Australian government, but he maintained that:

“...there was no collusion [between himself and the relevant Australian ministers] and the article was never mentioned in the negotiations”⁶⁰.

Several attempts that I made in 2004 to speak directly to Simon Crean about his views on the impact of the article were unsuccessful. Tim Thwaites, a close friend of Ian Anderson who in 2000 was to write Anderson's obituaries for a variety of publications, said:

⁵⁸ Ian Anderson, Statement in support of application for Daley Award, *op. cit.*

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

“It was Anderson...who put pressure on the UK Government to make a significant commitment to cleaning up the nuclear test site at Maralinga.”⁶¹

An obituary for Ian Anderson in the UK’s *Guardian* newspaper by Philip Jones claimed that:

“[h]is evidence, and the media attention engendered by the material in such a prestigious science journal, played a crucial role in the successful conclusion of the talks”⁶².

At the time the *New Scientist* article first came out, the *Guardian* was one of several UK newspapers that cited it in their own stories on the Maralinga negotiations⁶³. One of the key players and Anderson’s initial contact, Geoff Williams, asserted that the *New Scientist* article, for the first time, pulled together many of the threads of the Maralinga story and was, in Anderson’s words, “the first public airing of the betrayal by the British”⁶⁴.

Maralinga featured prominently in the Australian media once Anderson’s *New Scientist* article came out: there was a marked revival of interest in the aftermath of the British tests to match the earlier heated coverage at the time that the Royal Commission was taking evidence in 1984 and when it reported in 1985.

Anderson personally promoted the story in various ways. For example, ABC Radio’s Science Show featured Anderson providing a radio-friendly summary, again featuring the running metaphor of the cricket test. The article appeared five days before the Whitehall meeting. Anderson said on air:

“Australia, represented by foreign minister Gareth Evans and energy minister Simon Crean, will present a strong and compelling case to Whitehall. In the latest issue of *New Scientist*, which carries today’s date [12 June 1993], we reveal for the first time that the case against Britain is

⁶¹ Tim Thwaites, “In Memoriam”, *op. cit.*

⁶² Philip Jones, “Ian Anderson: Journalist who exposed Britain’s dirty nuclear deeds in Australia”, *The Guardian*, 5 April 2000.
<http://www.yasni.co.uk/ext.php?url=http%3A%2F%2Fwww.guardian.co.uk%2Fnews%2F2000%2Fapr%2F05%2Fguardianobituaries3&cat=news>. Accessed 9 February 2005.

⁶³ Daniel John and Ian Black, “Nuclear clean-up settlement near”, *The Guardian*, 18 June 1993, p.14.

⁶⁴ Ian Anderson, statement in support of application for Daley award, *op. cit.*

much stronger than has been made public. From recent evidence analysed by Australian radiation experts, it is apparent that Britain knew in the early 1960s that the radioactive contamination at Maralinga was likely to be much worse than the old enemy ever let on.”

In the Science Show piece Anderson does credit John Moroney, describing him as:

“...the head of environmental radiology at the Australian Radiation Laboratory in Melbourne [and having] a lengthy involvement with Maralinga. He was the only full time member of Australia’s Atomic Weapons Test Safety Committee and therefore was part of the link between Britain and the Australian government, while the tests were going on.”⁶⁵

Anderson wrapped up his Science Show talk with a flourish:

“If Australia is right, Britain misled a true and trusted ally and that ally is now paying for that trust. In monetary terms, Australia itself is facing large payouts as veterans of the British atomic tests at Maralinga press their claims in court. But will Britain pay its share for another clean up? Will it pay compensation to the Aborigines? Recent statements in the British parliament suggest that it will not. It will stick to its belief that its obligations have been met. It’s just not cricket...”⁶⁶.

In the end, as indicated earlier, Britain did pay some of the cost of the cleanup – a total of £20 million or about \$45 million, less than 50 per cent of the total⁶⁷. But for a while, before Anderson’s article and the attendant publicity, it was widely thought that the British government would pay nothing.

Australian metropolitan newspapers picked up the allegation of British deceit and an abundance of abandoned plutonium at Maralinga and ran strongly. For example, a feature in the *Sydney Morning Herald* on 10 June 1993⁶⁸ prompted by a preview of the content of Anderson’s story revealed the fascinating fact the Dr Mike Costello who headed the Technical Advisory Group (TAG) that was managing the clean-up of the site had probably been involved in creating the very

⁶⁵ Ian Anderson, The Science Show, hosted by Robyn Williams, ABC Radio National, 12 June 1993.

⁶⁶ *Ibid.*

⁶⁷ Arnold and Smith, *op. cit.*, p. 244.

⁶⁸ Catherine Armitage, “Dead Zone”, *Sydney Morning Herald*, 10 June 1993.

Maralinga plutonium that was now causing so much controversy⁶⁹. A news article in the *Sydney Morning Herald*'s stablemate *The Age* the next day (11 June 1993) also referenced Anderson's story, saying:

"Australia's push for British funding to clean up former nuclear test sites on the Maralinga lands could have been strengthened by new evidence that suggests Britain deliberately misrepresented the extent of radioactive contamination... The Federal Government believes there may be substance to the New Scientist allegations.

Sources said the Government was waiting for the result of ministerial talks in London before it pursued the matter. The South Australian Minister for Aboriginal Affairs, Mr Kym Mayes, said that the British Government could not ignore the magazine's allegations."⁷⁰

Anderson's article was not the only source of pressure on the UK government. During 1993, a delegation of Aborigines from the Maralinga lands had arrived bearing sand – not actually contaminated sand – from the region, which they placed on the steps of the parliament. Prominent British parliamentarians, notably the outspoken Archie Hamilton, had been asserting that the 1967 clean-up had been effective. This message was somewhat undermined by the fact that the British government called in people wearing full contamination suits to remove the sand from the steps. As Peter Burns remarked:

"They had said it was all right to live in this sand 24 hours a day, 365 days a year, camp in it, eat in it, hunt in it. But as soon as they put a few kilos on the steps they got guys in decontamination suits. Talk about a PR disaster."⁷¹

At the time of Anderson's story, Pat Davoren was Manager, Rehabilitation and Radioactive Waste Policy in the Australian Department of Primary Industries and Energy (DPIE) and responsible for co-ordinating development and presentation of Australia's case for Britain to pay its share for the clean up at Maralinga. He confirmed that the British government was affected by the presence outside parliament of Aboriginal delegations at various times during the dispute:

"I got the impression from British Ministry of Defence officials that these visits did have some effect (they wished they would stop!)"⁷²

⁶⁹ The story reported that Costello had been a chemical engineer for the UK Atomic Energy Authority in the late 1950s and had worked on plutonium.

⁷⁰ Maryann Stenberg, "Tests show a wider Maralinga cover-up", *The Age*, 11 June 1993.

⁷¹ Burns and Williams interview, 2004, *op. cit.*

⁷² Pat Davoren, pers. corres. 13 May 2004.

Anderson's story was timely (appearing, as it did, just five days before the historic ministerial-level meeting in London to thrash out a deal on the clean up), terse and filled with cross-checked data. Its sub-heading, "Fresh evidence suggests that Britain knew in the 1960s that radioactivity at its former nuclear test site in Australia was worse than first thought. But it did not tell the Australians", sums up its main message. The article draws its power from its strong investigative line and apparent deep understanding of the issues. Like all memorable stories, it has colourful quotes, such as this from ARL's Peter Burns:

"If they had been as far out in the design of their bomb as they were with measuring the contamination, they would never have been able to build the bomb in the first place."⁷³

The story was a Focus feature, which at that time in *New Scientist* was spread over two pages. It had a generic picture of an A-bomb mushroom cloud, a graphic map of the radiation plumes that emanated from the Taranaki test site and a picture of two scientists, not individually identified, collecting samples on their 1984 survey at Maralinga. It is not as long as a full-scale *New Scientist* feature article, but is in the form of a news feature, something that could be read and absorbed quickly but with more detail than a standard news story. The science was woven into the politics and the history:

"Burns and his colleagues now believe that contamination at Maralinga is much worse than Britain has admitted. They say 21 pits, which were dug to hold radioactive waste, contain far less plutonium than Britain maintains. The remaining plutonium – ten times more than Britain has acknowledged – was spread over the land. The Australians will say that if they had known the full extent of the pollution, they would never have signed the agreement releasing Britain from its responsibilities over the cleanup..."⁷⁴

The article was edited by the then-deputy news editor (who later became *New Scientist* editor), Jeremy Webb, who – as is usual for *New Scientist* editors – had quite a bit of input into the final content and exchanged various drafts with

⁷³ Ian Anderson, "Britain's dirty deeds at Maralinga", *op cit.*, pp.12-13.

⁷⁴ *Ibid.*

Anderson over the weeks leading up to publication. Webb remembered the bombshell effect of the story:

“The publication date just before the bilateral meetings between Britain and Australia was critical. Just after publication and just before the meetings, we heard through Ian -- and the daily newspapers -- that the article, and the accompanying editorial, had created a storm. The injustice was blatant and the story was widely covered. Obviously the British government would have preferred it if the negotiations had gone on in secret. But suddenly the talks were in the media spotlight with news outlets and the public wanting to know how the wrongs would be righted.”⁷⁵

As Jeremy Webb asserts, the management of his publication was well pleased:

“There was a great sense of pride at *New Scientist* that we had helped to make a difference.”⁷⁶

Australian media coverage of the *New Scientist* revelations was extensive, indicating that this story still had a way to go before its possibilities were exhausted. As Chapter Seven shows, from 1978 Maralinga had become a regularly covered topic in the media, since the investigative journalist Brian Toohey had revealed some aspects of the remaining plutonium contamination and opened a multi-faceted story to years of media examination. Ian Anderson’s contribution was not just to uncover new information about the level of contamination but also to provoke a new round of public and political pressure, leading to a compensation agreement with Britain. The media interest was intense and widespread. This story, typical of the many news items at the time, ran on ABC radio news in South Australia:

“South Australia’s Aboriginal Affairs Minister Kym Mayes says he’s concerned about new claims that Britain covered up vital information regarding the Maralinga atomic tests. The claims are contained in the latest edition of *New Scientist*, which says fresh evidence revealed in declassified American documents indicates Britain seriously undervalued the extent of radiation on the lands. The magazine says after examining the documents, the Australian Radiation Laboratory in Melbourne found Britain was aware of the higher contamination as early as 1963 but never

⁷⁵ Jeremy Webb, *New Scientist*, pers. corres., 25 May 2004.

⁷⁶ *Ibid.*

told Australia. Mr Mayes says Federal Ministers Simon Crean and Gareth Evans will meet with British officials next week to discuss Britain's role in a cleanup of the area. If they can't achieve a breakthrough, Mr Mayes says he will continue working with the Maralinga people to resolve the issue."⁷⁷

Anderson appeared in many Australian media outlets at the time of the story's release. He told Tony Delroy's audience on ABC Radio National's late evening show on 10 June, in a preview two days before *New Scientist* came out officially:

"This story as you know has been bubbling away for quite some time. Little bits and pieces have come out. What we have got here I think is just a pulling of it together. Of course it is capped off by the fact that there have been some recently declassified documents that have come out of the US Department of Energy and these documents deal with joint British and American tests conducted in Nevada involving plutonium. In other words they were similar tests to what were conducted in Australia. The people who have been analysing this data, and I am talking about hundreds if not thousands of pages that come through, have concluded that there was more plutonium released, dispersed over a greater area in much high concentrations ...than the British ever admitted."⁷⁸

Asked by Delroy about the forthcoming intergovernmental meeting in London, Anderson continued his favoured cricketing theme as he pondered the battle ahead:

"A very tough fight, yes. Ironically the Australians will be doing battle with the Brits at Lords the same time won't they? Yes, it will be a tough fight. On April the first there was a debate in parliament in the UK on this very topic and it was quite clear from the statements made then that the British believe that the agreement that was signed in 1968 and the cleanup in 1967 [does] away with its responsibility. The other point too, they also said in parliament at the time that they believed that they were not responsible for compensation to the Aborigines as well."⁷⁹

In the UK parliamentary debate to which Anderson referred, British MP Archie Hamilton had stood up in the House of Commons and maintained that Britain should not and would not pay. He quoted from the agreement signed on 23 September 1968 by the governments of Australia and the UK, which followed Operation Brumby and the subsequent AWRE Pearce report. Hamilton quoted the agreement as stating that:

⁷⁷ ABC News South Australia, 12 June 1993, various bulletins

⁷⁸ Ian Anderson, interviewed on Tony Delroy's show, 10 June 1993.

⁷⁹ *Ibid.*

“The United Kingdom government have completed decontamination and debris clearance at the Atomic Weapons Proving Ground Maralinga to the satisfaction of the Australian government... With effect from 21 December 1967, the United Kingdom government are released from all liabilities and responsibilities under [the 1956] Memorandum of Arrangements save that the United Kingdom will continue to indemnify the Australian government in accordance with Clause II of [the 1956] Memorandum in respect of claims for which the cause of action took place after 7 March 1956 and before 21 December 1967”⁸⁰.

He also mentioned the occasion in 1979 when Britain had repatriated half a kilogram of plutonium from the site (see Chapter Seven), and the associated “exchange of notes” in November that year that stated there was “no question of the United Kingdom having any further responsibility to repatriate waste”. Anderson paraphrased Hamilton in the story, saying that he had equated dose levels at Maralinga “to those in Cornwall from naturally occurring radon gas”⁸¹. The story contained rebutting statements from radiation scientist Geoff Williams of ARL, who said:

“[Hamilton] was being mischievous. It is not acceptable internationally to compare levels of man-made radioactivity with those of a naturally occurring radionuclide... Doses in Cornwall could reach 8 millisieverts a year. But, according to the TAG, because of the Aboriginal lifestyle, a child living near Taranaki could inhale more than 460 millisieverts a year.”⁸²

Young children were at the greatest risk, because they were closer to the dusty ground and had smaller body mass, as Williams and Burns made clear for Anderson in one of the recorded interviews they gave. In this interview, they asserted that the quantities of radioactive material found at Maralinga would be harmful to people in the area (see Chapter Six for details on the health risks presented by the Vixen B plutonium contamination). Burns told Anderson about the fragments they found on the ground at Maralinga:

“Each one of those fragments... [was] about 100 kilobecquerels of plutonium. To put that in perspective, in Victoria if you want to have

⁸⁰ United Kingdom parliamentary Hansard, 1 April 1993.

⁸¹ Anderson, “Britain’s dirty deeds at Maralinga”, *op. cit.*, p. 13.

⁸² *Ibid.*

more than 400 becquerels you need a licence. If you went to Melbourne University and you wanted to do an experiment with plutonium oxide dust you would require a licence.”⁸³

Anderson was asked several times in different interviews to speculate on what the British knew and when they knew it. His answers indicated that he was trying to be balanced and fair. One host ⁸⁴ asked a question about this, and received Anderson’s considered reply:

“Is it proven then that the British officials and government knowingly lied?

“Anderson: Well that’s a very, very good question. Was it deceit or not? You have to go back to the time... the world was different 30 or 40 years ago. These were cloak and dagger days and it has been suggested to me particularly by a person who was involved a lot on the Australian side at the time that the British Atomic Weapons Research Establishment, or parts of the Establishment, may not have been talking to each other. So whether it was deceit and deliberate is another matter – I think the crucial thing from Australia’s point of view is that it happened, and therefore 40 years on Australia believes it has a moral right for the British to participate again in a cleanup.”⁸⁵

Almost certainly Anderson was referring here to John Moroney, who guided much of his understanding of the issue, when he mentioned “...a person who was involved...”

The host continued with the theme of deceit:

“The key question is again British culpability and the extent to which Australian officials may have been part of that conspiracy of silence.

Anderson: Whether there was any Australian duplicity in it is another interesting point. I mean I don’t know – I guess one of the questions that comes up is why didn’t Australia do a more thorough job itself at the time and find out what was going on back then. Of course I get back to the point that this was a long time ago. I think that the British position was probably to a large extent taken and not questioned. We were much, much

⁸³ Peter Burns and Geoff Williams, interview with Ian Anderson, 1993.

⁸⁴ A tape recording of this interview does not reveal the full details of the show or the host, other than to say that it was the Daybreak Show and the host had the first name of Kevin, and the interview took place around the time of the *New Scientist* story coming out in June 1993. No other details have been discovered.

⁸⁵ Ian Anderson, interview on the Daybreak Show, June 1993.

closer to the British in those days – in fact it was suggested in the parliament in London the other day that a lot of this, as far as the arrangement to do the testing, was stitched up in a telephone call between Robert Menzies and Clement Attlee, who was the British PM at the time. I doubt very much whether telephone calls these days would come to such deals.”⁸⁶

The host asked Anderson to speculate about the role of *New Scientist* in the ministerial talks:

“And the *New Scientist* information will be potent weaponry in the hands of Gareth Evans and Simon Crean as well?

“Anderson: I think it will. An interesting point is that I don’t think this has come out before as far as I know. I have been told this by a few people. But there was a meeting in Britain in December 1991 where some of this technical evidence was presented and I’m told the British were quite surprised by this, with technical evidence from scientists. So they know some of this already, [though] it’s not been made public before. Now whether this is enough to persuade them or not is another matter. Certainly in parliament and certainly in their recent statements they’ve dug in their heels, suggesting that the cleanup was undertaken, that a document was signed in essence [absolving] Britain of any responsibility.”⁸⁷

In another interview with Simon Royal on South Australian radio 5CK, the slightly qualified *New Scientist* editorial support for Anderson’s article was raised. The magazine’s editorial had suggested that:

“...even if Australia has right on its side, it is too much to expect that Britain should immediately offer to pay for part of the cleanup. The sums of money are not massive by government standards but they are far too big for the Treasury to part with lightly”⁸⁸.

The rest of the comment piece was supportive of Anderson’s story.

Royal: “In the comment section of *New Scientist*, I suppose the editor in London or whoever writes that part of your mag said that Britain shouldn’t immediately offer to pay up. How do you feel about that?

Anderson: What he’s suggesting there is that Britain should come clean and then, probably, pay up.

⁸⁶ *Ibid.*

⁸⁷ *Ibid.*

⁸⁸ *New Scientist* editorial comment, 12 June 1993, p.3.

Royal: He does go on to say that it's not good enough that Britain hasn't responded so far, but that we shouldn't, or the British shouldn't, pay up immediately. How do you feel about that, to reiterate the question?

Anderson: I think that, in my own personal opinion, the British should pay up, that it is quite clear that the cleanup that was done, Operation Brumby in 1967 and the report that was done into it by Pearce in 1968, it wasn't correct. For various reasons the cleanup was not done properly. Now we have the technology to do it properly, and Australia I don't think has been unreasonable – it was presented with a range of options from about \$13 million to about \$600 million to clean the place up and it has chosen, if you look at the document, bits of pieces of this and that and come up with up \$101 million. And that to me seems a reasonable amount and really by today's international standards it is not a huge amount.”⁸⁹

Royal was also interested in the role the article might play in the ministerial discussions about to get underway in London:

“You also say in your article it is likely to be a heated meeting next week in London with Simon Crean. Your article coming out when it does, does that add a bit more fuel to the fire?

Anderson: I should think so, yes. *New Scientist* is quite widely read in the UK - it goes to Whitehall in other words. The point is, why we concluded that it was going to be a heated meeting is that in all the public statements that have come out recently, especially in the Parliament over there, it's quite clear that unless there's something going on behind the scenes, but at least publicly they do not intend to pay up.”⁹⁰

The negotiations were clearly, at the moment the story came out, at a crucial stage. Former senior DPIE official Pat Davoren is not sure exactly what Anderson's story did to press the case, believing that a variety of factors contributed:

“I suspect that headlines across the tabloids about the plight of the Aborigines would influence the British government more than a complex story in a specialised journal.”⁹¹

Davoren indicated that a documentary, prepared by the BBC with DPIE assistance, entitled *Secret in the Sands* and broadcast in Britain on 28 October

⁸⁹ Ian Anderson interviewed by Simon Royal, Radio 5CK, 12 June 1993.

⁹⁰ *Ibid.*

⁹¹ Pat Davoren, pers. corres, 13 May 2004.

1991, might have had a bigger impact⁹². It went to air just before Simon Crean met Lord Arran, the Undersecretary of State for Defence and the Armed Forces, to present a case based on the TAG report and early interpretations of the Roller Coaster data. But it was to be nearly two years before a deal was finalised. Davoren also said, as Anderson acknowledged, that the material in the *New Scientist* story had been in official British hands since 1991, having been presented by a senior Australian Nuclear Science and Technology Organisation (ANSTO) scientist Des Davy (then General Manager Scientific for ANSTO) during an official meeting in December 1991⁹³. At that point, the information had not been made public. But Davoren did say that Anderson was a factor, if not the most important:

“We had occasional contact with Ian Anderson. We appreciated his interest because of he was one of the few journalists interested in developing the understanding of the complexities of the Maralinga issue that was required to write an accurate story.”⁹⁴

Geoff Williams and Peter Burns from ARPANSA agreed that the story was one of the few in their memory to tackle the issue in a balanced and factually correct manner:

“There have been a lot of journalists who have their story in mind before they come to speak to you and it doesn’t matter what you say, whereas Ian was actually quite open to what was the story.”⁹⁵

Ian Anderson won two Michael Daley awards for “Britain’s dirty deeds at Maralinga”: “best print media news report”, announced by the then-minister for science Senator Chris Schacht on 3 December 1993 and “best entry overall”, which was announced at a prize-giving ceremony in April the following year. The Daley awards, named in memory of the ABC’s first producer of TV science, recognised outstanding science journalism (they

⁹² *Ibid.*

⁹³ *Ibid.*

⁹⁴ *Ibid.*

⁹⁵ Peter Burns, interview at ARPANSA, 15 April 2004.

have since been subsumed into the Eureka Awards, which reward a wide range of science communication activities)⁹⁶.

The *New Scientist* feature “Britain’s dirty deeds at Maralinga” now stands as an important piece of Australian scientific investigative journalism. Apart from its demonstrable quality, the feature article was significant because it contributed (either directly or indirectly) to a political solution to a long-standing national problem. The story resonated beyond the *New Scientist* readership, becoming a high profile mainstream media story in Australia and adding to the body of investigative journalism that finally illuminated Maralinga. Most importantly, it provided conclusive proof that the old way of reporting on the British nuclear tests in Australia was completely gone. The journalists who now covered the tests and their aftermath were watchdogs and, true to the metaphor, were dogged in seeking the truth. Anderson’s story fulfils the criterion of what constitutes an important story, that it has “roots in the past and a stake in the future”⁹⁷, as do stories by the investigative journalist Brian Toohey featured later in this thesis. Accepting official information, explanations and undertakings, as had been the case in the 1950s and early 1960s, was no longer sufficient in the media approach to Maralinga. Anderson dug into the science and the politics to produce a coherent and comprehensive account of the events at Maralinga and their ramifications, in particular the Vixen B experiments. His story is a prominent part of this research because it was a pivotal moment in the uncovering of Maralinga, marking at last the full transition from opacity to transparency. In this sense it was the culmination of a process of uncovering that had been initiated 15 years earlier when Australian journalism began to demonstrate how much it had changed since the era of the British tests. Although the Maralinga lands may not have been completely remediated by the compensation deal that was finally struck a few days after this story was published, more was done than might have been if the issue had been left to languish without the intense public scrutiny arising from the Anderson story. The fact that Australian science journalism was

⁹⁶ The Science Show with Robyn Williams, ABC Radio National, 29 November 1997.
www.abc.net.au/rn/science/ss/sssum/htm

⁹⁷ Former *The Age* newspaper editor Graham Perkin, quoted in Sally White, *Reporting in Australia*, Second Edition, Macmillan, South Yarra, 1996, p. 11.

able to accomplish this shows how far the profession had come since the days of the atomic tests. The next chapter will show the different standard of journalism that prevailed in Australia in the 1950s.

Chapter Four

“Part of the democratic set-up”: managing the 1950s media

A compulsive reader, flipping idly through copies of old newspapers, could be forgiven the odd shudder of disbelief if he chanced across coverage of the British A-bomb tests in Australia during the 1950s.

Adrian Tame and F P J Robotham, *Maralinga: British A-Bomb Australian Legacy*, 1982

Australia in the 1950s was not a country casting a critical eye at the development of, or consequences arising from, nuclear testing. There is little evidence of the doubts and fears which American scientists who pioneered the nuclear project expressed.

Paul Malone and Howard Conkey, *The Canberra Times* 1984.

A free press can, of course, be good or bad, but, most certainly without freedom, the press will never be anything but bad.

Albert Camus, writer and philosopher

This chapter examines media coverage that appeared at the time of the British nuclear tests, beginning with the first test at the Monte Bello Islands in Western Australia, and how this coverage evolved over time. The British nuclear tests were in the news on a semi-regular basis throughout the early and mid-1950s in the mainstream Australian media. The tests were also covered by overseas media, especially those from the United States and the UK. Several of the major mushroom cloud tests reported by the media at this time were subject to D-notices, which will be examined in Chapter Five. These non-binding agreements with the media did result in some aspects of the tests being (voluntarily) left out of reports. Arguably, the willingness of the Australian media to self-censor through the D-notice system resulted in highly restrained coverage of the whole test series, with implications for later public access to crucial information about the risks and aftermath of the test series. The output of the media at the time, and relevant documents and transcripts as shown below, also indicate a notably limited understanding of the scientific and technological aspects of the bomb tests, and their political and social ramifications. Articles from this time are characterised by a seeming lack of journalistic hunger for the hidden stories of the bomb tests or capacity to flesh the stories out with scientific detail.

Nevertheless, the British atomic test program was a story of interest to the media and they responded to the promptings of the test authorities when media information was made available. Coverage ebbed and flowed during the test program, coming to a crescendo in 1956 before dropping away to nothing well

before the test program ended. It is possible to witness a shift in content and tone during the period of the tests, starting with the first ever British atomic bomb, Hurricane, at Monte Bello in 1952 when media stories exhibited a tone of pride and triumphalism, through to less relaxed and comfortable times later that decade when serious questions were being asked more regularly by media representatives. However, even after the Maralinga site had been commissioned in 1956 and media questions were more likely to be asked about the permanent testing of British nuclear weapons in Australia, coverage remained superficial in comparison with media reports from the later era of this thesis (1978 to 1993) and no journalist found the most significant story of the whole test series, the Maralinga plutonium tests.

The UK atomic test authorities were not completely averse to media coverage and did see it as part of the propaganda war with the Soviet Union. Indeed, they deputed spokespeople as important and senior as head of the UK Atomic Weapons Research Establishment Sir William Penney and Australia's Minister for Supply Howard Beale, as is shown below, to present the official line at media conferences or in feature articles and broadcasts. According to a British official quoted in the Royal Commission Report:

"If we are to secure the full benefit of the fact that we have been able to produce an atomic weapon on our own we would do well to see that the press...have adequate information about the [Hurricane] test. On the other hand the trial is the first scientific test of a new British weapon in its experimental form. Success cannot be guaranteed and failure in public even if temporary would be damaging."¹

While wanting to harness the acknowledged power of the media to influence public opinion, both the British and the Australian test authorities were also wary of this power and saw it as a force to be contained. With only a few exceptions, it was contained during the time of atomic testing in Australia. This era in fact represents an example of exceptionally successful media management, in which the official line presented by the test authorities and both the UK and Australian

¹ The Report of the Royal Commission into British Nuclear Tests in Australia, Vol. 2, AGPS, Canberra, 1985.p. 462.

governments dominated media output. This chapter will review the broad sweep of media coverage of the British tests and how the UK and Australian authorities sought to control and make use of it. The chapter is focused on news stories, features and editorials appearing in mainstream print media, both tabloid and broadsheet, rather than electronic media, which at that time had a smaller mass impact than in the later era of this study. While broadsheet publications such as *The Age* and the *Sydney Morning Herald* were (and still are) considered to contain more “serious” or “quality” journalism, tabloid newspapers such as the higher circulation *Sun* or the *Mirror* were read by more people and were influential in informing their audience and thereby contributing to the creation of public opinion².

The 1950s atomic tests coverage in the Australian media, even allowing for journalists who were faced with concerted and formidable information management by the test authorities, comes across as sketchy, superficial and frequently obsequious. These early stories are in contrast to the stories that began appearing in the mid to late 1970s and gained considerable momentum during the time that the Royal Commission was taking evidence in 1984-1985, and which will be examined in Chapter Seven. By the later era, the obsequiousness had disappeared. Newspaper representatives of the 1950s tended not to delve into specific issues associated with the British tests in much detail, such as radiation hazards and health, the dangers of atmospheric testing, the fate of displaced or exposed Indigenous people, issues of Australian sovereignty and any analysis around why atomic weapons were being created at all³.

² A simple comparison of page size between broadsheet and tabloid does not fully capture the underlying differences between the two forms of newspaper. Broadsheet papers were originally designed for the “leisured classes” and had large page sizes that could be spread out across a table to be read. They have long been associated with more in-depth journalism consumed by a smaller readership. The smaller tabloid newspapers on the other hand were designed to be read on public transport by commuting workers. Over time, these two paper sizes came to represent differences in style of coverage, with broadsheets held to contain more “serious” reportage and tabloids more likely to carry sensational news in an informal style. Jason Bainbridge, Nicola Goc and Liz Tynan, *Media and Journalism: New Approaches to Theory and Practice*, Oxford University Press, Melbourne, 2008, p. 435. This thesis does not attempt to analyse coverage in tabloid versus broadsheet newspapers but simply notes that coverage appeared in both kinds of outlets, reaching a variety of mass readerships.

³ Robert Milliken, *No Conceivable Injury*, Penguin Books Australia, Ringwood Victoria, 1986, p. 182.

“The contrast with the press in the United States at this time could not have been greater. There, reporters were given frank briefings on technical aspects of atomic weapons, which managed to circumvent obvious security breaches, and were even encouraged to embark upon analytical articles probing America’s nuclear weapons program.”⁴

One of the most striking features of the coverage of the tests at the time they were occurring was the reliance on official sources and vetted information. While this form of information is useful, valid and has its place, total reliance upon it is anathema to the principles of an independent “fourth estate” style of media. Again, as will be shown in Chapter Seven, this dependence on official sources in the 1950s and early 1960s is essentially different from the investigative journalism of the later era. A lack of confidence in tackling the multiple forms of specialised information – scientific, technological, security, military, political – inherent in atomic bomb testing is one explanation for difference in reporting styles between the two eras. While it is certainly the case that one of the most difficult areas of journalistic reporting concerns security matters, ways were later found to dig up the information that were not found at the time, and those ways often involved gaining a deeper understanding of the specialised information at the heart of the story. This deficiency in reporting seems to be central to understanding the media coverage at the time and why, in the face of officially imposed rules on how the media were to behave, including the imposition of D-notices (see Chapter Five), the media found themselves incapable of overcoming the high official stone wall.

“[D]ependence on official sources makes editors and journalists more reluctant to raise issues that are not raised officially, and thus reduces the media’s capacity to influence the public agenda.”⁵

Added to this was the fact that the 1950s Australian media were largely conservative and sympathetic to the Liberal-Country Party coalition of Prime Minister Robert Menzies:

⁴ *Ibid.*

⁵ Marina Caparini, “Media and the security sector: oversight and accountability”, in Marina Caparini (ed.), *Media in Security and Governance: The Role of News Media in Security Oversight and Accountability*, Geneva Centre for the Democratic Control of Armed Forces, Geneva, 2004, p. 25.

“Even the popular press was conservative in outlook, and much of the journalism produced constrained by a commitment to reporting the pronouncements of prominent men with little space provided for context, background or comment.”⁶

A dearth of information makes for poor public communication and therefore weaker democratic processes⁷, and the media are often the sole source of material by which the public can assess events. This meant that the tools normally or ideally available to the public to assess and criticise the actions of governments were absent and made the acceptance of the official line almost a foregone conclusion. A recent examination by Michel of the opening up of public discourse on the British nuclear tests, from the late 1970s onwards, represented a “bifurcation of [the] single official version [of the tests]”⁸ – a version that had been uniformly positive for a number of years but which was overturned by the great uncovering in the latter era. Only a cartoon of reality was actually possible while the tests were underway because the media – the crucial conduit between the official version and public knowledge of it – were absent.

“British authorities filtered all information the Australian government received on the tests, including safety measures...Needless to say, the culture of secrecy was extended to the representation of the trials in the media. Accordingly, throughout the 1950s the trials attracted little public dissent.”⁹

The active secrecy of the British government might not have been so all-pervasive if the Australian authorities had asserted themselves more fully in this area. There are complex reasons why they did not: the desire to curry favour with the British to ensure protection in the event of a nuclear war and to become part of the “nuclear club” of nations possessing atomic weapons and energy capability, the anglophile tendencies of the Prime Minister Robert Menzies, the Cold War paranoia sweeping the world at the time, along with the anti-communist

⁶ Julianne Schultz, “The Press”, in Stuart Cunningham and Graeme Turner, *The Media and Communications in Australia*, Allen and Unwin, Crows Nest, 2002, p. 106.

⁷ Stephen Stockwell, “Beyond the fourth estate: Democracy, deliberation and journalism theory”, *Australian Journalism Review*, 21(1) 1999, p. 41.

⁸ Dieter Michel, “Villains, Victims and Heroes: Contested Memory and the British Nuclear Tests in Australia”, *Journal of Australian Studies*, No. 80, 2004, p. 221.

⁹ *Ibid.*, p. 222.

McCarthyism¹⁰, which made many people who were in a position of power guarded in their behaviour. The whole responsibility does not rest with the British government and test authorities, who were focused on their perceived national interest and looking to maintain as much secrecy as possible in line with established practice around British weapons development. The lack of fourth estate media activity at this time was crucial; strong and independent media scrutiny might well have changed the nature of the tests themselves, possibly even resulting in safer and better managed experiments. While it is impossible to know for sure exactly what changes to the conduct of the tests would have been wrought by closer media observation, the history of the British atomic test series and its subsequent analysis does indicate that even for the times the safeguards applied to the tests were inadequate and inferior to those adopted by the more accountable US atomic weapons test authorities. The purpose of the highly managed media activity around the tests in Australia was evidently more to do with propaganda than with accountability.

“British secretiveness and imperfect review of test proposals and consequences by Australian officials notwithstanding, the degree to which Australian authorities went in limiting debate and discussion of the testing program and its effects cannot be ignored. Such media coverage of the tests as was permitted by the British and Australian authorities tended to be trivial and generally celebratory.”¹¹

The McClelland Royal Commission report repeatedly emphasises the manipulation of the media throughout the period of Britain’s nuclear tests in Australia, finding that the absence of public information on the tests constituted a significant and negative part of the atomic tests legacy. The Royal Commission report concludes:

“The Australian Government had no intention of testing public reaction before deciding to agree to provide a permanent proving ground at

¹⁰ The McCarthyism era is named for the US Republican Senator Joseph McCarthy of Wisconsin and lasted from the late 1940s to the late 1950s. McCarthy accused thousands of Americans of being communists or communist sympathisers.

¹¹ P N Grabosky, “A Toxic Legacy: British nuclear weapons tests”, Chapter 16 of *Wayward governance: illegality and its control in the public sector*, Australian Institute of Criminology, Canberra, 1989, p. 241.

Maralinga; no announcement was allowed until there was a formal commitment.”¹²

The atomic age arrived when nuclear bombs were dropped by the US on the Japanese cities of Hiroshima and Nagasaki in August 1945, heralding what seemed to be an even more dangerous era than that of the world war that was just ending. Chapter Two of this thesis provides some background on why the British sought to develop their own nuclear weaponry in this new international environment, and why they had to do it “alone”. In fact, as has been shown they were not entirely alone, as they co-opted the Australian government for the task. The evidence shows that the relationship between the British and the Australians in this project was always in essence a master-servant relationship, with the UK clearly in charge and Australia providing the site, the political backing and some of the logistics and military personnel. As Chapter Six on the Vixen B experiments shows, the atomic test authorities made the decisions and relayed them, often with incomplete technical detail, to the Australians. Australia was also expected to manage at least some aspects of the media liaison around the tests, primarily through the Australian Department of Supply and (until early 1958) its Minister, Howard Beale. Although Beale was allowed to know about the first British bomb test only a short time before it was scheduled¹³, he quickly became a strong public voice for the test program. Much of the media coverage of the tests at the time, until 1957, was derived from material provided by Beale and his Department:

“...[i]t was the task of the scientists, including the Australian scientists, to make sure that the tests were safely conducted, and it was my department’s task to give all required assistance and to keep the public informed. When it was announced that the test would take place, there was little public

¹² *Ibid*, p. 8.

¹³ In the lead-up to the test program, Minister Beale was kept in the dark as much as anyone, as Menzies acted unilaterally to set an agreement in place with the British. Beale twice, unknowingly, misled Parliament by saying that there were no plans for British tests in Australia, in June and October of 1951. As the Menzies biographer A W Martin puts it, “...Menzies’ unquestioning acceptance of the British insistence on secrecy, while fitting with his current Cold War fears and appreciation of American attitudes, created some strange situations. One of the strangest was his refusal for many months to admit his Minister of Supply, Howard Beale, into the secret.” A W Martin, *Robert Menzies: A Life*. Vol.2 1944-1978, Melbourne University Press, Melbourne 1999, p. 222. Beale admitted that he “boiled and fumed at what I regarded as an insult”. Howard Beale, *This Inch of Time: Memoirs of Politics and Diplomacy*, Melbourne University Press, Melbourne 1977, p. 78.

anxiety; indeed there was some pride that Australia was to participate in this historic event.”¹⁴

The media evidently concurred with this assessment by Beale and early reports of the Hurricane test were generally favourable, even laudatory. Media coverage of Operation Hurricane in October 1952¹⁵ was the first opportunity for the test authorities to interact with the Australian media and the inherent caution evident in all their dealings was at its most obvious at this time. Robust requests from media organisations for journalists to join the official party that witnessed the test were denied, after initial consideration¹⁶. Some media chose to circumvent the restrictions and set up their cameras at Mount Potter, 88km from the test site¹⁷. From there they captured images of the explosion of the first ever British atomic bomb and ran them prominently in a number of newspapers – a clear sign that keeping the huge mushroom clouds out of the media was going to be impossible.

The Hurricane test was a single atomic bomb detonated aboard a Royal Navy frigate, making the UK the world’s third nuclear power after the US and the Soviet Union. Hurricane produced a less than perfect mushroom cloud, as clearly shown by photographs taken from nearby, in which it looked rather like a large capital “S”¹⁸, but it was hailed a success – not so much for the actual nature of the explosion as for what it represented. A typical newspaper response can be seen in an editorial from the *West Australian* of 4 October 1952¹⁹, which stated:

“The real significance of the Monte Bello explosion [Hurricane] lies at this moment...in the simple fact that it occurred. It gives the world the indisputable proof that Britain has the material, the skill and the

¹⁴ Beale, *op. cit.*, p. 79.

¹⁵ Counsel assisting the Royal Commission into the British Nuclear Tests, Peter McClellan (not to be confused with Commission chair James McClelland), at a 2006 conference told a story about the media releases connected with Operation Hurricane. He claims that before Hurricane “three press releases were prepared. If the test was successful the announcement was straight forward – a glorious success. However, if it failed or partially failed an excuse had to be found. That excuse and the cables publishing it had been drafted long before Lord Penney [head of the test program] gave the command to explode the bomb – and it would not have mattered if it reflected the real truth.” Peter McClellan, “Who is telling the truth? Psychology, common sense and the law”, Local Courts of New South Wales Annual Conference, August 2006.

¹⁶ Royal Commission Report Vol. 2, *op. cit.*, p. 461.

¹⁷ *Ibid.*

¹⁸ J L Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985, pp. 90-91.

¹⁹ The day after the Hurricane shot at Monte Bello.

installations for the independent production of atomic weapons and that she will yield the initiative to none.”²⁰

This lengthy editorial went on in the same vein, talking about “profound satisfaction” and “a strong sense of pride”, reflecting the tone of much of the Hurricane coverage. It concluded:

“...the Monte Bello explosion reverberates with a vastly increased assurance of British Commonwealth power and defensive security.”²¹

Operation Hurricane was subject to the newly established D-notice system in which media were willing participants in restrictions on reporting (see Chapter Five). Media outlets seemed to take the view that secrecy was justified:

“It is better that we should know too little than run the danger of putting information into the hands of those who, at this moment, are, no doubt, seeking to discover the scope and potentialities of the Monte Bello experiments.”²²

The Royal Commission into the British nuclear tests would later conclude that:

“There was virtually complete government control of the Australian media reporting of the Hurricane test and the lead-up to it, thus ensuring that the Australian news media reported only what the UK government wished.”²³

One of the earliest atomic tests media releases issued by the Department of Supply dates from two months before Hurricane. It was the bland announcement of the attachment to the project of Professor Ernest Titterton, in a two-paragraph statement that provides only the bare bones of the story. Titterton was later to feature prominently in the Maralinga saga (see Chapter Two), but his entry into the drama was presaged with a simple two-sentence statement, the second of which said simply:

“Professor Titterton is expected to be absent from the [Australian National] University for some months.”²⁴

²⁰ Author unknown, *West Australian*, 4 October 1952, reproduced in F K Crowley, *Modern Australian Documents 1939-1970*, Vol.2, Wren Publishing, Melbourne, 1973, p. 265.

²¹ *Ibid.*

²² *The Age* editorial, October 1952, quoted in Milliken, *op. cit.*, p. 184.

²³ Royal Commission Conclusions and Recommendations, AGPS, Canberra, 1985, p. 7.

²⁴ For Press: Atomic Weapon Test (media release), 13 August 1952, National Archives of Australia, Series No. A816, Item 10/301/129.

At around the same time, just before the Hurricane test, a variety of informational articles intended for the media was prepared by the Australian government and released progressively in the weeks leading up to the test. This material was intended to direct the efforts of the journalists who would cover the test, and it appears to have been highly successful in this aim. The first article in the series, titled “Australian Armed Services have played an important part in Atomic Test Plans”, was distributed to media outlets on 20 August 1952 and was subsequently taken up extensively by the media.

“...the Co-ordinator of Naval Public Relations has advised that the article was given good publicity in each State and an excellent summary was broadcast by the A.B.C. and some Commercial Stations. He states that overseas newspapers have also taken a great interest in it and the article was cabled to London in full by A.A.P [Australian Associated Press].”²⁵

While the media publicity from these articles found favour with the Australian government, the British government was not so comfortable about the publicity that ensued from the test itself. Just after Operation Hurricane, this nervousness was highlighted in a memo summing up concerns expressed by the British High Commission in Canberra just after the test had been carried out. Some enterprising journalists had induced officials who had been present at the test to talk about what they had seen. Little of substance was actually reported, and the coverage of Hurricane was uniformly positive, but the authorities were jumpy.

“...the utmost importance is attached to avoidance of any further official comments on the [Hurricane] explosion and the United Kingdom authorities would be grateful if this could be brought to the notice of all those likely to be concerned...The United Kingdom authorities are anxious that the full story of this Commonwealth effort in the atomic field should have the best possible send-off. It will also be most important that there should be no additional comment after the release of the carefully vetted story.”²⁶

²⁵ Department of Defence Minute Paper, “Atomic Test – Background Articles”, 26 August 1952. National Archives of Australia Series No. A816, Item 3/301/539A.

²⁶ “Substance of Communication dated 18th October 1952 from High Commissioner for the United Kingdom, Canberra”. National Archives of Australia Series No. A6456, Item R021/001 Part 36.

This anxiety to ensure complete control over media information about the test series also comes through in a series of documents concerning the presence of Professor Leslie Martin in the official party to witness the forthcoming Totem Emu Fields tests. Martin was later chairman of the Atomic Weapons Test Safety Committee and at that time was a (part-time) Defence Science Adviser as well as a physics academic at the University of Melbourne. The British High Commission had requested complete secrecy about the presence of the Australian scientist, and bureaucrat Alan McKnight from the Prime Minister's Department was supportive.

"The Australian authorities agree that no public announcement should be made prior to the [Totem] tests regarding Professor Martin's attendance. If some statement becomes necessary some cover plan might be devised."²⁷

McKnight also provided the assurances required by the British High Commissioner about Martin's security rating. Because of Martin's role as a defence adviser, he was signatory to the provisions of the Australian Crimes Act "which corresponds, in part, to the British Official Secrets Act"²⁸, so his ability to keep secrets could be guaranteed. Until Martin's role (as opposed to Titterton's, whose involvement had been announced with the press release noted above) could be clarified in relation to the British tests with the advent of the AWTSC, it was deemed necessary to keep his direct involvement secret and cover it up if necessary. While Titterton was allowed access to detailed scientific measurements from the Totem series, both Martin and Butement would only be observers, as they were at Monte Bello²⁹.

A small hint at the impatience the Australians were feeling at the demands being made by the British for high levels of control over information comes through in McKnight's closing comment to his letter, as do the developing plans to continue what had been started at Monte Bello. This lengthy letter had been largely

²⁷ A D McKnight, Prime Minister's Department, letter to George Davey, office of the High Commissioner for the United Kingdom, Canberra, 30 September 1952. National Archives of Australia Series No. A6456, Item R096/006.

²⁸ *Ibid.*

²⁹ Sherratt, *op. cit.*, p. 143.

devoted to dealing with the concerns of the British authorities, until right at the end, when the Australians asked for their own assurances of secrecy over the use of Emu Field for atomic tests.

“May I raise one [point of concern] on our side? We would like all communications which mention the possibility of Woomera as an atom weapon test sight [sic] to be classified ‘Top Secret’.”³⁰

Although rigid controls had been placed upon atomic test information, the momentum of media interest was building by the time of the first major test at Emu Field. The two detonations in the series were to take place at the logistically difficult and remote site 480km northwest of Woomera³¹, in October 1953. The site was chosen because it was far enough away from the Woomera test range that the atomic testing activity would not interfere with the missile tests³² but, as noted in Chapter Two, it turned out to be a poor choice for the atomic tests owing to significant logistical problems. After Hurricane, from which much practical knowledge had been gained, the British wanted to expand their test program to include new kinds of weapons. The Emu Field test, Operation Totem, would detonate two different bomb types, with both devices strapped to towers³³. After some delays caused by adverse weather conditions, the first bomb was exploded on 15 October 1953 and the second on 27 October³⁴, in the presence of a party of journalists flown in for the occasion. The journalists were there only because media organisations had identified the Emu Field tests as newsworthy and had placed pressure on the test authorities to allow them to witness the event. Similar pressure had been ineffective for the Monte Bello test but had worked for Emu Field³⁵. Again, a D-notice applied to media coverage of the Totem tests, as it had to Hurricane.

Although the media succeeded in securing a much closer involvement as official witnesses at the Emu Field test, unlike at Monte Bello, the tone or thrust of media

³⁰ *Ibid.*

³¹ Symonds, *op. cit.*, p. 121. Emu Field was referred to by surveyors as X200, matching the Maralinga designation of X300.

³² Len Beadell, *Blast the Bush*, Rigby Limited, Adelaide, 1967, p. 4.

³³ Royal Commission Report Vol. 1, *op. cit.*, p. 140.

³⁴ *Ibid.*

³⁵ Milliken, *op. cit.*, p. 183.

coverage of and editorialising about the Totem tests proved to be remarkably similar to that of the Hurricane coverage, even while the presence of reporters would allow some new flights of journalistic fancy (see below). One example was an editorial in the *Sunday Herald*, 11 days before the first Totem shot:

“British genius has developed the atomic weapons...as part of the free world’s efforts to defend itself. It so happens that we in Australia have the uninhabited spaces where they can be tried out. In placing the rocket range area at Britain’s disposal, we are aiding in our own protection and that of the whole British Commonwealth. This provision of a site is a contribution we are in a unique position to make, and nobody abroad should suppose that we are not making it freely and cheerfully.”³⁶

The theme of pride, established for the Hurricane test, continued through the Totem series:

“As a people we can be proud of our share in [this test], though we must regret the grim necessity which deflects so much human wealth and ingenuity from more constructive paths. We can await with mingled interest and awe the historic tests about to be undertaken.”³⁷

Fairfax broadsheet the *Sydney Morning Herald* covered the British test program prolifically, and ran frequent editorials on the subject, mostly favourably disposed towards the tests. This Sydney paper operated in the most populous city in Australia and was writing for a sizeable and mostly well-educated audience. One piece, published just before the first Totem test, said:

“This is a momentous week for Australia. To-day or to-morrow [in fact, seven days later] the first atomic bomb will be exploded near Woomera with half the world’s press looking on – at a discreet distance – and with all the apparatus of publicity.”³⁸

The editorial linked the bomb tests with the then-current negotiations over the sale of Australia’s uranium to the UK, and made a case that the bomb tests agreement with the UK could leverage Australia’s atomic energy future to the nation’s benefit. The editorial expressed the view that while Australia should freely

³⁶ Author unknown, “Atom bombs in our arid lands”, *Sunday Herald*, 4 October 1953, p. 2.

³⁷ *Ibid.*

³⁸ Author unknown, “Atomic bombs, uranium and Australia’s future”, *Sydney Morning Herald*, 8 October 1953, p. 2.

provide uranium for the short-term urgent need to build British bombs, for the longer term it needed to ensure its own energy security:

“Though at present uranium is required chiefly for making atomic bombs, that will not always be so and one is bound to hope that in the not too distant future atomic weapons will be banished by international agreement...In the future, however, uranium will increasingly be in demand as a source of industrial power...The Government should keep in mind this future as well as the urgent pressing need for the sale of Australian uranium.”³⁹

This ulterior motive for accommodating British tests – establishing export markets for Australian uranium – was likely to have been part of Robert Menzies’ reasoning, as indicated in Chapter Two.

Just before Operation Totem, Ernest Titterton received his first major media exposure in connection with the development and testing of atomic weaponry. He contributed an article to the *Sunday Herald* in which he discussed:

“...all that can be told, within the limits of security, [about the] world’s most dreadful weapon”⁴⁰.

These “free kick” articles, often featuring Titterton but also Supply Minister Howard Beale, were common throughout the early to mid 1950s Australian media coverage and provided many column inches of official, approved copy. This article began the trend that would continue throughout Titterton’s association with the atomic test program – he was only identified as a professor of nuclear physics from the Australian National University and his affiliation with the British test program was not mentioned. His AWTSC role was not secret and was mentioned in a few media stories, but it was not much highlighted or analysed and was never noted in his contributed pieces. The *Sunday Herald* article provided an overview of the development of atomic weaponry from the Manhattan Project onward, including the role of the spies mentioned in Chapter Two in providing the Soviet Union with the knowledge needed to create their own weaponry. Titterton went on to discuss the Australian test program, outlining the significance of the Monte

³⁹ *Ibid.*

⁴⁰ Professor E W Titterton, “The Race for Atomic Arms”, *Sunday Herald*, 4 October 1953, p. 2.

Bello test. Always keen to use a media forum to allay public fears on all aspects of atomic weapons testing, he then addressed himself to the forthcoming test, saying that the statement about the test by the British Minister of Supply Duncan Sandys:

“...put an end to a period of speculation and rumour mainly concerning the so-called cobalt bomb; rumours which caused unnecessary worry to the Australian population.”⁴¹

He used some space explaining that there was no such thing as a cobalt bomb, one of the various scare stories doing the rounds at the time⁴², before allowing himself to slip into some political posturing:

“The atomic armaments race is in full swing; it is essential to face the implications and not succumb to the false belief that by diverting our attention from the ugly fact we can somehow do away with its reality. Once we accept the fact that we are engaged in an armaments race our short-term policy is clear: we must win it. But the long-term policy is much more difficult to define. It is a problem of the utmost gravity, likely to strain to the limit our resources in science, humanity, and statesmanship.”⁴³

At the time of Totem, the populist left-wing Sydney tabloid the *Daily Mirror* started flexing its editorial muscles against the test program, frequently targeting Robert Menzies. The *Daily Mirror* was consistently sceptical about the British test program, largely because of its ideological stance against the Menzies government and because of its fierce competition with the pro-tests newspaper the Sydney *Sun*⁴⁴. It was one of the few mainstream news outlets to take a contrary position

⁴¹ *Ibid.*

⁴² The idea of a “cobalt bomb” began with the physicist Leo Szilard, who postulated it as a hypothetical “doomsday device” that would wipe out all human life. Nuclearweaponarchive.org/Nwfaq/Nwfaq1.html#nfaq1.6. Although there was indeed no cobalt bomb on the British drawing board, cobalt was later to feature at the centre of severe criticism of Titterton during the Royal Commission. The first Antler bomb at Maralinga in 1957 had contained a radioactive isotope of cobalt, cobalt-60. Titterton knew this extremely dangerous substance was going to be used, but had not told the Australian officials at the site. The Australian health physics representative Harry Turner found the substance on his routine patrol after the test. Titterton later said he had deliberately concealed the information as a “test” for Turner. Royal Commission Report Vol. 1, *op. cit.*, p. 392.

⁴³ Professor E W Titterton, “The Race for Atomic Arms”, *op. cit.*, p. 2.

⁴⁴ An account of the *Daily Mirror*’s populism, and its fierce rivalry with the *Sun*, may be found in Sandra Hall, *Tabloid Man: The Life and Times of Ezra Norton*, Harper Collins, Pymble, 2008. See in particular p. 1.

and to question Australia's role in the bomb tests. A comment piece in early October 1953, just before Operation Totem, presented to appear like a news story under a large photo of Menzies, was typical of its tone:

"The Prime Minister of Australia (Mr. Robert Gordon Menzies)...upon his shoulders rests the responsibility for whatever might follow the forthcoming atomic blast at Woomera.

Mr. Menzies has stated that all precautions have been taken, but steadfastly refuses to indicate what the actual precautions are and the type of bomb to be exploded.

Scientists in charge of the explosion have repeatedly stated that the explosion will not take place unless there is a favourable wind.

In the opinion of this newspaper, this indicates that some risk to the Australian population is involved.

If there were no danger, the bomb could be let off at any time.

There is plenty of scope in the Antarctic for such an explosion – not in Australia. Mr. Menzies' responsibility is, indeed, a fearful one."⁴⁵

By invoking the views of "scientists in charge of the explosion" without elaboration or names, this brief item acknowledges the participation of scientists without actually outlining any scientific information. This was standard practice not only in the *Daily Mirror* but in other, more favourably disposed, media coverage as well. Scientific information simply was not discussed in any detail. The *Daily Mirror* was to keep up its criticism of the British tests even after the major trials had ended. For example, the newspaper ran an editorial in June 1959, by which time the rest of the Australian media had largely stopped covering the tests, in which the writer slammed the British for not sharing information from the atomic tests with the Australian government⁴⁶. Again, the broad outline was there for the purpose of criticising the federal government, but scientific detail was not. Coverage and comment remained political rather than scientific or technological.

The *Daily Mirror's* negative coverage of the British test series was very much the exception to the general media tone. Most coverage at this time was laudatory. The *Sydney Morning Herald's* article on public safety in relation to Operation

⁴⁵ Author unknown, "His responsibility!", *Sydney Daily Mirror*, 2 October 1953, p. 2.

⁴⁶ "The Mirror Opinion: Atomic Irony", *Daily Mirror*, 9 June 1959, p. 6. The comment piece particularly targets the then-Defence Minister Athol Townley, claiming the Minister should have placed Britain under greater pressure to provide training to Australian troops in dealing with atomic weaponry.

Totem was much more typical. This lengthy piece, published six days before the first explosion, provided largely unattributed information assuring the public that the tests were safe:

“...it appears that the atomic tests on the Woomera range will be even less dangerous than those in Nevada [where the US was testing its own weapons].”⁴⁷

The only person quoted in the article, well-known physicist Professor Harry Messel from the University of Sydney and later critic of the test program, on this occasion was quoted as saying: “I do not believe that there will be any danger to the present population”⁴⁸, although he emphasised the need – as did the article in general – for extensive monitoring activities. At the end, however, a small warning note was sounded:

“The atomic bomb to be exploded near Woomera will be the 49th nuclear explosion contrived by mankind during the last eight years. If mankind continues to test atomic weapons at this rate, or at an increased rate, will hazardous levels of radioactivity be built up throughout the world? Many nuclear and radiological scientists, while dismissing immediate hazards as negligible, are not so ready to dismiss the possibility of a long-range hazard.”⁴⁹

A follow-up article in the *Sydney Morning Herald* the next day did pick up on this note of caution about long-term dangers to present more detailed information on what sort of hazards arise from exposure to radioactivity. The article reiterated the paper’s view that an effective monitoring effort was needed to ensure that the Australian authorities knew the level of radioactivity arising from the British tests.⁵⁰

Between the two Totem tests, Robert Menzies appeared on Australian radio to defend Australia’s role in the ongoing atomic test series during his regular weekly radio broadcast, “Man to Man”.

⁴⁷ Staff Correspondent, “Public Safety and the Woomera Tests”, *Sydney Morning Herald*, 9 October 1953, p. 2.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ Staff Correspondent, “Long-range Risks In Atomic Tests?”, *Sydney Morning Herald*, 10 October 1953, p. 2.

“There is tremendous public interest in Atomic Bombs...Unfortunately there are scare stories, wild allegations, and, between you and me, a good deal of nonsense...But we must face the facts. And they are that the threat to the world’s peace does not come from the Americans or the British, but from aggressive Communist-Imperialism. In this dreadful state of affairs, superiority in atomic weapons is vital. To that superiority Australia must contribute as best she can.”⁵¹

On the day after the first Totem shot, the *Sydney Morning Herald* ran the story in detail, covering its front page with a lead story, sidebar stories and photo series showing the mushroom cloud rising from the desert plain. The headline, “Atom Explosion Success”, set the tenor of the coverage. The article was written by “A ‘Herald’ Special Reporter, Who Watched the Atomic Explosion on the Woomera Range from 15 Miles Away”; a unique byline. The story was partly reported in the first person, which was at that time unusual in a lead news story:

“I chose to turn my back at the initial explosion, not wear glasses, and look around on the count of one [second] after zero.”⁵²

This *Herald* special reporter provided some vivid imagery of the test:

“At zero hour, the flash lit up the sky, despite the bright, sunny Central Australian morning. In the first two seconds, a huge ball of fire rose about 750 feet, oxides of nitrogen forming and remaining in the air. Colours, mainly brown and red, flamed. In these sweeping two seconds, as the flames shot upwards, several of the observers noted the face of an Australian aboriginal formed by the soaring flames.”⁵³

A rather less awe-struck perspective on that account was supplied later by the knockabout bushman, Len Beadell, hired by the Australian government to survey the Emu Field site in preparation for its use in the test program⁵⁴. Beadell

⁵¹ Draft of “Man to Man-Australia Today” Broadcast No. 11, 21 October 1953, quoted in Erin Ison, “Bombs, ‘Reds under the Bed’ and the Media: The Menzies Government’s Manipulation of Public Opinion, 1949-1957”, Humanity 2008, University of Newcastle, www.cms.newcastle.edu.au/Resources/Schools/Humanities%20and%20Social%20Science/Humanity/Ison.pdf.

⁵² A ‘Herald’ Special Reporter Who Watched the Atomic Explosion on the Woomera Range from 15 Miles Away, “Atom Explosion Success: Dawn Blast at Woomera”, *Sydney Morning Herald*, 16 October 1953, p.1.

⁵³ *Ibid.*

⁵⁴ Len Beadell was described by Supply Minister Howard Beale as “a man of iron endurance, and (like Kipling’s elephant child) of infinite resource and sagacity”. Howard Beale, *This Inch of Time: Memoirs of Politics and Diplomacy*, Melbourne University Press, Melbourne, 1977, p. 80.

witnessed Totem One and was to write later in his published account of his role at Emu Field:

“Old Luke [a member of Beadell’s surveying team] had a little joke waiting at this stage for the reporters. ‘Look,’ he shouted pointing at the atomic cloud, ‘do you see it?’ Everyone whipped around to direct their attention to the cloud. ‘A perfect portrait of a myall blackfeller written with atomic dust; the new and old have come together today.’ He was so enthusiastically serious that one by one they agreed that there was no doubt about it. Sure enough the newspapers printed the huge headlines: ‘Myall black man written by atomic dust in sky over Emu.’ Good old Luke.”⁵⁵

Also present in the press party that witnessed Totem was the prominent British *Daily Express* journalist Chapman Pincher who, on this occasion, contributed an article to the *Sydney Morning Herald*. Pincher also provided a vivid word picture of the event, like his *Herald* colleague overcome with awe at what he had witnessed:

“...peering through welders’ safety goggles, I watched [the explosion] swell into a tremendous fireball – a miniature manmade sun which rose away from the red sand like a giant balloon. A minute later I was shaken by a terrific shock wave – a hot blast that sent a double thunder clap rumbling around the desert for 30 seconds. As the fireball expanded it gave off a second burst of light more brilliant than the sun”⁵⁶.

Pincher, whose work did not always please the British or Australian authorities⁵⁷, on this occasion delivered the officially preferred message:

“It is clear already that Britain’s bomb, designed and built without outside assistance, is a winner.”⁵⁸

⁵⁵ Beadell, *op. cit.*, pp. 210-211.

⁵⁶ Chapman Pincher, “Could be Dropped By R.A.F. Plane”, *Sydney Morning Herald*, 16 October 1953, p.1.

⁵⁷ For example, an investigation was launched by the UK test authorities into the source of a leak that supplied Pincher with a story in March 1957, published in the UK *Daily Express*. In this, Pincher foreshadows a test ban treaty that will put a stop to the big bomb tests in Australia. Pincher later admitted that his source for this story was in Australia, but most of his story was “pure guesswork” and “something of a fluke”. J L Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968, National Archives of Australia, Series No. A6456/3, Item R023/003.

⁵⁸ Chapman Pincher, “Could be Dropped By R.A.F. Plane”, *op. cit.*, p.1.

The *Sydney Morning Herald* leader writer that day was in a more sober mood, reflecting that the inexorable progress towards a more powerful hydrogen weapon than the fission bomb tested at Emu Field was now apparent (and in fact by now the US had tested a fusion weapon), and that the resulting danger was growing:

“There is no doubt that the only sane answer to the nightmare menace of the hydrogen bomb is the effective international control of atomic weapons. But to suppose that that can be achieved in the present state of world relations is to slip into the realms of fantasy”⁵⁹.

The 16 October 1953 issue of the *Sydney Morning Herald* was dominated by bomb test news, with a news story from a “special correspondent in London” also providing a drawing of the Totem bomb just exploded. This brief item was also fairly limited in information and made the pertinent point:

“It is emphasised that this is only the principle of the weapon which is already internationally known. Atom spies conveyed it to the Russians. Refinements embodied in the British bomb, which greatly increase its efficiency, are still secret.”⁶⁰

This same issue of the *Sydney Morning Herald* featured an interview with Supply Minister Howard Beale and outlined the Australian contribution to the Totem test. It quotes Beale as saying:

“One of the most pleasing aspects of this project is the proof it provided of the effectiveness of Australia’s security arrangements”⁶¹.

This line was an important one for the Minister to run, as Australia was still working behind the scenes to assure the sceptical Americans that it was sorting through the security problems that had led a few years earlier to the establishment of the Australian Security Intelligence Organisation (ASIO), security breaches strongly associated with the previous Chifley Labor government – and indeed

⁵⁹ Author unknown, “The Atom’s Challenge to Humanity”, *Sydney Morning Herald*, 16 October 1953, p. 2.

⁶⁰ Special Correspondent in London, “How An Atomic Bomb Explodes”, *Sydney Morning Herald*, 16 October 1953, p. 2.

⁶¹ Author unknown, “Months of Hard, Lonely Work Paved Way for Atomic Explosion”, *Sydney Morning Herald*, 16 October 1953, p. 4.

with Australian science – and which the conservative leader Menzies sought to rectify (see Chapter Five). Beale continued:

“There has not been a single security leakage in Australia during the months of large-scale preparations, and many Australians worked on the project without knowing the purpose to which the range would be put.”⁶²

The article addressed at some length the Australian contribution to the establishment of what would prove to be a short-lived test site at Emu Field, including touching on the hardships the workforce faced there, issues that led to the site being abandoned in favour of Maralinga. The article concluded:

“Mr. Beale said all Australians had cause to be proud of their country’s contributions to ‘this portentous event’. ‘Although only a small nation, we have given eloquent proof of our ability and willingness to take a major part in the defence of the freedom of mankind,’ he said. ‘But we also pay especial tribute to our great United Kingdom partner who, in spite of her enormous other commitments, has so magnificently contributed her best scientific brains and technical skills, as well as much equipment and many millions of pounds, in order to bring this project to such a triumphant conclusion’.”⁶³

Rounding out its coverage of Operation Totem following the second explosion at the end of October, the *Sydney Morning Herald* quoted a statement by Robert Menzies citing the success of the tests, saying that the second test “confirmed theoretical calculations”⁶⁴. Beale was again interviewed, saying:

“It has been a very big job, and its successful conclusion reflects great credit on everyone associated with the tests.”⁶⁵

This edition of the *Sydney Morning Herald* is particularly notable for its brief item on minor tests to be conducted at Emu Field, almost certainly early Kittens experiments, one of the few media mentions of these tests. As discussed in Chapter Six on Vixen B, the silence around the minor trials only descended in full in 1957, around the time the international test ban moratorium was about to come

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ Author unknown, “Second A-Blast Successful: Trial Series Ends”, *Sydney Morning Herald*, 28 October 1953, p. 1.

⁶⁵ *Ibid.*

into effect. Until then, some early minor trials – far less dangerous than the ones that were to come – were publicised. The October 1953 story came from Australian Associated Press and was based on a media announcement by the UK Supply Minister Duncan Sandys. He was quoted as saying:

“During the last few weeks our scientists have carried out various other trials, involving a number of minor explosions.”⁶⁶

While no more information is given other than to say that the test program was now complete, this item was significant as it was one of the rare media mentions of minor trials. News about the minor trials was, however, not followed up and no detailed accounts of these experiments appeared in the Australian media until the 1970s.

Beale’s enthusiasm for the British tests imbued his media statements. For example, on 4 May 1955 he issued a media statement in which he elaborated on the theme established for the Hurricane test while preparing the ground for the new permanent test site at Maralinga:

“The whole [British atomic test] project is a striking example of inter-Commonwealth co-operation on the grand scale. England has the bomb and the knowhow; we have the open spaces, much technical skill and great willingness to help the Motherland.”⁶⁷

On 17 May 1955, a story announcing the selection of a permanent test site at Maralinga that appeared in the *Sydney Morning Herald*⁶⁸ could almost have been written by Beale’s public relations team. Its complete absence of direct quotes or indirect attribution for assertions is one notable feature in an item presented as news rather than comment, but more striking still is its laudatory language:

“[At Maralinga] will be tested the latest types of atom bombs which have been developed by Sir William Penney and his brilliant team of British

⁶⁶ Author unknown, “Other ‘Minor’ Tests”, *Sydney Morning Herald*, 28 October 1953, p. 1.

⁶⁷ Howard Beale, Minister for Supply, media release 4 May 1955, quoted in Royal Commission Report Vol. 1, *op. cit.*, p. 15.

⁶⁸ Special Correspondent, “Australian Atomic Test Site”, *Sydney Morning Herald*, 17 May 1955, p.2.

scientists. These will incorporate the latest devices of British skill and ingenuity.”⁶⁹

The story repeats the official line that the Maralinga site “is a completely deserted area”, continuing:

“[t]he old Ooldea nature reserve is in one corner of it, but the native population has long since abandoned this area and resettled itself nearer the coast, where fish and game are, in any case, more plentiful.”⁷⁰

This was the prevailing view at the time, certainly, and would have been seen as uncontroversial in a news report. The inaccuracy of this statement would be hinted at in some news stories but not be publicly revealed for many years. The story concludes:

“The Australian Government has not taken lightly the responsibility for permitting atomic tests on its territory. Each test will require the prior approval of the Minister for Supply, and no test will be made until a committee of Australian scientists [the AWTSC] examines the nature and details of the test and is satisfied that there is no possible danger of injury to human beings, or risk of damage to property and stock.”⁷¹

In 1956, as the Maralinga site was about to become functional, Ernest Titterton published a book on nuclear power and weaponry, intended for a broad lay audience. The book named him as Professor of Nuclear Physics at the Australian National University but as usual did not mention his role on the Atomic Weapons Test Safety Committee, nor give any indication that he was involved in the British tests series. In this book, Titterton put forward his views on the need for public information about these issues, views that appear to be at odds with his secretive behaviour:

“Insistence on the desirability of informed public opinion on atomic energy matters follows from the basic belief that democracy functions best when the people understand the issues.”⁷²

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

⁷² Ernest Titterton, *Facing the Atomic Future*, Macmillan, London, 1956, p. 5.

Reinforcing Titterton's image as a disinterested scientific observer watching the tests from a distance, he participated in some new stage-managed media activities following on from the contributed article from 1953, above. On 15 and 16 May 1956, *The Age* and *The Sydney Morning Herald*, both Fairfax broadsheet papers, simultaneously ran identical Q&A features⁷³ in which Titterton provided answers to questions about the test program, ahead of the imminent Mosaic tests at Monte Bello and the Buffalo tests planned for Maralinga later that year. Titterton was yet to become head of the new AWTSC; he would replace Leslie Martin in 1957, although at the time of the features he was a member of the committee. The Q&A format left no room for the exercising of editorial judgement, so the items appear more like publicity material on behalf of the test authorities – which they undoubtedly were. Five questions were asked in the first round and four in the second. It is not clear whether the questions were formulated by a journalist or by Titterton himself. In response to the first question, which asked about the purpose of the forthcoming Monte Bello and Maralinga shots, Titterton answered in part:

“If we should ever again have to call on our armed services to defend our freedom it is obviously of the greatest importance that they be equipped with weapons at least equivalent to, and preferably better than, those of a possible adversary. It would indeed be morally wrong to ask them to answer such a call unless we were prepared to so equip them.”⁷⁴

He also addressed the rising concern that was finding its way into the public sphere about the fate of Japanese fishermen whose vessel had ventured too close to an American hydrogen bomb test in the Pacific, resulting in serious illness and the death of one man. This issue was of growing concern in the media, not just in Australia. Titterton responded:

“The accident to the fishing vessel *Fukuryu Maru* was most unfortunate but it must be remembered that she had strayed well into the restricted danger area and also the weapon exploded on that occasion was of very large yield – one of the biggest ever likely to be tested. The Minister for Supply (Mr. Beale) has stated that no hydrogen bomb will be fired in

⁷³ Professor E W Titterton, “Answers to Questions on Atomic Tests”, *The Age*, 15 May 1956, p. 2; Professor E W Titterton, “Some Questions and Answers on Latest Atom Tests”, *Sydney Morning Herald*, 15 May 1956, p.2; Professor E W Titterton, “Why Australia is Atom Testing Ground”, *The Age*, 16 May 1956, p.2; Professor E W Titterton, “Why Australia is Preferred As An Atom Testing Ground”, *Sydney Morning Herald*, 16 May 1956, p. 2.

⁷⁴ Titterton, 15 May 1956, *The Age* and the *Sydney Morning Herald*, p. 2.

Australia and it was recently indicated that the weapons tested would be 'small' relative to the American one which led to the accident to Fukuryu Maru."⁷⁵

This series of newspaper features was clearly timed to coincide with the imminent opening of the Maralinga permanent test site, a far bigger investment by the Australian government in the British weapons tests than either Monte Bello or Emu Field. Maralinga was intended to be a permanent test site and would be inhabited by thousands of military personnel, a large percentage of whom would be Australian (see Chapter Two). By the time Maralinga became fully operational in September 1956, greater complexity in media coverage was starting to become apparent, driven in part by the publicity surrounding the death of the Japanese fisherman, although most media accounts continued to be based on official sources and therefore were largely acquiescent to the official line. For example, a story from the *Sydney Morning Herald* of 28 June 1956 was quite likely written by a media participant on an official trip to the new Maralinga test site on 19 June 1956. It is not possible to verify if the writer, with the byline of "a staff correspondent", was actually on the trip, although the official list of trip participants included a "J O'Hara" from the *Sydney Morning Herald*. The timing does seem to indicate that the staff correspondent and J O'Hara are the same person. The story that appeared on page 2 did first canvass some public disquiet:

"The man in the street may be duly appreciative of the contribution the tests will make to the cause of defence, but their nearness has bred an uneasiness in him. What he wants most to be satisfied about is that they will present no public danger, directly or indirectly."⁷⁶

However, the story goes on to quote the official line of safety that was promulgated by the British, specifically that the site is remote ("with nothing to suffer damage except spinifex and mulga"⁷⁷), the winds are uniform and the very best of equipment is being deployed there. "Before any test can begin, a special committee of Australian scientists will examine conditions to ensure that all safety precautions are being taken", the story went on. This committee, the AWTSC,

⁷⁵ Titterton, *The Age and the Sydney Morning Herald*, 16 May 1956, p.2.

⁷⁶ Staff Correspondent, "Safety of A-Weapon Tests at Maralinga", *Sydney Morning Herald*, 28 June 1956, p. 2.

⁷⁷ *Ibid.*

later thoroughly discredited by the Royal Commission, was not scrutinised by the media at this time and appearances in the media of its most prominent member, Ernest Titterton, were highly managed in such a way that he was distanced from the test series altogether.

The Menzies government minister most involved in the conduct of the British atomic tests (at least until his abrupt departure from Cabinet in early 1958 to become Australia's ambassador to Washington), was the Minister for Supply Howard Beale. Beale would later begin the atomic tests chapter in his 1977 autobiography with words that reveal the success of his attempts to keep most of the details of the tests secret. He mentions the later atomic bomb tests by the French at Mururoa Atoll in the Pacific and notes that the French had called Australians hypocrites for objecting, given that Australia had consented to such tests on its own territory:

“[M]any people were taken aback, not at being called hypocrites...but to learn that we had ever conducted tests at all.”⁷⁸

Beale then addresses himself to telling his own (rather inaccurate in places) version of the tale, saying “it is not one of which any Australian need be ashamed.”⁷⁹

As mentioned earlier, Beale was often directly involved in media activities around the atomic tests along with Sir William Penney (later Lord Penney), director of the British Atomic Weapons Research Establishment (AWRE) at Aldermaston and architect of the nuclear tests in Australia; on some occasions they were a double act. While the minor trials from 1957 onwards were not subject to any sort of media scrutiny until many years after they occurred, it was not really possible to keep the mushroom clouds out of the media. Strictly controlled interactions between journalists and senior test scientists and government officials were held from time to time and these had the effect of diffusing any prospect of unauthorised journalistic enquiry. As the Secretary of the Australian government's Department of Supply,

⁷⁸ Beale, *op. cit.*, p. 76.

⁷⁹ *Ibid.* The account contains some factual inaccuracies, particularly to do with the number of tests conducted in Australia and their dates.

Frank O'Connor, rather wistfully wrote to the chief information officer for the UK Department of Supply, Iyer Jehu, on 9 November 1956, "[l]ooking at it philosophically, we have to recognize this is just part and parcel of the democratic set up"⁸⁰, speaking in relation to a story the previously mentioned British journalist Chapman Pincher⁸¹ had written about nuclear testing activities. O'Connor also said:

"My own view of the press is that it is imperative to have good relations with them, but as to whether our relationships are good or bad is a matter that is mainly in our own hands."⁸²

Given that the Australian media were carrying out virtually no independent enquiry into the tests at the time, despite contemporary suggestions of rising public disquiet both in Australia and internationally about atomic testing, O'Connor appears to be correct in his assertion that press acquiescence was largely a matter of government handling. He continued:

"I think our publicity programme on Maralinga [during 1956] was successful. There is no doubt we started off with a really hostile Australian public opinion but, by the time the last test took place, the local press was almost favourable to a man. It is marvellous how fickle the public mind is in these matters and, no matter what the project is, provided it can be pushed ahead without anything untoward happening, the people's minds soon become inured, and they accept it as one of the ordinary happenings of life."⁸³

This statement sums up a program of masterful public relations informed by a view of public opinion and public behaviour that gives some strength to charges of undemocratic behaviour by the Australian government at the time of the tests.

⁸⁰ F A O'Connor, letter to Iyer Jehu, 9 November 1956, National Archives of Australia, series A6456, item R030/075

⁸¹ As mentioned earlier, Chapman Pincher was a British journalist who covered the tests in Australia extensively. Secretary of the Australian Department of Supply Frank O'Connor described Pincher as a "scoop journalist employed by a scoop newspaper [the *Daily Express*] and the moment he stops scooping he will be replaced by someone else." *Ibid.* Later commentary on contemporary nuclear test media activity conversely accused Pincher of being in effect a stooge of the test authorities (see Chapter Seven). Pincher is also notable for the fact that he later went on to test the limits of the British D-notice system by writing a story in 1967 on the interception of communications by UK security authorities. This breached a current UK D-notice, but ultimately no action was taken because he had not actually broken the UK Official Secrets Act. Douglas Fairley, "D Notices, Official Secrets and the Law", *Oxford Journal of Legal Studies*, Vol. 10, No. 3, Autumn 1990, p. 432. See Chapter Five for more detailed information on the D-notice system.

⁸² O'Connor, *op. cit.*

⁸³ *Ibid.*

In this confident assertion of the capacity of government to divert public attention away from the tests, senior public servant O'Connor appeared to be in line with the thinking of his Minister, Howard Beale, and with the views of the British test authorities. O'Connor concluded:

"The view held here now is that the need for publicity on atomic tests has passed. At the moment the papers are completely preoccupied with the critical international situation [presumably the uprising and its suppression in Hungary] and the Olympic games, and there is no likelihood of Australian public interest being aroused until a further series of major trials is contemplated at Maralinga."⁸⁴

By the time of the next and final major Maralinga test series, Operation Antler in 1957, public opinion had hardened towards the tests generally and the world was moving towards new treaties that would limit what atomic testing was allowed. The Federal Opposition was increasingly opposed to the tests and questions were being asked in Parliament about their continuation. Bipartisan political support for the tests had collapsed in 1956, in the wake of the controversial second Mosaic test at Monte Bello. In June 1956 the Australian Labor Party caucus voted to oppose future atomic tests in Australia⁸⁵. The Australian media reported that political pressure was escalating as the ALP moved to an anti-nuclear weapons policy stance.

"The next Federal Labour [sic] Government would vote no money for tests of nuclear weapons or the development of means of waging nuclear warfare, the Deputy Leader of the Federal Opposition, Mr Calwell, said today. Mr Calwell said that developments after the [Mosaic G2] Monte Bello atomic explosion last week [19 June 1956] showed that if nuclear weapons tests were permitted to continue there, radio active dust, despite all precautions, might be carried across Australia."⁸⁶

The Maralinga atomic test site was being commissioned at exactly the time the political and public status of the British nuclear tests program was becoming less clear-cut and more problematic for Australia. The official planned media activities connected to the atomic weapons test series actually reached their highest point

⁸⁴ *Ibid.*

⁸⁵ "Labor opposes atomic tests", *The Advertiser*, 21 June 1956. Part of a package of clippings in National Archives of Australia Series No. A6456, Item R058/006.

⁸⁶ "Labor Will Stop Weapons Test", *The Canberra Times*, 25 June 1956. Part of a package of clippings in National Archives of Australia Series No. A6456, Item R058/006.

during 1956, as the Federal Government sought to maximise positive media coverage while public support seemed to be evaporating. The Maralinga tests that continued for years after Operation Antler, the minor trials, were all metaphorically underground – they had no media profile at all. Managing the media after 1957 was a different proposition to what had come before, more to do with stonewalling and silence than information provision. A closer look at how the media and the government interacted and the nature of coverage of the British tests during the watershed year of 1956 is therefore worthwhile, as the provision of official information about the tests was soon to draw to a close.

The British and Australian authorities had, throughout the British tests, attempted as much as possible to face the reality of media interest in the most controlled way possible and by 1956 they had become quite practised at it. In that year, a variety of orchestrated media activities were organised and carried out jointly by the British and Australian authorities. As part of this, a group of Australian and British journalists and a photographer had travelled to the Maralinga site on 19 June 1956⁸⁷. They were accompanied by a small contingent of UK military and security personnel. The journalists were from a wide range of outlets, including the *Sydney Morning Herald*, the Australian Broadcasting Commission (ABC), the *Melbourne Herald*, the *West Australian*, *The Advertiser*, the *London Daily Express* and the *London Times*. A photographer from the *Advertiser*, Robert Horwood, was included in the list. Far from being banished to a distant vantage point as journalists seeking to cover Hurricane had been, these journalists were welcome guests invited to witness a major new Anglo-Australian weapons testing facility, albeit under strictly controlled conditions. The media management on this first media visit to the permanent test site worked exceptionally well. The journalistic output was scant and off-topic, even descending into triviality. A classic example both of the coverage arising from this media jaunt and indeed the general attitudes among tabloid media of the era may be found in a *Sydney Sun* story headlined “She shook them...more than this explosion: Nan was home on the range”. Although the story does not have a byline, a reporter called K. Woodward was listed as the *Sun*

⁸⁷ List of passengers who will travel to Maralinga in DC3 Guineas aircraft on Tuesday, 19th June, departing West Beach at 7.15am, National Archives of Australia, series A6456, item R087/135.

representative on the Maralinga media trip⁸⁸ and is the likely author. The story carried a large picture of a woman called Nan Witcomb, with the caption “Air hostess Nan Witcomb who caused a furore on the rocket range”⁸⁹. The story began:

“Seventeen hundred men at an atom outpost saw their first woman for more than a year – and the effect was atomic!”

This story appears to be the only *Sun* story immediately arising from the media visit to the new Maralinga site. Its content seems to indicate that the reporter was too distracted to report on the program of bomb tests:

“Maralinga range commandant, Colonel R[ichard] Durance, was worried about Nan’s effect on his women-starved men. Twice before a woman had been to Maralinga and there had nearly been trouble. So Durance had sent a special signal asking for a male steward on the...plane.”⁹⁰

Colonel Durance’s request had been denied but fortunately the fears of an untoward incident were unfounded and “Nan brightened the day for hundreds of workmen most of them young new Australians.”⁹¹ The information provided to the journalists on this trip was sparse, which may account for the *Sun*’s preoccupation with the beautiful Nan.

“Beale’s press visit was big on style but short on hard information. The journalists were told almost nothing about the forthcoming weapons tests at Maralinga and, in frustration, were reduced to writing human interest stories about how some of the workers there could save up to 40 pounds a week through overtime payments.”⁹²

While the AWTSC, then still under the chairmanship of Professor Leslie Martin, had been invited by Beale to brief the journalists on this trip, the committee had decided to decline, saying that it “had nothing to convey to the Press in these matters”.⁹³ The existence of the AWTSC had been noted in the Australian media, but there was no apparent attempt to seek comment and input from its scientists

⁸⁸ *Ibid.*

⁸⁹ Author unknown (probably K. Woodward), “She shook them...more than this explosion: Nan was home on the range”, *Sydney Sun*, 20 June 1956, p. 3.

⁹⁰ *Ibid.*

⁹¹ *Ibid.*

⁹² Milliken, *op. cit.*, pp. 179-180.

⁹³ *Ibid.*, p. 180.

and no known objection to Martin and colleagues exempting themselves from the official media trip.

At around this time tensions between Martin's AWTSC and the Department of Supply over media issues came to something of a head. A package of publicity material had been prepared for journalists invited to witness the Buffalo shot. This material was made up of a number of information sheets on different aspects of the tests, such as conditions and facilities at the Maralinga site or what happens when an atomic bomb explodes. Most of these information sheets featured the sub-heading "Sponsored by the Atomic Weapons Test Safety Committee", or just simply "By the Atomic Weapons Test Safety Committee". One titled "Value of the Atomic Tests to Civil Defence" attracted a rather impatient note to the Secretary of the Department of Supply, Frank O'Connor, from AWTSC head Leslie Martin:

"The Safety Committee is quite prepared to vet articles as to the accuracy of their scientific content, but it does not wish to be held responsible for articles on miscellaneous topics."⁹⁴

Supply Department secretary O'Connor reacted swiftly, cabling Minister Beale to insist that the Safety Committee had to maintain its role in checking the accuracy of all media information:

"We are so firmly committed on this matter that I think a change at this stage is quite out of the question."⁹⁵

Beale backed O'Connor, who a few days later sent the draft of a message intended to be conveyed to Martin to put the matter to rest.

"Following on from this agreement [that scientific articles about the Maralinga tests would be issued under the aegis of the AWTSC] I have written to all papers throughout Australia outlining publicity and told them that articles on scientific and technical aspects would be prepared by scientists eminent in the particular fields and they would be attributed to

⁹⁴ Letter from Professor Leslie Martin, Chair of the Atomic Weapons Test Safety Committee, to Frank O'Connor, Department of Supply, 20 August 1956. National Archives of Australia Series No. A6455, Item RC956.

⁹⁵ Cable from Frank O'Connor, Department of Supply, to Minister for Supply Howard Beale, 22 August 1956, "Scientific Press Releases – Maralinga". National Archives of Australia Series No. A6455, Item RC956.

your Safety Committee. Any change now would greatly embarrass the Government and consequently I look forward to your co-operation.”⁹⁶

O’Connor secured Martin’s agreement and between them they instituted a new arrangement under which Martin would take responsibility for clearing the content of all media materials, rather than involving other members of the Safety Committee⁹⁷. The Department of Supply won that round.

While the scientists of the Safety Committee did what they could to avoid undue interaction with the media, other than supply thousands of words of text to be run verbatim in newspapers, the Department of Supply’s media activities were gathering pace. Soon after the June media trip to Maralinga, a media conference was held on 14 August 1956 in Sydney. The transcript of the conference shows a polite media set-piece, well in keeping with government-media interaction at the time. The conference was hosted by Howard Beale and featured Sir William Penney. It was held to introduce the Maralinga site’s first major bomb tests (known as Operation Buffalo) in September and October that year, although Kittens and Tims minor trials had been held at the site before this, without public acknowledgement. AWRE had returned briefly to WA’s Monte Bello islands for Operation Mosaic in May and June of 1956 since the Maralinga site had been deemed unready for the huge yield⁹⁸ (allegedly up to 98 kilotons for the second in the series) of the Mosaic tests⁹⁹. The code-names for the tests were not mentioned in this media conference or indeed in any official publicity material before Buffalo in September 1956 at Maralinga, although subsequent news stories did mention the code-name Buffalo (see footnote on p. 183).

⁹⁶ Cable from Frank O’Connor, Department of Supply, to F Hinshelwood, Department of Supply, 28 August 1956. National Archives of Australia Series No. A6455, Item RC956.

⁹⁷ Memorandum from Frank O’Connor, Department of Supply, to Professor Leslie Martin, AWTSC, 28 August 1956. National Archives of Australia Series No. A6455, Item RC956.

⁹⁸ J O Newton, “Ernest William Titterton 1916-1990”, *Historical Records of Australian Science*, Vol. 9, No. 2, 1992, p. 178.

⁹⁹ Report of the Royal Commission into the British Nuclear Tests in Australia, Vol. 1, *op. cit.*, p.231. The second Mosaic test in particular was to prove troublesome for the Australians, partly because of the large radioactive cloud it created and that crossed to the mainland, stirring up the media, and also because of the high yield. This provoked suspicion in some quarters, including elements of the Australian government and the media, that Mosaic was related in some way to the H-bomb. Much later it turned out that the second Mosaic bomb, without official notification to Australia, was really a triggering mechanism for an H-bomb. Milliken, *op. cit.*, p. 193. The figure of 98 kilotons of yield for the second Mosaic shot was “concealed from the Australian government for almost 30 years”. Robert Standish Norris, “Questions on the British H-Bomb”, Natural Resources Defense Council, 22 June 1992, p. 3.

The journalists were addressed first by Beale, who placed some strictures on what they could ask and report.

“Now, as to the questions, only two limitations will be necessary. In the first place, questions must be relevant to Sir William’s specialty, which is atomic weapons testing. He is not concerned with either the politics or the military aspects of atomic weapons, and so I must ask you to exclude questions relating to those. I will also ask you to exclude questions concerning H-bombs, because they are not being tested in Australia and there is no intention that they should be.”¹⁰⁰

In the context of the time, this condition does not seem too onerous, although it is doubtful that media from the later era of weapons test coverage would submit to it without question, particularly the condition relating to asking questions about the politics of atomic weapons. The conditions continued:

“The second limitation has to do with security, which is very important. Atomic weapons testing is never very far from the ‘Top Secret’ classification, so I am going to ask you to agree to this – that if a question is asked and Sir William thinks he ought not to answer it, on the grounds of security, neither the question nor the answer will be recorded, or published. Unless we make arrangements like this, information or inferences which are quite injurious to our defence policy could easily be revealed.”¹⁰¹

Once he had secured the agreement of the media participants, the conference proceeded along notably courteous lines, apart from one moment early on in the questioning when Beale asked journalists not to “cross-examine”. Sir William gave a self-deprecating and fairly straightforward address (“...I am just not used to this kind of thing”¹⁰²) in which he discussed, among other things, the issue of why Australia was selected for the tests. Suggesting that the amount of ground needed for atomic bomb testing was 100 miles (“[i]t need not be a circle of a hundred miles – a hundred miles sector...”¹⁰³), he asserted that the UK did not have this kind of space:

¹⁰⁰ Howard Beale, transcript of Joint Press Conference by the Hon. Howard Beale QC MP, Minister for Supply, and Sir William Penney, KBE FRS DSc, Director of the British Atomic Weapons Research Establishment, 14 August 1956. National Archives of Australia: Maralinga Press and Publicity, Series A6456, item R087/135

¹⁰¹ *Ibid.*

¹⁰² *Ibid.*

¹⁰³ *Ibid.*

“If one has that amount of ground one can limit the really dangerous parts of the explosion within that area, with considerable margin of safety. Well, Australia has just that possibility. At the Maralinga range we have an area which is quite within our use. It’s sterile, there are no people, there are no animals – that gives us the first of our absolutely essential requirements. An area where we can be dangerous without hazarding any people or stock. Of course in England, such an area is quite impossible to find – in England you can’t really draw a circle of two or three miles without finding people or animals, and anything like 50 miles – it just isn’t there.”¹⁰⁴

Beale suggested that it would be far better financially for Britain if it had been able to test on its own territory, leaving the implication that there was really no choice and if only things had been geographically different the tests could have been held in Britain. (Later evidence to the Royal Commission contradicted at least some of this assertion, in that the more dangerous minor trials could physically have been held in the UK if not for the politics of the situation – see Chapter Six.) Penney concurred with Beale and reiterated the lengths Britain had gone to make the area safe¹⁰⁵. He also went on to describe the nature of the forthcoming Buffalo tests.

One part of Penney’s address, about the service personnel who would be present at the Maralinga trials, from Australia, the UK, Canada and New Zealand, showed a rather frank use of what would now be described as a loaded term:

“There will be several hundred of these servicemen at the indoctrination. They will be indoctrinated at these tests.”¹⁰⁶

This statement was not picked up by the journalists during their questioning and appears from the transcript to have been seen as unremarkable, although in fact it does point to an aspect of the Maralinga tests that only much later became significant in the media. Penney was probably referring here to the “Indoctrinee

¹⁰⁴ *Ibid.*

¹⁰⁵ It is interesting, in light of Penney’s comments at the 1956 media conference, to read the conclusions of the 1985 Royal Commission. This found that all four Buffalo tests at Maralinga held just after the media conference had failed safety standards, producing fallout that exceeded guidelines and, in the case of the third Buffalo test, contaminating the Maralinga village where service personnel lived. (Royal Commission Report Vol.1, *op. cit.*, p. 299.) In addition, and as noted elsewhere, despite what Penney said about the area being uninhabited, there was significant movement of Aboriginal people around Maralinga in the lead-up to and during Buffalo. The Royal Commission concluded “...the attempts to ensure Aboriginal safety during the Buffalo series demonstrate ignorance, incompetence and cynicism on the part of those responsible for that safety.” Royal Commission Report Vol. 1, *op. cit.*, p.323.

¹⁰⁶ Joint Press Conference Beale and Penney, *op. cit.*

Force”, a group of (mostly) British and Australian officers and some civilians who were specially trained to experience simulated nuclear combat and to observe up close the effects of the blast on service equipment and vehicles during the major trials at Maralinga. They were to be stationed about four miles (seven kilometres) from the site of the first Buffalo test¹⁰⁷ and they were to inspect the blast zone both before and after the bomb was detonated. The role of the Indoctrinee Force was not specifically related to examining the human health effects of the blasts, however¹⁰⁸, so their own health after exposure to the blasts was not examined in depth at the time. In the years after the Royal Commission, and particularly in 2001 following the publication of an academic study of the Indoctrinee Force, allegations were extensively reported that these indoctrinees were “human guinea pigs”¹⁰⁹, although their presence and activities drew no media comment at the time they were deployed at Maralinga.

At the media conference, the journalists were allowed one question each, although there were so few questions that Beale ended up inviting them to ask more than one. Interestingly, one of the more prolific questioners was from *Australasian Post*, a now-defunct popular general interest magazine that, during its lifetime, would not have been noted for serious science or political journalism¹¹⁰. That publication’s representative, a Mr Barnes, asked a total of four questions, including a relatively searching one on whether it was possible to make a weapon

¹⁰⁷ Royal Commission Report Vol. 1, *op. cit.*, p. 336.

¹⁰⁸ G M Kendall, C R Muirhead, S C Darby, R Doll, L Arnold and J A O’Hagan, “Epidemiological studies of UK test veterans: I. General description”, *Journal of Radiological Protection* 24, 27 August 2004, p. 203.

¹⁰⁹ Royal Commission Report Vol. 1, *op. cit.*, p. 339. The fate of the Indoctrinee Force has been the focus of much latter-day comment and analysis. A prominent study was released by the anti-nuclear activist and researcher from the University of Dundee in Scotland, Sue Rabbitt Roff, in May 2001. She found that, as part of the activities of this force, 24 Australian servicemen were deliberately given excessive doses of radiation. “This puts the lie to the British government’s claim that they never used humans for guinea pig-type experiments in the nuclear weapons trials in Australia,” said Rabbitt Roff, quoted in Margaret Rees, “Documents confirm soldiers were exposed to nuclear tests in Australia”, World Socialist Web Site, 9 July 2001. Rabbitt Roff’s account of harm caused to the Indoctrinee Force has been disputed, in particular by the third in a series of studies carried out by the UK National Radiological Protection Board (NRPB), whose results were published in 2003. A summary of the NRPB’s studies into the health and safety of the Indoctrinee Force may be found in Arnold and Smith, *op. cit.*, pp. 261-267.

¹¹⁰ *Australasian Post*, which began publishing in 1941, was best known for its lively reporting style and emphasis on the use of photographs, largely of women.

www.paperworld.com.au/magazine/info.php?Mag=Australasian%20Post

“from less than critical mass”, to which Penney’s answer was a fairly unelaborated “yes”¹¹¹

A Mr Boland of the Melbourne *Argus* raised a question (paraphrased for the transcript by Penney) about whether “some water on the Queensland coast, north of Monte Bello, had radioactivity in it after the tests”¹¹². It is not clear whether the geographic error was Boland’s or Penney’s, and no-one stepped in to correct it. The question itself does reflect continuing concern about rumours of radioactive contamination from the Monte Bello tests – most particularly the problematic second Mosaic test in June 1956, two months before this media conference. In part, Penney replied:

“Well the world is naturally radioactive, there is natural radioactivity, we have lived with it all our lives and the fact is that in Queensland the level of this was well below any danger level. There was no danger. It can be measured, it could be measured almost anywhere in the world, but there was, in fact, no danger.”¹¹³

The gathered journalists appeared to be satisfied with this answer, or at least did not follow through with it. The absence of follow-through to sometimes quite provocative or suggestive comments by Penney and Beale is especially revealing of a pliant media, as is the apparent lack of knowledge about the difference between naturally occurring radiation and the radiation unleashed by nuclear weaponry¹¹⁴.

Sir William joked with the media about the delays to the highly problematic first test in Operation Totem conducted at Emu Field in October 1953:

“...I do not know if you remember it, at Emu Field we waited for something like 10 days and you chaps gave us an awful ribbing you know – ‘What are we waiting for?’”

¹¹¹ Media conference 14 August 1956, *op. cit.*

¹¹² Monte Bello is off the Western Australian coast, while Queensland is on the eastern side of the continent.

¹¹³ *Ibid.*

¹¹⁴ In fact, there are significant differences between natural background radiation and the kind of radiation unleashed by a nuclear bomb, a point made in Ian Anderson’s *New Scientist* story of June 1993, “Britain’s dirty deeds at Maralinga”. In that story, Anderson quoted radiation scientist Geoff Burns who was responding to the same suggestion. See Burns’ quote on p. 73 of this thesis.

Beale chipped in “Cost us a lot of whisky too.” The same frustrating delays were in store for Penney, Beale and the journalists in the lead-up to the Buffalo shots that were held the month after the media conference. Penney also had some fun with a question from the Reuters representative, a Mr Downing, who asked about using nuclear explosions for large-scale earthmoving:

“This sort of idea has come from newspapers in Russia and if I may make a little crack at your expense, I think it is a newspaper story, it just doesn’t make sense to me.”

Mr Cox from the Melbourne *Herald* got short shrift when he asked about the relative power of the tests at Monte Bello, Emu Field and Maralinga:

“This is the sort of information which other countries would spend a lot of money to find out. I don’t think it makes sense to tell them. The explosions have been seen by the Press and others, too, who were on the mainland. It’s easy to get a wrong impression.”

He completed that answer by refusing to be drawn on details: “...I think we have gone just about as far as we can.” The *Argus*’s Boland followed his earlier enquiry with a question about a statement that had become public at that time, purportedly signed by nine Australian scientists, challenging Titterton’s statement that there was no danger from the atomic tests:

“Mr Boland, I have not seen this correspondence. I do not really know what the points are, but on one thing I am quite clear – there is no danger and there has been no danger.”¹¹⁵

After a few more questions, the media conference concluded with Penney inviting the journalists to examine some gadgets he had brought with him – described as radiation monitors – because “I wanted to ...really convince you that you have been living with radioactivity all your life” and attempted to perform a radioactivity reading of a luminous wrist watch belonging to a journalist, although the equipment apparently did not work and the demonstration was abandoned.

¹¹⁵ *Ibid.*

Penney's rather charming other-worldly-scientist presence that comes through in the transcript of the media conference was often to be found in the media between 1952 and 1956 and, with the assistance of Beale, he found various fora in which to state his views on the development and testing of nuclear weaponry. These included the ABC radio show *Guest of Honour*, on which he appeared on 2 September 1956. As part of his address on that show, he gave a personal perspective on the need for atomic weapons:

"Soon after the end of the War with Japan I saw what the bombs had done to Hiroshima and Nagasaki and I shall never forget what I saw. As an Englishman, I kept on wondering if a similar fate would some day fall on London and other British cities. Sadly, but resolutely, I came to the conclusion that the risk of this happening would be greatly reduced if the United Kingdom had the ability to return any such blow in equal measure."¹¹⁶

Penney, a former mathematical physics academic, admitted to doubts about his role:

"I was asked to lead the weapons work and our weapons program began. Since then, I have repeatedly asked myself if I was right to do what I have done. In all humility I can say that I have never wavered in the belief that I was right. To claim that I have never been worried about my action would, however, be very far from the truth."¹¹⁷

He went on to reiterate many of the messages from the August media conference about the geographical imperative that ruled out holding the tests in the UK, and the emphasis on safety. All the matters connected with the weapons tests he characterised as "sombre things", dealt with before he used the second half of his address to talk about things that were "bright and cheerful", atomic energy for peaceful civilian purposes. For this latter development, he had high hopes and optimism. He concluded:

"To us then, atomic energy is vital and urgent – to you in Australia it is not so urgent but it could be of greatest importance before very long. In a

¹¹⁶ William Penney, transcript of broadcast, ABC *Guest of Honour* program, 2 September 1956, National Archives of Australia: Maralinga Press and Publicity, Series No. A6456, Item R030/074.

¹¹⁷ *Ibid.*

piece of Australian slang that I like very much ‘It’s worth giving it a whirl’.”¹¹⁸

Penney frequently comes across in his public statements as a jauntily optimistic but self-effacing scientist. A respectful distance between him and the public assisted in creating a positive public image, and he was not scrutinised by journalists at the time – even when an opportunity presented itself, such as at the media conference outlined above. Later, he proved to be a key witness to the Royal Commission into British nuclear tests, where the questioning was much more probing than he had been exposed to in the 1950s and must have been difficult for someone more accustomed to keeping his own counsel. It is said that Royal Commission chair James McClelland liked Penney, describing him later as:

“...a nice old man. I got the impression that he wasn’t terribly proud of having used his immense scientific skills on an exercise that was really an exercise in futility.”¹¹⁹

Nevertheless, McClelland certainly thanked Penney warmly for his evidence, given in London while the old nuclear scientist was ailing. McClelland singled him out in the official Royal Commission acknowledgements, noting:

“In particular, Lord Penney, who interrupted his retirement to give the Royal Commission the benefit of his unique experience and vast knowledge.”¹²⁰

Following on from the articles featuring vetted material from Ernest Titterton, Minister Beale also was given a feature-sized space in the *Sydney Morning Herald* in August 1956¹²¹, to put the case for Australia’s involvement in the British nuclear tests. This came soon after his department had formulated an information document that was provided to any member of the public seeking information about the tests¹²². Both items began with the assertion “Atomic weapons are

¹¹⁸ *Ibid.*

¹¹⁹ James McClelland, transcript of interview with Robin Hughes, Australian Biography Project, www.australianbiography.gov.au/subjects/mcclelland/interview6.html.

¹²⁰ Royal Commission Report Vol. 1, *op. cit.*, p. vi.

¹²¹ Howard Beale, “Why Australia Provides The Site for Atomic Tests”, *Sydney Morning Herald*, 13 August 1956, p.2.

¹²² Howard Beale, “Why We Hold A-Tests in Australia”, 6 August 1956, National Archives of Australia, Series A6456, item R047/011.

absolutely essential to the survival of Great Britain and the Commonwealth in the event of another world war.” Apart from their headings, the body text of these items is word-for-word. In effect, the newspaper had run a straight official government public relations document in its pages. The item appeared as a stand-alone feature, without additional journalistic reporting or commentary.

Howard Beale appears to have taken some pride in his interactions with the media and asserted in various ways that he always placed priority on the needs of journalists and editors. While there were occasions when he indicated displeasure at what he perceived as unfair media treatment, such as when he had been accused of not being frank with the Australian media over the rumour of a hydrogen bomb test (see below), mostly he seemed to believe that he was on the side of the media. A cable between Departmental officials at the time of the planned press trip to Maralinga for Operation Buffalo¹²³, in which the complaints of the media about arrangements for journalists to get their stories from the site via the Air Force base at Edinburgh near Adelaide, made the telling point:

“Minister [Beale] again stressed that it is essential that press requirements be met if practicable.”¹²⁴

The officials set in place a new system in which a professional telegraphist would be sent to Maralinga with the press party to handle the transmission of all copy by sending it to the General Post Office (GPO) in Adelaide before onward distribution, to ensure efficient communication of their stories. In one document, members of the Department of Supply seemed resentful of Beale’s enthusiasm for giving members of the press everything they asked for and took more of a jaundiced view than that of the Minister. The author of the cable, senior Department of Supply bureaucrat E L Cook, commented:

¹²³ The trip was set down originally for 10 September 1956, in line with the schedule for the first Buffalo detonation. In the event, weather conditions delayed the firing until 27 September. (Royal Commission Report Vol. 1, *op. cit.*, p. 285). The media contingent was kept waiting in Adelaide, not always patiently.

¹²⁴ Text of cable from Cook, Melbourne, to Herington, Adelaide, on Press Arrangements, 11 September 1956, National Archives of Australia, Series No. A6456 (A6456/3), Item R047/011.

“Consider press have backed wrong horse but wish it made matter of record that new arrangements [for transmission of media stories from Maralinga] were to satisfy their demands.”¹²⁵

The first Buffalo shot was delayed several times and as a result Beale had to deal with some media speculation and hostile parliamentary questioning that Maralinga may not have been the ideal place for a permanent test site¹²⁶. The lead-up to the four-shot Buffalo series was uncomfortable for Beale as his was the most recognisable face among those representing the tests in Australia – and Maralinga was a new, expensive, untried venue. A huge front page banner headline in the *Sydney Sun* on 25 September 1956, “Latest on the bomb!”, had directly beneath it in large type an actual cable from the reporter, saying:

“Hope to be back by Xmas. In meantime could you [send] further £15. Have done 6/700 word special on whether £6-million Maralinga is a white elephant.”¹²⁷

The text of the story went on to explain that the *Sun* special reporter who composed the message “...has been waiting for a fortnight for scientists to set off an atom bomb in the first of several tests.” The article then quoted the reporter as saying “Have the British and Australian governments blundered in picking Maralinga as their test site?”¹²⁸ This was a question that more people were asking, including the federal Opposition. The government consistently defended Maralinga throughout.

As the media and Maralinga officials waited impatiently for the appearance of the first mushroom cloud over the new site, Beale was attempting to engender a business-as-usual atmosphere. He sent out a statement to media titled “Tracking possible radioactive ‘drift’”:

The Minister for Supply (Hon. Howard Beale Q.C., M.P.) said to-day that announcements would be made from time to time of the movement through the upper stratosphere of the harmless, light radioactive particles which may follow the firing of the atomic device at Maralinga. Mr. Beale

¹²⁵ *Ibid.*

¹²⁶ Milliken, *op. cit.*, p. 210.

¹²⁷ Author unknown, “Latest on the bomb!”, *Sydney Sun*, 25 September 1956, p. 1.

¹²⁸ *Ibid.*

said that the announcements would be based on reports from the Australian Atomic Weapons Test Safety Committee.¹²⁹

Beale was constantly in the public eye throughout the Buffalo program, not just dealing with rising media pressure but also political pressure. The ALP leader Doc Evatt had attempted a censure motion in Parliament to condemn the government's support of British atomic tests. As reported in the *Sydney Sun*, Beale took the opportunity to reiterate that the test program would continue:

“Beale said that the Governments of Australia, Britain and the US were doing their best to achieve a working agreement, which would allow abandonment of atomic tests and the nuclear arms race. ‘But we have no intention of stopping until we get some form of safeguard that the Free World will not be overwhelmed by an avalanche of Russian atomic arms,’ he said.”¹³⁰

In his autobiography Beale recounts an anecdote from the media trip to Maralinga (mentioned above) in June 1956. During this trip, the visiting media representatives were alerted to allegations of what they believed were unacceptably high levels of radiation heading to the mainland from Monte Bello following the huge second Mosaic bomb exploded on 19 June¹³¹. A rumour had swept through the dining room during the evening meal and there was a mass exodus of the editors and journalists from the room to call their offices. This rumour suggested that a dangerous radioactive cloud had drifted to the mainland after the bomb test and that a miner at Marble Bar (several hundred kilometres to the east) had detected radiation on his Geiger counter. This had mobilised the journalists and gave Beale some uncomfortable hours as he attempted to kill the rumour and restore order to the restive media contingent¹³². Given the poor state of communications to the Monte Bello site, this took some time. Beale finally received the reassuring words he needed from the Safety Committee Chair Leslie

¹²⁹ Media statement from Howard Beale, 18 September 1956, National Archives of Australia, Series No. A6456 (A6456/3), Item R047/011.

¹³⁰ Author unknown, “Freedom Safeguard: More atomic tests”, *Sydney Sun*, 11 October 1956, p. 40.

¹³¹ Beale, *op. cit.*, pp. 82-83

¹³² While Beale's autobiography notes that this trip took place in July 1956 and was to the Woomera weapons test range rather than Maralinga, since the second Mosaic test occurred on 19 June 1956, exactly the date that journalists arrived at Maralinga, it seems likely that this is another inaccuracy in Beale's autobiographical account. Cf files on Maralinga Press Visit June 1956, National Archives of Australia Series No. A6456, Item R087/135.

Martin, along with Ernest Titterton and others at the WA test site, and issued a dramatic media statement at midnight. His later account stated:

“I learnt again from this that newspaper editors may be gracious guests, but when it comes to a sensational news story they are newsmen first and foremost. Nevertheless they co-operated in an awkward situation, and faithfully kept their word to me by damping the story down as far as they could.”¹³³

That the media representatives had dampened down the story to assist Beale is quite a revealing comment and probably speaks to the kind of relationship Beale had sought to develop with the media and the closeness to official sources that was maintained by media practitioners at the time. One story that arose from that incident was published by the Sydney *Sun* and headlined “Threat to 3 Towns”. It began:

“All Australia is anxiously watching a radio-active cloud – result of the atomic blast on the Monte Bello islands on Tuesday”¹³⁴.

Beale was quoted citing Martin:

“Prof. Martin...has reported to me that conditions of firing were ideal and there was absolutely no danger to the mainland. The path of the cloud was followed by plane, and last night the cloud was over the sea, 100 miles off the north-west coast.”¹³⁵

The story also quoted the Deputy Prime Minister Arthur Fadden, who defended Beale and the scientists over the incident in the face of attacks from the leader of the opposition Doc Evatt. Evatt had indicated that the “bald assurances”¹³⁶ of Beale and the AWTSC were insufficient to meet public concern. Fadden assured Parliament that there would be a full enquiry into the incident. In the end, there was not.

The Melbourne *Herald* had some advice for Beale and his colleagues after the Mosaic incident:

¹³³ *Ibid.*, p. 83

¹³⁴ Author unknown, “Threat to 3 Towns”, Sydney *Sun*, 21 June 1956, p. 1.

¹³⁵ *Ibid.*

¹³⁶ *Ibid.*

“There is a simple way in which the authorities controlling atomic weapon tests can keep the public informed and reassured about their checks on the risk in radio-activity after an explosion. Publication of regular reports by the safety committee, giving the measure of fall-out and the position of the atomic cloud, would prevent needless worry.”¹³⁷

With tensions caused by the Mosaic test still evident, Titterton was again given the opportunity to put the official line in the media. A full-page article carrying his byline and ANU affiliation appeared on 19 July 1956. At the end of a long justification for the safety of all the atomic tests in Australia, he finishes simply:

“In short, the weapons tests are safe.”¹³⁸

The Age in Melbourne was willing to applaud Howard Beale for his action on the problematic Mosaic test:

“...the Minister for Supply, Mr Beale, acted promptly to allay misgivings about the cloud drift. Within a few minutes of the Marble Bar reports of heavy radioactive fall-out he readily stated all he knew, and made contact with scientists, whose assurances were soon forthcoming.”¹³⁹

Despite the willingness of the media to work co-operatively with Beale, some tensions between the test authorities and the media were clearly emerging by 1956. William Penney had been annoyed by requests from the Australian Newspaper Council and the Australian Newspaper Proprietors' Association to attend not just the first Buffalo shot but the other three in the series as well. He sent a strongly worded teletype message to the Supply Department forbidding outright more media access than had already been agreed:

“In my view press are being unreasonable and I would tell them this firmly. They are to see the most interesting shot. The reply to argument that the U.S. show their newspapers many shots is that we have...allowed the press access to a far bigger proportion than has the U.S. We have also

¹³⁷ Author unknown, “Put Method in Atomic Check”, *Melbourne Herald*, 22 June 1956. Part of a package of clippings in National Archives of Australia Series No. A5954, Item 2167/6.

¹³⁸ Professor E W Titterton, “After atomic bomb tests...how dangerous is the mushroom cloud?”, *The Age*, 19 July 1956, p. 2.

¹³⁹ Author unknown, “Misgivings over atomic tests”, *The Age*, 22 June 1956. Part of a package of clippings in National Archives of Australia Series No. A5954, Item 2167/6.

gone to great lengths to help the press prepare their news accurately in one of the most secret of all defence matters.”¹⁴⁰

Beale also sometimes became impatient with the media, especially during the uncomfortable time when he was trying to deal with the delays to Buffalo due to weather conditions. He went so far as to issue a peevish media release, listing the various ways he believed the media had got things wrong at this time. His statement of 26 September 1956 has three main complaints, although he begins soothingly enough by assuring the majority of journalists that they are doing a good job, before taking a swing at their less conforming colleagues:

“Although most of the Pressmen covering the Maralinga test are reporting events fairly and objectively, a few seem to have lost all sense of responsibility.”¹⁴¹

Specifically, Beale was concerned about three main issues that the media had reported: that some journalists were questioning the suitability of the Maralinga site (see above, the Sydney *Sun* story of 25 September 1956); that scientists were getting restive because of the delays and were likely to start resigning; and that the tests had been delayed because of impossibly high safety standards set by the AWTSC (in a story that was only published in the UK press, not in Australia). Beale said in relation to the first allegation that Maralinga had been selected after extensive examination of meteorological information showing a certain number of days per month when conditions would be ideal but weather delays were entirely normal and to be expected. The other two allegations he labelled as “untrue”, which they almost certainly were. Indeed, the safety standards set by the AWTSC were embarrassingly cursory and could hardly have been found by any objective measure to be too rigid¹⁴². Beale concluded on the topic of safety standards:

¹⁴⁰ Teleprinter message from F A O'Connor to Minister for Supply Howard Beale, quoting message from William Penney, 30 August 1956, National Archives of Australia Series No. A6456, Item R029/249.

¹⁴¹ Media release, “Press Reports on A-Test: Statement by the Minister for Supply, The Hon. Howard Beale Q.C.”, Canberra, 26 September 1956, National Archives of Australia Series No. A6456, Item R124/025.

¹⁴² This view is stated throughout the Royal Commission report. For example, among the conclusions is the following: “The AWTSC failed to carry out many of its tasks in a proper manner. At times it was deceitful and allowed unsafe firing to occur. It deviated from its charter by assuming responsibilities which properly belonged to the Australian Government.” Royal Commission Conclusions and Recommendations, *op. cit.*, p. 11.

“As I have had occasion to say before, in this whole matter there is, and always has been, complete unanimity of opinion between the British scientists under Sir William Penney and Australian scientists under Professor [Leslie] Martin as to standards of safety and conditions under which firing should take place.”¹⁴³

Beale’s annoyed tone in this media statement may well have been influenced by the increasingly apparent broad community trend against the test program. Public sentiment towards the British tests was clearly turning in 1956, according to a number of accounts including Beale’s:

“Earlier, the necessity for these tests had been philosophically accepted by the overwhelming majority of the Australian people, and even by the opposition in parliament, except for one or two who were critical. But now voices began to be heard and questions asked.”¹⁴⁴

Not long after this, all public information about Maralinga effectively shut down and secrecy was to become absolute. It was easier to keep the later minor trials under wraps because they were not as visual as the mushroom clouds. They were also rather boringly like scientific experiments and less like thrilling big bomb blasts with miniature suns and people’s faces in the cloud. Not all the minor trials were without some media presence, however. A mid-1950s round of Kittens minor trials were actually announced in a media release issued simultaneously by the UK and Australian governments on 25/26 February 1955¹⁴⁵. Beale was decidedly unimpressed by the media coverage that resulted, especially as he had not wanted Kittens to be publicised at all. Leaks in Britain about Kittens ahead of the official release had provoked stories about the possibility of the Kittens series really being a cover for a hydrogen bomb, a connection that was being made more and more in the media as the H-bomb was being tested by the Americans and suspicions grew that the British must be planning a hydrogen device of their own (as indeed they were, although it was finally tested in the mid-Pacific Kiribati island group in 1957-58, not at Maralinga¹⁴⁶). Beale was angry that the Australian

¹⁴³ *Ibid.*

¹⁴⁴ Beale, *op. cit.*, p. 82.

¹⁴⁵ Royal Commission Report Vol. 2, *op. cit.*, p. 508.

¹⁴⁶ Milliken, *op. cit.*, p. 147. The British hydrogen bomb test series in the Pacific was code named Grapple.

media was attacking him for not keeping them as informed as their UK counterparts. He wrote to his UK counterpart, Selwyn Lloyd, on 2 March 1955, saying:

“The latest report from London concerning hydrogen bomb tests in Australia illustrates our difficulties...Although the report was, of course, false, it was obviously wrongly based on information concerning the ‘Kittens’ project, which our two Governments had agreed should not be announced at the time. I denied the report, but now that the official ‘Kittens’ announcement has been made, I am being called a liar for having denied the earlier story.”¹⁴⁷

Like all of the official British atomic test media releases, the Kittens release contained a measure of obfuscation, enough to receive its own Royal Commission conclusion:

“Official Government comment on the 1955 series of minor trials, as with so many other statements concerning the test program, appeared to be designed either to exaggerate the extent of Government to Government co-operation or to escape from an awkward situation rather than genuinely to provide information to the public.”¹⁴⁸

That 1956 was a watershed year in media and public perception of the British tests is supported by a remarkable two-page memo most likely written by a bureaucrat in the Department of Supply in mid-1956, although the author’s name does not appear on the file. Despite the author’s anonymity, it is part of a broader package of declassified documentation from the Department of Supply and is worth quoting as an official source. It appears to be a departmental briefing document and is titled “Press Reaction to Atomic Trials”¹⁴⁹. It sets out in terse numbered points an overview of the attitude of media to date. It notes the favourable media treatment of the early stages of the test program, saying that:

“...the Australian Press was, in the main, favourably inclined towards any further series of tests [after Totem in October 1953].”¹⁵⁰

¹⁴⁷ Royal Commission Report Vol. 2, *op. cit.*, p. 508.

¹⁴⁸ Royal Commission Conclusions and Recommendations, *op. cit.*, p. 10.

¹⁴⁹ Author unknown, likely to be a Department of Supply bureaucrat, “Press Reaction to Atomic Tests”, undated, National Archives of Australia Series No. A6456, Item R047/011.

¹⁵⁰ *Ibid.*

The memo writer claimed that public opinion began to turn in 1954:

“...no atomic trials were held in Australia during 1954, but a very definite change in public opinion occurred during that year. This was partly due to the death of a Japanese fisherman injured by radio-active fall-out from an American H-bomb explosion in the Pacific [as mentioned above]. Another major factor was the general lessening of international tension because of the apparent Soviet policy trend towards peaceful co-existence.”¹⁵¹

The memo writer also points to some other factors that had clearly started to exert an influence on Western community attitudes towards nuclear weaponry generally:

“[t]he international Peace Campaign, although an obvious instrument of Communism[,] was fostered during 1954 and 1955 by people of many shades of thought... The Press was not slow to sense this vocal pressure and, chameleon-like, began to offset any articles showing pride in British technical advances with far more attention to the dangers, both political and physical, implicit in atomic trials. One section of the Press, the Truth/Mirror chain of papers, began definitely to oppose any further tests in Australia. Other newspapers became more critical in their attitude.”¹⁵²

The memo noted that the announcement of the permanent test site at Maralinga “was soberly and well presented by the major national newspapers”, including presumably the *Sydney Morning Herald*, whose laudatory article on this topic is outlined above. However, public attitudes had soured and a Gallop Poll in March 1956 showed a majority of Australians “apparently against such tests”¹⁵³, although the two states where the tests were actually held, Western Australia and South Australia, came out in favour.

“The situation in mid-1956 is therefore that newspapers, even those which are not already actively hostile, feel compelled to be critical of atomic tests because of the whipped up, if unthinking, public outcry against them. The near-hysteria built of flimsy misconceptions following the second Mosaic explosion is indicative of the difficulties now to be faced from a volatile Press, public opinion and political situation.”¹⁵⁴

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

¹⁵³ *Ibid.*

¹⁵⁴ *Ibid.*

One wonders what the memo writer would make of the later-era media stories, or of the findings of the Royal Commission, which make any mild criticism apparent in 1950s media reporting seem like strong affirmation. The writer concludes:

“It is considered that only a concerted campaign to refute the major false issues which have been raised concerning atomic trials, together with patient and persistent education of the public through newspaper and magazine articles[,] can restore the confidence and pride which only three years ago marked the ordinary Australian’s attitude towards co-operation with the U.K. in this vital defence matter.”¹⁵⁵

After Operation Buffalo and its associated media activities concluded, the UK Atomic Weapons Trials Executive¹⁵⁶ met on 10 October to review how the operation had gone. The minutes of the meeting in relation to test publicity record the following:

“The Chairman expressed the view that the publicity arrangements for the Operation [Buffalo] appeared to have been successful. There had been little evidence of the adverse press comment and fears of the Australian public which accompanied [Operation] Mosaic. This was no doubt due to the publicity given before and during the operation and to the emphasis placed on the strict regard for safety arrangements which were in Australian hands.”¹⁵⁷

The 1956 program of media activities had served its purpose and the UK overseers of the test series were pleased. On the available evidence it appears that the extensive media activities in the second half of 1956, planned and carefully orchestrated activities that put Penney and Beale up front as high profile spokespeople, was to be the culmination of officially sanctioned publicity before the flow of information reduced to nothing, where it remained until the 1970s. In the lead-up to the final Maralinga major tests, Operation Antler in 1957, a decision was taken not to place Penney in front of the media again lest it be thought that there was anything other than normal about these tests¹⁵⁸. According to evidence presented to the Royal Commission:

¹⁵⁵ *Ibid.*

¹⁵⁶ The AWRE committee in the UK oversaw all the major trials except for the first, Hurricane.

¹⁵⁷ Minutes of the 10 October 1956 meeting of the UK Atomic Weapons Trial Executive, quoted in Royal Commission Report Vol. 2, *op. cit.*, pp. 494-495.

¹⁵⁸ Royal Commission Report Vol. 2, p. 504.

“...we have been trying to foster the idea that Maralinga tests are matters of routine which we try to avoid dramatising. If we send such a busy man as Sir William Penney out again to Australia, it will do much to destroy this idea that the tests are routine matters and may indeed be calculated to excite just those anxieties which we are anxious to allay.”¹⁵⁹

Nevertheless, senior editors and proprietors of leading newspapers and their counterparts in the broadcast sector were to be invited to Maralinga during 1957, “to win [their] confidence and make them feel well disposed towards Antler”¹⁶⁰. This was apparently deemed to be a more effective stratagem than the previous method of inviting more lowly journalists, who might have a greater inclination to be influenced by the growing disquiet about nuclear tests than their senior colleagues:

“Another point of importance would be that by giving the editors this amount of information they would feel themselves in a superior position in relation to their reporters and this would enable them to avoid having scare stories put across them.”¹⁶¹

In line with this motive of instilling the official line in the more senior editorial staff, a press trip was duly organised to coincide with Operation Antler in 1957. Twelve places were allocated on the trip for editorial staff from a number of organisations, including Australian Associated Press, Australian United Press, the Truth/Mirror and the Australian Broadcasting Commission¹⁶². The trip conditions forbade “cine cameras” (that is, film cameras), although participants were able to use binoculars and take still photographs¹⁶³. Unlike the previous year’s media trip to Maralinga, the Department of Supply did not cover the cost of accommodation in Adelaide for this trip¹⁶⁴. It appears that while it was a pleasant enough junket,

¹⁵⁹ *Ibid.*, p. 503.

¹⁶⁰ *Ibid.*

¹⁶¹ *Ibid.*

¹⁶² Memo from F A O’Connor, secretary of the Department of Supply, to the Australian Newspaper Proprietors’ Association, 3 September 1957, National Archives of Australia Series No. A6456, Item R087/090.

¹⁶³ *Ibid.*

¹⁶⁴ The decision not to pay for media participants’ accommodation on this trip to Maralinga was probably related to a query raised by the Chief Auditor about the expenses incurred during the Buffalo media trip the year before. This was partly because of the various weather-related delays that meant the media party had to fly three times to the site. The total cost was over £2,200, made up of £726 for accommodation and entertainment and over £1500 for air transport, a very large sum for the time. F A O’Connor minute paper, “Expenses in connection with the visit of the press party to witness an Atomic Explosion at Maralinga, 1956”, National Archives of Australia Series No. A6456, Item R029/249.

with a nice meal, a side trip to Woomera and even special “typing tables in the desert”¹⁶⁵, not much real news arose from it from the media’s point of view. As one bureau chief gently rebuked in a letter to the Department of Supply:

“As you know, we would have welcomed a lot more information, but I must accept it that the information was classified.”¹⁶⁶

A series of fairly basic media releases also accompanied Antler, with the usual problems later identified in all the media materials released at the time:

“The process of allaying public concern about the testing program continued throughout the Antler series but the public was, again, not informed of the true nature of the hazards involved.”¹⁶⁷

One such media statement from Beale provided a bare-bones seven paragraphs that gave brief information about the official from AWRE who would be at Maralinga to direct the trials (Charles Adams, AWRE chief of research) and the fact that the tests would be in the kiloton range (which was intended, no doubt, to show that they did not involve megaton hydrogen bomb blasts). The only direct quote from Beale emphasised safety:

“Individual firings will take place only when the Safety Committee of Australian scientists appointed by the Commonwealth Government has agreed that conditions are such as to ensure no risk to persons, livestock and property throughout Australia.”¹⁶⁸

By the end of 1957, Howard Beale, the most visible Australian face of the British test program, had apparently fallen out with Robert Menzies¹⁶⁹ and would early the next year ship out to a post as Australian Ambassador to the United States¹⁷⁰. World events were starting to place limits on what kind of nuclear weapon activities might be possible and determine what must be kept hidden if the test

¹⁶⁵ Gordon Tait, Chief of Bureau, The Associated Press, letter to Reg Harris in the Department of Supply, 15 October 1957, National Archives of Australia Series No. A6456, Item R087/090.

¹⁶⁶ *Ibid.*

¹⁶⁷ Royal Commission Report Vol. 2, *op. cit.*, p. 505.

¹⁶⁸ Media release, “New A-Tests at Maralinga Next Month”, Department of Supply, 29 August 1957, National Archives of Australia Series No. A6456, Item R087/090.

¹⁶⁹ Milliken, *op. cit.*, p. 59. Milliken asserts that Beale’s high public profile made him a threat to Menzies, which is why he was pushed out of the Government,

¹⁷⁰ “Reward for a good boy”, *Sun-Herald*, 19 January 1958. Clipping on National Library of Australia biographical file for Howard Beale.

series were to continue. After Operation Antler, the minor trials were gathering pace but the mushroom clouds were no more. The life of the British atomic test program at Maralinga was about to take an even more secret turn, as Chapter Six on the Vixen B trials will show. Before providing details about the most secret and most dangerous scientific experiments in Australia, I will first outline one of the main mechanisms by which the minor trials could so successfully be kept secret: D-notices, the subject of Chapter Five.

Chapter Five

“Voluntary censorship”: D-Notices

The press in both Britain and Australia, at least initially, did not probe at all into the political, scientific, moral, economic or any other aspect of the atomic project. They allowed themselves to be bound by a series of D-notices, a system of self-denying but non-legally binding ordinances whereby the government secures the agreement of newspapers and broadcasters not to mention subjects whose non-disclosure the government deems to be in the national interest.

Robert Milliken, *No Conceivable Injury*

When the media acquiesce, the very existence of censorship is unknown to citizens. In Australia, D-notices, used to censor the media, seldom receive publicity.

Sue Curry-Jansen and Brian Martin, “Exposing and opposing censorship”

Why bother to muzzle sheep?

Attributed (possibly incorrectly) to Ernest Bevin, UK member of parliament and post-war Foreign Secretary

The behaviour of the British and Australian governments, and the media, during the era of atomic tests in Australia did not take place in a vacuum. A range of causal factors contributed to the various decision-making processes which, when examined in the context of their time, seem more understandable than they may seem in the current era. The imposition of controls over the media, exercised both by the British and the Australians, was consistent with a range of pre-existing circumstances. A long and vicious world war had not long ago been fought. A major totalitarian power, the Soviet Union, had risen to become a superpower and had relied upon the leaking of official Western secrets to derive at least some of its post-war armaments and strength. A large country to Australia's north, China, had recently undergone a communist revolution. The Cold War looked as if it might become hot at any time. These fears were heightened when the Korean War began, just before Clement Attlee asked Robert Menzies to agree to atomic testing in Australia¹. A series of scandals in the post-war era that had implicated some members of the Australian public service in supplying security information to the Soviet Union meant that Australia found itself needing to convince both the UK and the US that it could keep security secrets. Collaboration on national security issues between Australia and its two main allies was dependent upon making some fundamental changes to the way Australia conducted itself,

¹ The Korean War began in June 1950 when North Korea invaded South Korea and United Nations forces, mainly American, were called to defend the South. Australian troops joined the action soon after it began. F K Crowley, *Modern Australian Documents 1939-1970*, Vol.2, Wren Publishing, Melbourne, 1973, p. 226.

particularly as the new international dynamics around nuclear weaponry and the arms race started to play out. Australia's major allies would no longer tolerate a lax attitude towards national security. Australia's domestic spy service, the Australian Security Intelligence Organisation (ASIO), was established during the final days of the Chifley government, under explicit pressure from both the UK and the US.

“With the Cold War worsening and anti-communism dominating political debate, Australia-US relations were ruptured in June 1948 (and Australia-UK relations consequently deteriorated) when Washington suspended the flow of classified military information to Australia...Unrelenting pressure by Westminster and Washington...culminated in the establishment of the Australian Security Intelligence Organisation (ASIO) in March 1949.”²

The election later in 1949 of the nation's first Liberal Party government³, with Robert Menzies as leader, ushered in a new and lengthy era of conservatism headed by a noted anglophile and former constitutional lawyer. Keeping tight control of national security matters came naturally to Robert Menzies and his distrust of the media had a long history, as shown below. He became prime minister at a time of pervasive anti-communism in Western countries that had been set in motion in part by the aggressive pursuit of atomic weapons by the Soviet Union after the spectacular launch of these new weapons by the US in August 1945. Menzies was elected to his first post-war term on a national security platform and a pledge to outlaw the Communist Party⁴. He was destined to gain great political capital out of defence and security issues throughout his long tenure as prime minister, which spanned seven general elections and only ended with his retirement in January 1966. As Menzies later wrote in his autobiography in relation to the tightening of national security with the advent of ASIO to deal with Australia's increasingly pressing internal security issues:

² Laurence W Maher, “H. V. Evatt and the Petrov Defection: A Lawyer's Interpretation”, Australian Society of Labour History, 2007, at www.historycooperative.org/proceedings/asslh2/maher.html. Accessed 31 December 2009.

³ The Liberal Party of Australia was formed in 1945. Robert Menzies had been prime minister of Australia between 1939 and 1941 but at that time he headed the soon to be defunct United Australia Party.

⁴ Stuart Macintyre, *A Concise History of Australia*, Second Edition, Cambridge University Press, Port Melbourne, 2004, p. 214. A referendum intended to give the Australian Parliament the power to ban the Communist Party was narrowly defeated in 1951.

“[Previous Prime Minister Chifley] laid down a rule, which I subsequently strictly observed, that ASIO must work in secret (since it was trying to counter an enemy who worked in secret), and that the details of its activities should not be exposed in Parliament or to the public at large.”⁵

As well as ASIO, which roughly equated to Britain’s MI5, a new (and for many years totally secret) external security organisation equating to MI6 was established in 1952: the Australian Secret Intelligence Service or ASIS⁶. With a new focus on security in the context of a global atomic arms race and rising international political tensions, as well as Australia’s existing co-operation in British missile development and forthcoming atomic weapons development, the initiation of a D-notice system for Australia to manage media information looked as inevitable as the establishment of a spy service.

The British had themselves long carried out weapons development with a formidable security apparatus attached, notwithstanding their own various spy embarrassments (which were far more damaging than any security leaks out of Australia, notably those referred to in Chapter Two involving Alan Nunn May, Klaus Fuchs and the Cambridge spies). As previously mentioned, while the British government in pursuit of nuclear weaponry needed the geographic assets and distance from the British electorate that Australia had to offer, it was not convinced of Australia’s soundness when it came to managing security issues⁷. Indeed, the Americans were extremely wary of Australia’s approach to security, and this affected the attitude of the British government:

⁵ Robert Menzies, *The Measure of the Years*, Cassell Australia, North Melbourne, 1970, p. 155.

⁶ Maher, *op. cit.*, p. 199. The Australian Secret Intelligence Service (ASIS) was much more secret than ASIO and remains subject to a (notional) D-notice to this day, despite some controversial breaches by the Australian media. Its existence was not acknowledged publicly by the Australian government until the 1980s. The journalist who did so much to uncover the events at Maralinga, Brian Toohey, has also been active in bringing to light the activities of ASIS, both through newspaper articles and through a co-written book: Brian Toohey and William Pinwell, *Oyster*, William Heinemann, Port Melbourne, 1989.

⁷ The doubts about Australia’s security held by both the US and UK were not helped by the Petrov spy scandal that began in 1954, on the eve of a federal election, when the Canberra-based Soviet diplomat Vladimir Petrov defected to Australia and “claimed to have received information from a communist spy ring in Australia that included diplomats, journalists, academics and even members of staff of the leader of the Labor Party”. Maher, *op. cit.*, p. 216. The spy ring was said to have been most active during 1947 to 1949, the final years of the Chifley Labor Government.

“...they were...very sensitive to the American prejudice about supposedly lax Australian security.”⁸

In fact, there is some evidence that the British used this perception of Australian security slackness as an excuse for keeping the flow of information about the atomic tests to a minimum. As a Commonwealth Relations Office⁹ official wrote in April 1952:

“...by explaining to the Australians the [security] measures we consider satisfactory, we shall deprive ourselves of the easiest excuse for withholding from them information about atomic matters in the future.”¹⁰

This chapter discusses the history and operation of D-notices in Australia, particularly in relation to the British atomic tests. It reveals an important mechanism in the dealings between the Australian government and the Australian media, and one that influenced, in particular, coverage of the early stages of the tests. This thesis argues that the D-notice system, guided by a secret committee that numbered senior media representatives, politicians, bureaucrats and military leaders among its ranks, set up a dynamic between the British nuclear test authorities, the Australian government and the Australian media that proved effective in getting the media to respond only to officially vetted information and dissuaded them from seeking other sources for their stories. The media were in effect “trained” not to step into the realm of independent inquiry in relation to the British nuclear tests, and the D-notice system was an important way by which this relationship was established.

The British had had D-notices, short for Defence Notices, since 1912 and had used them extensively since that time¹¹. The UK system had been set up following the proclamation of that country’s Official Secrets Act (which passed through parliament the year before), although D-notices did not then, and do not

⁸ A W Martin, *Robert Menzies: A Life*, Vol.2 1944-1978, Melbourne University Press, Melbourne 1999, p. 225.

⁹ The Commonwealth Relations Office (CRO) was a British authority that liaised between the British government and members of the Commonwealth such as Australia.

¹⁰ Martin, *op. cit.*, p. 225.

¹¹ “Admiralty, War Office, Air Ministry and Press Committee”, Department of Defence confidential briefing document, National Archives of Australia Series No. A5954, Item 1956/6.

now, have any legal authority¹². They were seen by the UK authorities as a way of ensuring “prior restraint”¹³ – in other words, media self-censorship. This way of getting media practitioners to provide their own restraint was in contrast to the far more hazardous option of pursuing media outlets after the event of publication of national security information.

“The distinction is a crucial one, since prior restraint clearly favours secrecy more than does post-publication penalty.”¹⁴

Australia does not now, and did not then, have an exact equivalent of the Official Secrets Act¹⁵. However, in all other respects the operation of D-notices is similar to the way they were operated in the UK, without a specific legislative foundation. D-notices began in the UK as essentially a peacetime mechanism, less onerous than the more restrictive media controls enacted in wartime, and that has remained the case. In their heyday in both the UK and in Australia (and particularly during the Cold War), D-notices tended both to flatter media organisations by treating them as equals with as much a stake in patriotism and national honour as government¹⁶ and also provided an orderly mechanism whereby media could publish agreed information on national security matters without risk of litigation¹⁷ or generally being harried by the security authorities. As Sadler asserts, D-notices in Australia have never commanded much attention, obviously during their secret phase but also after they were revealed to the public in 1967. She claims that

¹² *Ibid.* The fact that D-notices do not have a legislative basis is at least in part to do with the problems associated with creating legislation for media censorship, a form of legislation that would cause unproductive outrage among media organisations and the general public.

¹³ Douglas Fairley, “D Notices, Official Secrets and the Law”, *Oxford Journal of Legal Studies*, Vol. 10, No. 3, Autumn 1990, p. 431.

¹⁴ *Ibid.*

¹⁵ Although there is no official secrets act in Australia, the *Crimes Act 1914* does cover some aspects of unauthorised disclosure of Commonwealth classified information. Geoff Holland, “Science or Security: The Future of the Free Flow of Scientific Information in the Age of Terror”, 16 *Journal of Law, Information & Science*, 51 2005, p. 57. The other relevant legislation is the *Defence (Special Undertakings) Act 1952*, which set up prohibited zones around, firstly, the Monte Bello test site (J L Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985, p. 21). The Act was amended later to include Emu Field and Maralinga. This legislation prohibited unauthorised access to the sites where the tests were held.

¹⁶ Laurence W Maher, “National Security and Mass Media Self-Censorship: The Origins, Disclosure, Decline and Revival of the Australian D-notice System”, *Australian Journal of Legal History* 3, 1997, p. 173.

¹⁷ *Ibid.*, p. 199.

there were two reasons for this – that the Australian D-notices were more closely aligned to genuine issues of national security (more so than in the UK) and:

“...the print and electronic media in Australia never had specialist military correspondents of the calibre of those in the U.K., such as Chapman Pincher.”¹⁸

Now that the UK was barred from working with the Americans on the development of a nuclear deterrent and was forced to go offshore to test its weaponry¹⁹ it was keen to ensure that the fourth estate could be managed in such a way that secrets stayed secret. The British government had been exerting pressure on the immediate post-war Australian government, under Labor Prime Minister Ben Chifley, for years from the end of the war to adopt a D-notice system in Australia²⁰. The impetus for this renewed push was the decision to test British missiles in Australia as part of the Long Range Weapons Project (LRWP) at the South Australian desert testing site at Woomera to the east of Maralinga. Prime Minister Chifley did act to ensure controls on media coverage of the missile program, in particular that all public statements about the program would only come from him or his Defence Minister John Dedman²¹, but he was reluctant to commit to a D-notice system. After several informal approaches from various UK government representatives, the UK High Commissioner had made a formal approach on 28 January 1947 to Chifley and a discussion had subsequently taken place between Chifley, the then British High Commissioner Edward Williams and Lieutenant-General J F Evetts (the British officer in charge of the Long-Range

¹⁸ Pauline Sadler, *National Security and the D-Notice System*, Dartmouth Publishing Company, Aldershot, 2001, p. 67. The UK journalist Chapman Pincher is often singled out as an example of a more investigative reporter, in contrast to his Australian counterparts, yet he was still found in later analyses to be unduly beholden by later journalistic standards to official statements and the official line. See Chapter Seven.

¹⁹ The nuclear weapons test program was not the only factor that influenced the UK government's attitude to Australian security at this time. In fact, a large proportion of the UK's entire post-war weapons testing program was being undertaken in Australia, including guided missiles that were tested from 1946 at Woomera, also in the South Australian desert. The Woomera test range was used for this purpose until 1980. Brad Cooper, "The Driving Force of Achievement? British Atomic Tests in Australia, 1952-1957", Access: History, Vol. 1 No. 2, p. 8. Security concerns had led to the Woomera project being suspended in 1948, placing pressure on Prime Minister Chifley to initiate the creation of ASIO. David McKnight, *Australian Spies and their Secrets*, Allen and Unwin, St Leonards, 1994, p. 3.

²⁰ The UK made its first approach to the Australian government to institute a D-notice system as far back as 1921. Maher, *op. cit.*, p. 174.

²¹ *Ibid.*, p. 175.

Weapons Project at Woomera) on this subject²². This discussion had led to some action on publicity arrangements for the Woomera project²³, but nothing was arranged regarding D-notices. An account of this discussion prepared later for Robert Menzies makes clear that missile testing was a strong motivating factor in the British seeking a D-notice system in Australia:

“[The British High Commissioner] inquired whether the [D-notice] system could be extended in Australia ... He pointed out that the Governments of Australia and Canada are in possession of much secret information supplied by the U.K. and are themselves responsible for trials and defence research based thereon... On 1st December, 1949, the [Australian] Defence Committee made reference to the publicity attaching to the Long Range Weapons project [at Woomera] in Australia and expressed the view that further organised visits of Press representatives should not be arranged and that every endeavour should be made to obtain the co-operation of the Press in the adoption of a system of “D” notices...”²⁴

Despite the clear pressure being applied by the British, the Chifley government was unreceptive, possibly because of a perception that the D-notice committee itself might prove a source of leaked information²⁵. Although security issues continued to dog the Chifley government²⁶ as the Cold War worsened, the D-notice matter progressed no further until the election of the Menzies government in 1949. For the British, the issue was becoming increasingly urgent because the place where they wanted to test their future defence capabilities was assumed to be leaking secrets freely and with impunity. The UK stepped up its pressure and the much more amenable Robert Menzies was open to suggestions of this nature. The secretary of the Department of Defence, Frederick Shedden – a long-time

²² E L Cook, Department of Supply, secret minute paper containing briefing on D-notices, 11 December 1951, National Archives of Australia Series No. A1209, Item 1951/5486.

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ Maher, *op. cit.*, p. 177.

²⁶ One of the most painful episodes concerned the then Council for Scientific and Industrial Research (CSIR), forerunner to the current Commonwealth Scientific and Industrial Research Organisation (CSIRO). CSIR under its chairman David Rivett became mired in controversy over its role in defence science and the adequacy of its security controls. Rivett famously gave a speech titled “Science and Responsibility” in 1947 in which he said CSIR should not be involved in any research that could not be openly published and discussed in scientific fora. A political and media debate ensued around the loyalty of CSIR’s scientists and management in light of the allegations of communist infiltration. This ultimately led to legislation to create the new CSIRO, in which all capacity to carry out defence science was removed. A lucid account of these events may be found in C B Schedvin, *Shaping Science and Industry: A History of Australia’s Council for Scientific and Industrial Research, 1926-49*, Allen and Unwin, North Sydney, 1987, pp. 330-344.

supporter of the implementation of an Australian D-notice system²⁷ – was successful in getting Menzies' attention and agreement on this issue.

Menzies had in the past approved other mechanisms for limiting what the media could report. During his first period as Prime Minister, 1939 to 1941, he had placed the entire Australian media under the control of the Director-General of Information²⁸. This was in the early years of the Second World War, but this measure was deemed by many to be excessive even by wartime standards. An editorial in the *Sydney Morning Herald* at the time had commented:

“The new regulations give the Director-General, subject only to the direction of the Minister – the Prime Minister, Mr Menzies, in this case – absolute power to compel any newspaper or periodical to publish any statement or material supplied on his behalf in whatever position is required and without limit in respect of the space occupied....These regulations, if they were literally and arbitrarily enforced, would render the Press of Australia completely subservient to the will of the Government and the Director-General.”²⁹

Menzies in his second stint as prime minister was likewise alive to the potential problems of a free-ranging media, this time under Cold War conditions. He took a central role in the implementation of the D-notice system and attended the first meeting of the committee that guided its development³⁰. He wrote personally to editors of newspapers and heads of media associations requesting their co-operation, before the system was implemented. For example, in a November 1950 letter to the president of the Australian Newspaper Proprietors' Association, the influential owner of the *Sun* newspaper chain Eric Kennedy, Menzies sought to ascertain how an attempt to introduce D-notices would be received by the

²⁷ Maher, *op. cit.*, p. 189.

²⁸ This position was held briefly by the influential Australian newspaper proprietor Keith Murdoch, father of the head of News Corp Rupert Murdoch. Wartime restrictions placed upon Australian newspapers were maintained – possibly even strengthened – by Menzies' Labor successor John Curtin and the relationship between Curtin and the Australian press was strained. Denis Cryle, “Rousing the British-Speaking World: Australian newspaper proprietors and freedom of the press, 1940-1950”, ARC-funded project, Central Queensland University, paper presented at Australian Media Traditions conference, 2007.

²⁹ *Sydney Morning Herald* editorial, 18 July 1940, reproduced in F K Crowley, *Modern Australian Documents 1939-1970*, Vol.2, Wren Publishing, Melbourne, 1973, p. 29.

³⁰ Pauline Sadler, “The D-Notice System”, *Press Council News*, May 2000, Vol. 12 No. 2, at <http://www.presscouncil.org.au/pcsite/apcnews/may00/dnote.html>, accessed 28 December 2009.

Australian media³¹. He indicated that he had written in similar terms to the President of the Australian Newspapers Council, the General Manager of the Australian Broadcasting Commission and the President of the Australian Commercial Broadcasting Stations³². In this letter Menzies confirmed that the D-notice system for Australia was suggested by the UK, and gave an overview of what was involved:

“For many years there has been an understanding in the United Kingdom between the press and publishers on one hand, and the Defence Ministries on the other, whereby the former agree not to print, without prior reference, any matter relating to subjects specified in ‘D’ notices.”³³

In Eric Kennedy’s absence overseas, a reply to this letter was sent by the acting president of the Australian Newspaper Proprietors’ Association, R Doutreband. In this, Doutreband indicated that he had gauged the attitude of the organisation’s members which he summed up thus:

“All members are anxious to co-operate with your Government to the fullest extent in ensuring the security of secret information. Their only concern has always been that measures designed to safeguard the genuine interests of national security should be used to cover political matters that have no relation to national security. Members, however, feel that the proposals you now put forward offer the prospect of a real and lasting co-operation between the Service Departments and the Press in these important matters and they will be glad to assist in the introduction and smooth working of the scheme.”³⁴

Doutreband’s comments capture the mood of media proprietors at the time, all of whom seemed remarkably unruffled by the imposition of information controls. As will be shown below, their counterparts in the United States media actively and openly opposed any governmental controls on reporting that country’s nuclear test program. Doutreband was rather more effusive than some, however.

³¹ Robert Menzies, “Security of defence information”, letter to E Kennedy, President of the Australian Newspaper Proprietors’ Association, 22 November 1950, National Archives of Australia Series No. A5954, Item 1956/6.

³² *Ibid.*

³³ *Ibid.*

³⁴ R Doutreband, letter to Robert Menzies, 5 December 1950, National Archives of Australia Series No. A816, Item 10/301/128.

President of the Australian Newspapers Council and legendary Australian media baron, Frank Packer, replied rather briefly:

“Dear Mr. Prime Minister,
Further to your letter of November 22, regarding Security of Defence Information, the members of my Council are agreeable to this proposed Committee.”³⁵

The new Australian system given the go-ahead by Australia’s media proprietors would be managed by a committee co-ordinated by a civilian in the Department of Defence (A E Buchanan was eventually appointed to this role) and Chaired by the Minister for Defence Phillip McBride³⁶, on which the media would have strong representation:

“If such a system proves generally acceptable, I think that the committee which would need to be set up should consist of representatives of the Department of Defence, the three Service Departments, and the Department of Supply, together with representatives of the principal daily and periodical Press Associations, News Services, the Australian Broadcasting Commission, and Commercial Broadcasting interests having independent news services. The Department of Defence is responsible for co-ordination of defence policy and should, I think, administer the scheme.”³⁷

Menzies insisted that the very existence of the committee and its D-notices was to be kept secret (as it was until 1967 – see below), and requested that only senior representatives of media organisations be invited to join the committee³⁸. The heads of Australia’s media agreed to this³⁹ and throughout the British tests there were no known breaches of the atomic test D-notices in Australia⁴⁰.

³⁵ Frank Packer, letter to Robert Menzies, 4 December 1950, National Archives of Australia Series No. A816, Item 10/301/129.

³⁶ Minutes of the first meeting of the Defence, Press and Broadcasting Committee, 14 July 1952, National Archives of Australia Series No. A1209, Item 1957/5486.

³⁷ *Ibid.*

³⁸ Robert Menzies, “Security of defence information”, letter to E Kennedy, *op. cit.*

³⁹ P A McBride, “Security of Defence Information – confidential ‘D’ notices to the press”, letter to Joseph Francis, William McMahon, E J Harrison and Howard Beale, 2 July 1952, National Archives of Australia Series No. A5954, Item 1956/6.

⁴⁰ Sadler, *op. cit.*, p. 39. However Sadler notes, quoting Gowing, a breach by the British *Daily Telegraph* newspaper of the D-notice applying to the atomic tests in Australia. The breach is quoted as occurring in 1951, before the Australian D-notice committee was established and well before any public airing of the atomic test program in Australia.

A secret 1950 cable from Defence Department Secretary Frederick Shedden to Major General Rudolph Bierwirth, the Australian Defence Department's representative in London, indicated that the response to the series of letters to media proprietors had been positive:

"An initial approach to organisations representing leading metropolitan press and broadcasting interests indicate that they would be willing to co-operate in this matter and consideration is at present being given to the constitution of machinery for introduction and operation of scheme."⁴¹

Shedden requested that Bierwirth obtain copies of current UK D-notices to use as a guide for formulating Australia's own notices, suggesting that Rear Admiral (Retired) G P Thompson, secretary of the UK committee charged with overseeing D-notices, would be able to assist⁴². The Australian system was to be modelled closely on the UK system and the UK and Australian committees maintained close co-ordination for many years⁴³.

On an Australian Department of Defence file containing a range of information on the process to establish D-notices may be found documents relating to corresponding issues in the United States. While Australia quite explicitly adopted the UK D-notices system, sought extensive information from the committee in the UK that administered the system and liaised with this committee for years, information on the media and security matters was also sought from the US. The documents relating to US attitudes on the limitations on the public release of military information reveal some fundamental differences in approach, which is significant as similar atomic tests to those being conducted by the British in Australia were being conducted in the US and were also of great interest to the media. A resolution adopted unanimously by senior US media representatives in the late 1940s, as Cold War tensions increased and the US stepped up its atomic weapons test program, expressed a commitment to unhindered coverage of matters of national importance, while recognising a responsibility not to give away secrets that might harm the national interest:

⁴¹ Frederick Shedden, cable to Major General Bierwirth, 1950, National Archives of Australia, Series No. A5954, Item 1956/6.

⁴² *Ibid.*

⁴³ Maher, *op. cit.*, p. 195.

“Conditions in the world today require the perfection of our national defense, an important part of which lies in the fields of scientific research and development of new military weapons. Protection of necessary military secrecy in such fields in a country rightfully jealous of its free and uncontrolled media of communications presents a problem in national security. We recognize the existence of such a problem. Its wise solution is the responsibility of the National Military Establishment. But it is shared to a degree by all media of public information. As representatives of such media we have willingly assumed our proper part of that responsibility. *We do not believe that any kind of censorship in peacetime is workable or desirable in the public interest.* If any exists, we would not be sympathetic with an intent, on the part of the Military Establishment, to propose peacetime censorship.”⁴⁴ *[My emphasis]*

While explicitly rejecting any form of peacetime media censorship, the US media representatives recommended regular consultation about national security issues between the media and the US security services through a Security Advisory Council, “without the implication of censorship machinery in any form”⁴⁵. Such an implication was made, however, and reported in the Australian press.

“Some objections [to the planned regular security consultation] have already appeared. It is complained that it would open the door to Government censorship in peacetime.”⁴⁶

Nevertheless, both the US media and the government strongly proclaimed media freedom and independence in their resolution and explicitly rejected censorship. The media representatives who agreed to the resolution included the heads of the major press and broadcasting associations, along with representatives of specialist media sectors such as Perry Githens, Editor of *Popular Science Monthly*. The then-US First Secretary of Defense, James Forrestal⁴⁷, issued a statement to coincide with this declaration, endorsing a policy that would ensure:

⁴⁴ Resolution adopted by representatives of United States media, 29 March 1948, National Archives of Australia, Series No. A816, Item 10/301/130.

⁴⁵ *Ibid.*

⁴⁶ “U.S. Alarm at Leakage of Defence Secrets”, *Melbourne Herald*, 8 March 1948. Part of a package of clippings in National Archives of Australia Series No. A5954, Item 1956/6.

⁴⁷ Jim Forrestal was rather an ill-fated senior US official who suffered from severe depression and was sacked by President Harry Truman from the role of First Secretary of Defense only 18 months after his appointment in 1947. He committed suicide soon after leaving the position. David Horner, *Defence Supremo*, Allen and Unwin, St Leonards, 2000, p. 279.

“...full release of all possible information to the American people [while at the same time] protect[ing] information which should not be revealed to potential enemies.”⁴⁸

The statement continued:

“The Secretary [Forrestal] expressed himself as in accord with the declaration against censorship, since it coincided with his own views.”⁴⁹

While it is open to further inquiry and interpretation whether Forrestal or any other US military authority at the time of US nuclear tests actually believed that a lack of peacetime media censorship was desirable, the media resolution and its public endorsement by the Secretary of Defense indicate that concerns over media censorship were more of an issue in the United States at the time than in Australia, and indeed under these circumstances “[i]n the United States a D-notice system would be unthinkable.”⁵⁰ The relevant documents from Australian media do not show similar concerns about censorship and indeed the apparent eagerness of senior media representatives to join the D-notice committee, as revealed by letters to Menzies and to Government officials, seems to indicate a distinctly different approach to these matters by the Australian media compared with its US counterparts.

The fact that these and related documents showing US activities around media freedom are part of the official Australian government files relating to D-notices while the Australian scheme was being set up indicates that the Australian authorities were at least aware of other countries’ attitudes to these issues. The US declaration on media freedom was, of course, in accord with that country’s constitutional guarantees of free speech – guarantees that Australia did not have then and does not have now. It is also true that declarations may not necessarily reflect what happens in reality. Nevertheless, secondary sources commenting on US media coverage of nuclear weapons development⁵¹, together with some

⁴⁸ Memorandum for the press from the Office of the Secretary of Defense, 29 March 1948, National Archives of Australia, Series No. A816, Item 10/301/130.

⁴⁹ *Ibid.*

⁵⁰ Maher, *op. cit.*, p. 203.

⁵¹ In particular Milliken, *op. cit.*, p. 182.

correspondence between Australian-based US media representatives and Australian government officials discussing media coverage of the British tests⁵², suggest that the American media enjoyed greater (though not total) access to nuclear test information than their counterparts in Australia did, were more assertive in pursuing their rights to this information and were less hindered by official mechanisms.

Despite across-the-board approval from the owners and leaders of Australia's media, the process to adopt a D-notice system in Australia took nearly two years after agreement on its implementation had been reached. The process did not always proceed smoothly either in the lead-up to the first D-notice committee meeting or in the period just after. The delays were caused in part by the difficulty in finding a suitable secretary for the committee⁵³. Also, there were disagreements over whether the proposed system would apply to foreign media agencies operating in Australia and over the exact wording of the first atomic tests D-notice (see below). The mechanism for the release of official information as specified in the first atomic weapons D-notice, for the Hurricane test in October 1952 at Monte Bello, was initially so confused it even drew in the Prime Minister as misunderstandings had to be dealt with. The Prime Minister's direct interest in the smooth working of the D-notice system is evident from his quick reaction to any perceived problems around the embryonic system. The general manager of John Fairfax & Sons, publisher of the *Sydney Morning Herald* and *The Age*, among others, wrote to Menzies in August 1952 to complain that his reporters had been rebuffed by the Navy's public relations team in Sydney when they attempted to obtain officially approved information about the first atomic test. The Prime Minister had earlier advised media to contact this office for information specified in the D-notice about Hurricane, but the system fell apart when the contact person, Lieutenant Commander Dollard, had gone on leave.

⁵² In particular, G E McCadden of United Press Associations, 17 June 1952, letter to Michael Byrne, National Archives of Australia Series No. A816, Item 10/301/129.

⁵³ P A McBride, "Security of Defence Information – Confidential 'D' Notices to the Press", letter to Prime Minister Robert Menzies, 28 March 1952. National Archives of Australia Series No. A5954, Item 1956/6. See below for further detail on the appointment of A E Buchanan to the position.

“It goes without saying that we will give the utmost co-operation to the Government in preserving security on all secret information about the tests, but it is essential that the fullest facilities should be available for us to consult responsible officers at all hours.”⁵⁴

Menzies has hand-written at the bottom of his copy of this letter:

“Ask Mr. McBride [Defence Minister] to enquire into this urgently. It sounds very bad.”⁵⁵

McBride did as requested and produced a detailed official response for the Prime Minister later that month that set out all the ways that the problem had been solved and guaranteeing that the media would receive (officially sanctioned) information in an efficient and timely manner:

“The Department of the Navy has assured me that all concerned are aware of the need for co-operation of the Press and will ensure it to the best of their ability.”⁵⁶

McBride, who had primary ministerial responsibility as Defence Minister for establishing the D-notice system (with a surprisingly large amount of interest and input from Menzies, indicating the importance the Prime Minister accorded to working with the media on this issue) had sent a briefing letter in July 1952 to his Cabinet colleagues on the proposed system. In this letter, he indicated that the composition of the new committee had been decided. The way this committee was constituted shows how highly the government rated this work, requiring extremely senior people to become involved in establishing and administering D-notices. McBride lists the members of the committee as:

“The Permanent Heads, or their senior deputies, of the following Commonwealth Departments:

Defence

Navy

Army

Air

⁵⁴ Letter from the general manager of John Fairfax & Sons Pty Ltd to Prime Minister Robert Menzies, 19 August 1952, National Archives of Australia, Series No. A816, Item 10/301/129.

⁵⁵ *Ibid.*

⁵⁶ P A McBride, letter to Robert Menzies, 26 August 1952, National Archives of Australia, Series No. A816, Item 10/301/129.

In this letter, McBride announced that the first meeting of the D-notice committee, to be known as the Defence, Press and Broadcasting Committee, would be held on 14 July 1952 at Victoria Barracks in Melbourne⁵⁸. Before that meeting, the Joint Intelligence Committee (JIC), whose members were directors of security for all branches of the Australian armed services, devised draft D-notices for consideration by the new committee. The JIC had concluded that, while media members of the committee would be required to keep deliberations secret, it was best not to circulate classified information among them.

“...the draft ‘D’ Notices submitted by the [Joint Intelligence] Committee herewith are framed to warrant a classification no higher than Confidential. As recipients of these notices are unlikely to be aware of the technicalities of security gradings, it is considered desirable to emphasise the confidential nature of the Notices by marking them, as in the United Kingdom, ‘Private and Confidential’...”⁵⁹

The JIC’s pre-prepared confidential D-notices were presented at the Defence, Press and Broadcasting Committee as one of the main orders of business. While McBride chaired the meeting, Menzies himself attended⁶⁰. In his briefing McBride indicated that the first meeting would:

“...consider the principles upon which the organisation is based, the procedure for its operation and the initial set of ‘D’ notices proposed by the Defence Committee.”⁶¹

Those governing principles were established in due course. The seven principles adopted by the committee emphasised the need to prevent dissemination of information “detrimental to national security” and the voluntary nature of the

⁵⁷ McBride, “Security of Defence Information – confidential ‘D’ notices to the press”, *op. cit.*

⁵⁸ *Ibid.*

⁵⁹ Joint Intelligence Committee Report No. 12/1952. Meeting held at Victoria Barracks, Melbourne, 5 June 1952. National Archives of Australia Series No. A5954, Item 1956/6.

⁶⁰ Minutes of the first meeting of the Defence, Press and Broadcasting Committee, *op. cit.*

⁶¹ *Ibid.*

notices⁶², among other things⁶³. The principles also made clear that the media representatives on the committee would themselves have access to information “of a secret nature”⁶⁴, even though only information classified “confidential” would appear in the official notices themselves. This willingness to show media representatives secret information within the confines of committee meetings does seem to indicate a level of trust that the government and defence officials had for the media representatives who participated – trust that appears to have been justified. Menzies addressed the meeting and welcomed the members of the media organisations present. He:

“...expressed the Government’s appreciation of their willingness to co-operate with the Defence Authorities in the introduction and operation of a system of ‘D’ Notices.”⁶⁵

The first British nuclear test about to be held in Western Australia was a major agenda item, with the Chair of the meeting explaining that it was primarily a British operation and that Australia would play a secondary role. However, there were some issues around media liaison that needed clarifying (and in fact were never quite clarified throughout the test program):

“The conditions relating to security were ... laid down by the United Kingdom Government, but the Australian Government was consulting the United Kingdom Government in regard to the release of certain background information regarding activity in Australia in respect of which the Australian press had a special interest.”⁶⁶

The media representatives raised the issue of British media getting hold of information ahead of Australian media, and the Australian government officials

⁶² This principle has been affirmed throughout the life of the D-notice system in Australia. The most recent documentation from the D-notice committee, dating from its last meeting in 1982, makes a clear statement on the voluntary nature of the constraints, saying: “The system is an entirely voluntary one, offering advice and guidance only. Non-observance of a request contained in a Notice carries no penalties. In the end, it is for an editor to decide whether to publish an item of information, having regard to national security requirements.” Quoted in “The D-notice System”, Chapter 11, Report on the Australian Secret Intelligence Service, Public Edition, Australian Government Publishing Service, Canberra, March 1995.

⁶³ “Defence, Press and Broadcasting Committee ‘D’ Notices System Basic Principles”, National Archives of Australia Series No. A816, Item 10/301/142.

⁶⁴ *Ibid.*

⁶⁵ Minutes of the first meeting of the Defence, Press and Broadcasting Committee, *op. cit.*

⁶⁶ *Ibid.*

undertook to ensure that any release of information was simultaneous. (Issues over the perceived preferential treatment given to UK media festered throughout the British atomic test program in Australia and were never really resolved.) The media also asked to be present as observers to the test, something that Defence Minister McBride “took note” of, while maintaining that under the present arrangements even he was not allowed to be present⁶⁷. (In the event, media were denied official observer status but took up unofficial observation posts nearby – see Chapter Two). During its deliberations, the committee reached agreement on eight D-notices to be issued. These covered:

- UK atomic tests in Australia
- Aspects of naval shipbuilding
- Official ciphering
- The number and deployment of Centurion tanks
- Troop movements in the Korean War
- Weapons and equipment information not officially released
- Aspects of air defence
- Certain aerial photographs⁶⁸

The D-notice applying to the Monte Bello atomic test, originally designated D-notice No.1 at the inaugural meeting, was ultimately designated D-notice No. 8 after being altered to take into account media objections expressed at the meeting and in subsequent correspondence⁶⁹. As the secretary of the Defence Department, Frederick Shedden, reported just after the first meeting of the committee:

“Everything went well except that, as expected, the arrangements for publicity in connection with the atomic test were somewhat critically discussed...[The media at the meeting were informed] that we were seeking to liberalise the United Kingdom outlook in so far as treatment of the Australian press is concerned.”⁷⁰

The hard line that the UK authorities took on co-operation with the media was at its hardest in relation to Australian media. The British media – possibly because

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*

⁶⁹ A E Buchanan, “Atomic test – official releases”, letter to members of the Defence, Press and Broadcasting Committee, 19 September 1952, National Archives of Australia Series No. A816, Item 10/301/129.

⁷⁰ Letter from F G Shedden, Secretary of the Defence Department, to A S Brown, Secretary of the Prime Minister’s Department, 16 July 1952, National Archives of Australia Series No. A816, Item 10/301/129.

of more sophisticated reporting skills – displayed a greater depth of coverage in their stories of the British tests and regularly “scooped” Australian reporters, a fact that caused problems for Minister for Supply Howard Beale, who had to deal with complaints from Australian journalists⁷¹.

Following resolution of the criticisms aired at the time of the first meeting, the revised and re-numbered D-notice No. 8 was officially distributed to the media a short time before the Hurricane test in October 1952. As issued by Captain A E Buchanan⁷², secretary and executive officer of the committee, it set out a number of restrictions in the reporting of the Monte Bello test. In particular, it stated:

“...it is requested that there should be no disclosure of, or speculation concerning[,] information covered by the following headings in regard to the forthcoming tests in Australia of atomic weapons produced in the United Kingdom, which are being carried out off the North West Coast...:
(a) All matters regarding technical details of the weapon design.
(b) The precise form of the trials, and the results to be obtained.
(c) The precise date of the trials.
(d) The passage arrangements for the fissile material.
(e) The passage arrangements for the Main Force after leaving the United Kingdom, until released by the United Kingdom authorities.”⁷³

These were quite sweeping restrictions, entailing limits on the release of scientific and technical information. The notice also spells out what information would be made available “unofficially” to the media by the Navy’s public relations office, including such items as the transfer of a construction squadron of the Royal Australian Air Force to Monte Bello and the build-up of stores at the city of Fremantle to the south of the test site⁷⁴. The statement acknowledges that matters of “observable facts which must inevitably be known to foreign observers and the

⁷¹ See p. 125 of this thesis for an account of the leaking of Kittens information to British journalists and Beale’s anger at this event.

⁷² Captain Buchanan had taken the post of committee secretary after a protracted and fruitless search for a suitably qualified ex-journalist. Buchanan was the Commonwealth War Book Officer and a former serviceman who was at the time of his appointment to the D-notice committee a senior civilian administrative officer in the Department of Defence. Frederick Shedden, Secretary of the Department of Defence, letter to J T Pinner, Public Service Board of Commissioners, 2 July 1952, National Archives of Australia Series No. A816, Item 10/301/128.

⁷³ A E Buchanan, “‘D’ Notice No. 8 – Atomic Tests”, National Archives of Australia Series No. A816, Item 10/301/131.

⁷⁴ *Ibid.*

press”⁷⁵ are exempted from the notice. These included the arrival and departure of ships from ports and airfields, but excluded anything taking place within the “prohibited area”⁷⁶ of the test itself. The notice, in effect, limited media to what they could directly observe by stationing themselves close to the test site. It specifically precluded any technical detail about the bomb itself. Obviously, it did not restrict any political speculations about the wider meaning of the bomb test and the development on Australian soil of a British nuclear deterrent – the primary purpose of the atomic weapons test D-notices was to restrict the promulgation of technical and strategic information. Even so, little of the broader speculations appeared in the media.

Buchanan followed up this first atomic testing D-notice with its cancellation on 10 November 1952, in which he said:

“I am directed by the Defence, Press and Broadcasting Committee to inform you that ‘D’ Notice No. 8 – Atomic Tests – is cancelled, and to thank you for your co-operation, which was an important contribution towards safeguarding defence information in connection with these tests.”⁷⁷

As mentioned earlier, the various press agencies such as United Australian Press (UAP) and Australian Associated Press (AAP), which gathered and sold stories to a wide variety of outlets including those overseas, refused to co-operate with the new atomic weapons D-notice. A minute paper written by committee secretary Buchanan and sent to Defence Secretary Frederick Shedden indicates a prickly relationship with these particular media organisations, which were outside the control of the big media associations such as that run by Eric Kennedy.

“To my direct inquiry whether their agencies would co-operate in ‘D’ Notice No. 8, Mr Richards [UAP] said ‘no’, and Mr Hooper [AAP] gave an equivocal answer, that was in fact a negative.”⁷⁸

⁷⁵ *Ibid.*

⁷⁶ *Ibid.* The prohibited area had been established under the *Defence (Special Undertakings) Act 1952*.

⁷⁷ A E Buchanan, “‘D’ Notice No. 8 Atomic Tests – Cancellation”, National Archives of Australia, Series No. A816, Item 10/301/132.

⁷⁸ A E Buchanan, “‘D’ Notices – Press Agencies”, minute paper for head of the Department of Defence Frederick Shedden, 2 September 1952, National Archives of Australia Series No. A816, Item 10/301/132.

The problem was that the outlets overseas who purchased the stories of the agencies were not bound by the Australian D-notice system and so, if the agencies' stories were limited in their coverage by D-notices, they could be trumped by visiting foreign journalists who were not so fettered. Of the eight D-notices agreed by the committee, this was particularly an issue with the British tests as they were of greatest interest to overseas media. The agencies had indicated that they would participate only in D-notices that applied to other defence matters⁷⁹ and not to the big, newsworthy story they in which were most interested. To get around this, Buchanan suggested, and Shedden agreed, that the main news agencies "including American agencies but omitting other foreigners" be asked to participate in the D-notice system only after Operation Hurricane had concluded⁸⁰. The position of the Australian agencies remained ambiguous and their representatives did not join the D-notice committee in 1952 or subsequently. Also, negotiations with the American agencies broke down and they were never included in the D-notice system (see below).

At the time that the new Australian D-notice committee was dealing with the reluctance of the US agencies, it sought advice from its UK counterpart. The British had had the same problems with the US press agencies in relation to their own D-notice system. Even so, in practice the UK D-notice committee had found that the US agencies, when sent the D-notices, tended to abide by them informally. However, there were some exceptions among the foreign media, as the head of the UK D-notice committee George Thomson pointed out:

"[T]here are two U.S. Air journals which have a fairly large sale in Britain and they were constantly publishing information about British military aircraft which British editors and air correspondents knew perfectly well but did not publish because it was not then officially released by an Air 'D' Notice. A well-known air journal published in Switzerland...was an even worse offender. All this caused much complaint and bad feeling among British editors."⁸¹

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

⁸¹ George Thomson, Admiralty, War Office, Air Ministry and Press Committee, letter to Major-General E L Sheehan, Australian Joint Services Staff London, 17 June 1953. National Archives of Australia Series No. A5954, Item 1594/2.

In this letter, Thomson recounted a remark made to him by the head of the United Press of America:

“ ‘I quite realise that the U.S. press give the Russians a great deal of confidential information about the U.S. armed forces; but, none the less, I would fight anybody who attempted to restrict the freedom of the press in any way!!’ ”⁸²

While the establishment of D-notices was a logical step for the Menzies government, both as a means of pleasing Britain and of keeping Australian media under a measure of control, the propaganda benefits of publicity still needed to be factored in. Exactly where the boundary between public and secret information was to be drawn greatly exercised Menzies and his colleagues – a task especially difficult since the Australian government was not the manager of the tests and had to adhere to the wishes of the UK authorities in these and many other matters. Media information was often initiated in Britain for later distribution in Australia, and the British D-notice committee issued its own notice for the atomic tests⁸³. Sometimes these mechanisms were the source of frustration for all media, particularly overseas representatives. Indeed, relations between the Australian test officials and the overseas press were frequently more strained than relations with domestic media, and foreign media representatives were not above a bit of manipulation to get access to information. For example, in a letter to an Australian Government PR official, the chief correspondent and South Pacific manager for the US agency United Press Associations (UPA), G E McCadden, objected to plans for strict exclusion of media from the Hurricane test and expressed it forcefully:

“If such a policy is pursued, it is my belief that the U.S. Press is most unlikely to devote as much space to the tests as it would utilize were your authorities to relax these announced restrictions.”⁸⁴

⁸² *Ibid.*

⁸³ “Summary of ‘D’ Notices in force and of private and confidential letters issued up to 1st May 1952”, Admiralty, War Office, Air Minister and Press Committee (UK). National Archives of Australia Series No. A816, Item 10/301/130.

⁸⁴ G E McCadden, United Press Associations, letter to Michael Byrne, 17 June 1952, National Archives of Australia Series No. A816, Item 10/301/129.

He went on to appeal to the benefits of gaining well-informed American media coverage, one suspects in much the same way that American media made their appeals domestically, with notably more success in the US than proved to be the case in Australia:

“If one of your ultimate major objectives of these tests is to impress upon American public opinion a spectacular achievement of our major ally which contributes to our common strength, then the best means of reaching such public opinion is through the eyes and ears of American reporters, including United Press.”⁸⁵

McCadden referred to the 1,200 newspapers, 1,100 radio stations and 50 television stations served by his agency, all of whom would take UPA’s news stories about the tests “regardless of how [the agency] gets the information about them”⁸⁶. This long letter makes a forceful, eloquent and at times impassioned case for media access to Hurricane, including reference to the generous access granted to British and Australian correspondents to the US atomic tests at Bikini Atoll in the Pacific. He concludes:

“I want to stress...that all I can tell you now is how the strategic U.S. Press will react to a continued news blackout on one hand, and a new policy of relaxing that blackout on the other hand.”⁸⁷

The thrust of this letter was unmistakable: the potentially positive message of the atomic tests may be distorted if the Australian authorities chose not to provide the media with what they wanted. It is perhaps not surprising that this particular message was delivered by a representative of the US media, where 1950s reporting of that country’s atomic tests were more thorough and critical than any coverage that appeared in Australia at the time. In 1953, after a period of negotiation, the Australian government had to admit defeat and the United States media were excluded from Australian D-notices:

“...the attitude of the United States Press Agencies is unfavourable...The [D-notice] Committee’s recommendation, with which the Minister

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

⁸⁷ *Ibid.*

concurred, was that the United States Press Agencies should not be included in the "D" Notice system at this stage."⁸⁸

D-notices were to be confined to UK and Australian media. Some Australian media organisations also quibbled a little over aspects of delivery of information. These appeals did not go completely unheeded in Canberra. Robert Menzies wrote to all media organisations again in August 1952, after his earlier correspondence on the D-notice system, to assure them that views on media coverage of Hurricane were being taken into account:

"The Government has considered the representations made to it by newspaper organisations on a number of points relating to the publicity arrangements for the test and has been in consultation with the United Kingdom Government on this matter. As the test is of great public interest the Government expressed to the United Kingdom Government its view that any possible information that could be given to the press without prejudice to security, should be made available..."⁸⁹

This issue had been subject to a discussion in the new D-notice committee, the Defence, Press and Broadcasting Committee, at a meeting not long before Menzies sent his letter. One of the chronic problems, as mentioned above, that was drawn to the prime minister's and the committee's attention was that UK media had been given access to bomb test stories before their counterparts in the Australian media. Menzies reported in his letter that this issue had been solved through his government's representations to the UK and:

"...that in respect of the release of official information and photographs, the Australian press should receive the same and simultaneous treatment as the United Kingdom press."⁹⁰

He attached a revised D-notice document from the committee, the one that was actually issued (and is outlined above) by Buchanan a little earlier than Menzies'

⁸⁸ Frank O'Connor, Department of Supply, letter to Major General E L Sheehan, Australian Defence Representative, London, 14 July 1953, National Archives of Australia Series No. A5954, Item 1594/2.

⁸⁹ Robert Menzies, letter to Eric Kennedy, chief executive officer, Associated Newspapers, 15 August 1952, National Archives of Australia Series No. A816, Item 10/301/129. Handwritten on this document is a note saying that a "[s]imilar letter addressed to all appropriate Press Associations etc."

⁹⁰ *Ibid.*

letter. The first, disputed version of the atomic tests D-notice had omitted the list of “background information” items that were included in the final version and which gave media access to substantially more information than originally offered. The changes were reasonably well received, though some issues remained, as the editor of the *West Australian* newspaper, E C de Burgh, pointed out:

“ ‘D’ Notice 8 has been greatly improved on its original draft but it still contains one phrase to which we strongly object.”⁹¹

The sticking point was contained in the line that placed reporting restrictions on “anything on or taking place in the prohibited area”.

“How are we to know that something may not be clearly audible and visible from the mainland and be seen and heard by scores or hundreds of observers who may include representatives of foreign, even Russian, newsagencies? Why should we be asked to agree not to publish tomorrow something already known to, possibly, hundreds of West Australian civilians and may-be to dozens of foreign or Communist observers.”⁹²

Despite de Burgh’s heated letter, the wording of D-notice No. 8 was not further changed and was issued in this form in the lead-up to Operation Hurricane.

A new D-notice was subsequently issued for the Totem tests at Emu Field in October 1953, again by Buchanan. The Totem D-notice, relating to the two-shot test at the temporary, remote site at Emu Field, had a similar structure to the Hurricane notice and listed nearly the same items that were not to be reported by the media⁹³ (see above), with the addition of a new item, “[n]uclear efficiency and measurements relating to weapon efficiency”⁹⁴, a more specific request that further limited the dissemination of technical detail as the design of British nuclear weapons became more sophisticated. This D-notice also listed a number

⁹¹ E C de Burgh, editor, *The West Australian*, letter to A E Buchanan, 5 August 1952, National Archives of Australia Series No. A816, Item 10/301/129.

⁹² *Ibid.*

⁹³ A E Buchanan, “ ‘D’ Notice No. 10”, Defence, Press and Broadcasting Committee, National Archives of Australia Series No. A1209, Item 1957/5486.

⁹⁴ *Ibid.*

of new things that would be provided to reporters as background material, including:

- “(a) Initial survey of the area.
- (b) Survey by Sir William Penney.
- (c) Work of construction personnel.
- (d) Assistance given by L.R.W.E [Long Range Weapons Establishment, Salisbury, South Australia]
- (e) Air-lift operations by Yorks and Bristols...
- (f) Boring operations for water and study of geology.
- (g) Work of Australian scientists in checking margin of safety.
- (h) Transport of aircraft and war stores to site.
- (g) Co-operation of pastoral lessees.”⁹⁵

On 26 June 1953, just before the Totem tests D-notice was issued, a letter from the acting Australian Prime Minister Arthur Fadden was distributed to the press representatives on the Defence, Press and Broadcasting Committee expanding upon their need to restrict information about the new mainland test and explaining that journalists would not be allowed to witness the Emu Field tests (as Chapter Three indicates, however, the media were ultimately successful in lobbying to be allowed to attend). In his letter Fadden made the case that press exclusion from the test site was intended to eliminate media pressure to hold the test before the conditions were right:

“It is desirable that the man in charge of the operation should have a considerable margin of time to play with as to when the test should take place. The presence of the press has a tendency to lead to attempts to meet a scheduled date and this could cause a reduction in the value to be derived from the test.”⁹⁶

While delays in testing, particularly during the Totem and later Buffalo series, did make the media restive and because of this they did place pressure on the test authorities, the media did not ever influence the exact timing of any tests⁹⁷.

Despite Fadden’s argument, the media chiefs were not pleased and began their

⁹⁵ *Ibid.*

⁹⁶ Arthur Fadden, letter to Press Chiefs, UK Atomic Test Woomera – D-notice to the Press, in Symonds, *op. cit.*, p. 151.

⁹⁷ Minister Beale was asked a question in Parliament on this issue at the height of media unrest at the time of Buffalo in 1956 and replied: “...I can say that there will be no change in the standards of safety which have been, and will be, maintained from first to last in conducting the tests.” Symonds, *op. cit.*, p. 399.

campaign to gain access to the test site to view Totem⁹⁸, and on 10 September permission was granted⁹⁹. The D-notice system had by the time of Totem done its job in drawing media into the preparations for test publicity and given some concessions about coverage of the tests in response to media demands, a powerful co-operative process that did seem to work the way it had been intended by the government.

After Totem, the operation of D-notices in relation to the later tests becomes somewhat less clear. In 1955 the secretary of the Department of Supply, Frank O'Connor, sought clarification on the arrangements for a D-notice for the first Maralinga test, Operation Buffalo in September 1956. He wrote to his counterpart at the Prime Minister's department, Allen Brown, to find out what was happening, especially given that D-notices had been issued for Hurricane and Totem.

"It is highly desirable that any such 'D' notice contemplated for 'Buffalo' or any other similar operation should be accepted by the Committee well in advance of any public announcements of the trials, and before activity has reached a level which draws attention and subsequent press comment."¹⁰⁰

A variety of almost indecipherable squiggles in different hands festoons the lower portion of this letter, including one stating: "This matter can't be dealt with until..." then a tantalising reference to the 1956 Monte Bello Islands test, Operation Mosaic, that cannot quite be fully identified. This frustrating note is tagged with what looks like the date, 29/8/55. The final handwritten comment states "Matter Completed 16/9/55"¹⁰¹, which was a year before the first Buffalo shot at Maralinga. The official National Archives D-notice files contain no further documentation on D-notices for the British nuclear test series and it seems likely that the notices were only specifically issued for the earlier tests (definitely Hurricane and Totem, and possibly Mosaic). It is also possible that the earlier D-notices were deemed to be current for the later tests, based in part on comments

⁹⁸ Royal Commission Report Vol. 2, *op. cit.*, p. 469.

⁹⁹ *Ibid.*

¹⁰⁰ F A O'Connor, Department of Supply, letter to Secretary of the Prime Minister's Department, 20 July 1955, National Archives of Australia Series No. A1209, Item 1957/5486.

¹⁰¹ *Ibid.*

made by Deputy Prime Minister Arthur Fadden in his letter to press chiefs, in which he indicated that the Hurricane D-notice also applied to Totem:

“I will not go into any great detail of the publicity policy which applied to [the Hurricane test at] Monte Bello, as it is contained in the ‘D’ Notice which was circulated in August last year [1952]. For the time being that Notice can be taken as applying to the further test.”¹⁰²

Once the Defence, Press and Broadcasting Committee had been established in 1952 and decided on its early D-notices, it rarely met again¹⁰³. It also operated independently of other Australian security authorities, so that its concerns were mostly those of its parent organisation, the Department of Defence, not the other government entities concerned with security. Although the British D-notice committee regularly consulted with that country’s internal security service, MI5, Australia’s D-notice committee does not seem to have a similar relationship with the newly established ASIO¹⁰⁴. Indeed, when the JIC suggested that ASIO participate in the formulation of the initial draft D-notices, the suggestion was rebuffed.

“The [Joint Intelligence] Committee was informed...that the Australian Security Intelligence Organisation did not propose to submit draft ‘D’ Notices at this stage because only in the most exceptional circumstances would the need arise for that organisation to sponsor a ‘D’ Notice.”¹⁰⁵

From the media’s perspective, the D-notice committee appeared for the most part to be a welcome development, and some media outlets began sending material to the secretary of the committee for “pre-publication vetting”¹⁰⁶. The Australian media proved adept at following the ground rules for coverage of the tests.

The D-notice system in Australia remained secret until then Prime Minister Harold Holt confirmed its existence in October 1967 in response to a media article

¹⁰² Fadden, *op. cit.*, p. 152. It is interesting to note that Fadden saw the Hurricane D-notice as still current despite the fact that it had been explicitly cancelled: Buchanan, A E, “‘D’ Notice No. 8 Atomic Tests – Cancellation”, 10 November 1952, National Archives of Australia, Series No. A816, Item 10/301/132.

¹⁰³ Maher, *op. cit.*, p. 195.

¹⁰⁴ *Ibid.*

¹⁰⁵ JIC meeting report 5 June 1952, *op. cit.*

¹⁰⁶ *Ibid.*

by the journalist and lobbyist Richard Farmer¹⁰⁷. In November 1967, Holt answered a series of questions in Parliament about D-notices¹⁰⁸. The Defence, Press and Broadcasting Committee still notionally exists, but has not met since 1982¹⁰⁹ and is unlikely to again¹¹⁰. As one chronicler of the D-notice system said, commenting on the fact that it took 15 years for the system itself to become public knowledge:

“By the mid-1960s, as the Menzies era came to a close, the Australian media was becoming more probing and diversified.”¹¹¹

Because of this evolutionary process, a process seen in microcosm in the case study in this thesis as the media clearly changed in their approach to the British nuclear tests series, the effectiveness of the D-notice system could only diminish. This indeed did occur, and D-notices today, although still notionally in force, have no further influence over what Australian media publish or broadcast¹¹².

While their influence was relatively fleeting, D-notices had their greatest impact during the 1950s in Australia at precisely the time of the British nuclear tests. Therefore, D-notices are essential for understanding media behaviour at the time

¹⁰⁷ Sadler, *op. cit.*, p. 69.

¹⁰⁸ “The D-notice System”, Chapter 11, Report on the Australian Secret Intelligence Service, Public Edition, Australian Government Publishing Service, Canberra, March 1995, p. 113. This latter reference to D-notices by Holt in Parliament must be among the last parliamentary questions he answered. Holt drowned in mysterious circumstances in December 1967. One presumes there is no connection.

¹⁰⁹ *Ibid.* At that 1982 meeting, the committee considered all remaining D-notices, which did not include atomic tests, and reduced the seven then existing down to four. Those four are still, technically, in effect. These D-notices refer to: the capabilities of the Australian Defence Force, including aircraft, ships, weapons and other equipment; the whereabouts of Mrs and Mrs Vladimir Petrov (no longer relevant as both are now dead); signals intelligence and communications security; and the Australian Secret Intelligence Service (ASIS). *Ibid.*, p. 114.

¹¹⁰ Perhaps not surprisingly, ASIS submitted to the 1995 Commission of Inquiry into its operations that a replacement for the old D-notice system was needed. In a rather sour official submission to the inquiry, ASIS said: “The current D-notice [system] is inadequate because it relies on voluntary media restraint, which no longer exists. Changes in Australian society since the 1950s have led to debate as to how principles of public perception and independence of the media can be reconciled with secrecy required for the sake of national interest. This debate has engendered increasing disagreement on what constitutes the national interest. The media organisations have shown by their actions that they will decide what the public interest is in any given situation without assistance from those affected. The media organisation’s [sic] perception of the national interest appears to coincide with its own journalistic interests.” *Ibid.*, pp. 115-116.

¹¹¹ Maher, *op. cit.*, p. 198.

¹¹² During 2010, however, the Federal Government proposed an updated form of D-notices in light of rising terrorism concerns and the leak of sensitive diplomatic and military information by the website WikiLeaks.

of the British tests. The D-notice system established a formal co-operative relationship between the Australian government and the media in the lead-up to and during the first few years of the British nuclear tests in Australia. This relationship set specific reporting ground rules – rules that for the most part the media at the time seemed willing to obey. The notion of media responsibility to restrain itself and the prerogative of government to keep certain designated facts out of the media – with the agreement of the media themselves, secured in a committee on which senior media people were represented – was an important factor in the way the media reported the tests, at least to begin with, and had a cumulative effect in encouraging self-restraint among media throughout the whole test program. D-notices were not issued for the most dangerous activities at Maralinga, the Vixen B experiments but, by then, the media were already in the habit of reacting to government-approved media releases about the British tests rather than investigating stories on their own account. This was the information environment in which Vixen B was about to begin. There were compliant media conditioned to receiving government information in, mostly, a controlled and predictable way, an official but not legally binding system that forbade the reporting of certain secret activities, and a new international agreement that banished Maralinga from the weak but still present media spotlight that had been placed on it to date. This thesis is centrally concerned with what happens when media scrutiny of activities of great public importance is not allowed or not pursued. In this case study, both of these factors converged: the Australian government, with backing and pressure from the British government, used D-notices and other information controls to restrict media scrutiny, and ill-equipped media did not pursue the story because they did not understand its complexities and implications. This issue can be seen at its most stark in the next stage of the British test program, when it was enveloped in secrecy unlike anything that had come before. The fact that the Australian media were compliant made the final phase of the tests possible. What happened during the Vixen B years at Maralinga while the media spotlight was firmly switched off is the topic of the next chapter.

Chapter Six

The most dangerous scientific experiments in Australia: Vixen B

In view of the known long half-life of plutonium (24 000 years), the Vixen series of minor trials should never have been conducted at Maralinga.

The Report of the Royal Commission into British Nuclear Tests in Australia, Conclusions and Recommendations., 1985

And the more questions we asked, and the deeper we got into the issue, the more it looked like a Pandora's box.

Tom Uren, *Straight Left*, 1995

The media did not report the post-1957 Maralinga minor trials until the 1970s and were given no information about or access to them at all at the time they were underway. Therefore, this chapter is not about the media and the minor trials at the time of the tests, because that relationship did not exist until 1978 onwards. Instead, this chapter gives an overview of what I maintain were the most dangerous experiments in Australia's history – experiments that could not take place today and which were covered in unprecedented secrecy, far greater secrecy than obtained for the major trials. They were especially secret for several reasons, including in part a growing recognition by both the UK and Australian governments that the testing program at Maralinga was increasingly unpopular in public perception. They were not necessarily secret because of the security implications of weapons design. As shown in Chapter Four, the atomic bombs themselves were publicised, although the controls of D-notices and information management in force limited the amount of detailed or damaging information made available, as shown in Chapter Five. This chapter argues that the total secrecy surrounding Vixen B was more for political rather than military or national security reasons. It also argues that these tests would probably not have been possible without the extraordinary levels of secrecy that surrounded them and that speculates that, had the general public been aware of the danger of Vixen B, the political backlash would probably have been more than the Menzies government could have withstood, given its shaky standing at that time in the polls¹. By the time Vixen B was underway, Australian opinion about continued

¹ At the December 1961 federal elections, the Menzies government suffered a significant electoral downturn and was returned to government with a majority in the House of Representatives of just one. Author unknown, "Menzies rebuffed, but unruffled", *Sydney Morning Herald*, 11 December 1961, reproduced in F K Crowley, *Modern Australian Documents 1939-1970*, Vol.2, Wren Publishing, Melbourne, 1973, p. 421.

co-operation with the British on nuclear testing had become much more negative and little official information was released after the end of the Antler test series in 1957.

History has judged the Maralinga minor trials harshly. They left by far the biggest portion of radioactive contamination of all British atomic weapons tests in Australia, and were the subject of an active cover-up by the British, as *New Scientist* journalist Ian Anderson later revealed (see Chapter Three). The official British chronicler of the tests, the notably sympathetic Lorna Arnold, said: "The minor trials had left more trouble behind them than the big explosions."² They need not have even been carried out in Australia, except for acknowledged political risk they carried for the UK³. To quote from evidence given in 1984 to the British nuclear tests Royal Commission, in a question from Council assisting the Royal Commission: "...the planning foundation for your work was that radioactive contamination of Australia may be politically acceptable but not for the UK." The answer from Noah Pearce, a British nuclear scientist who was part of the team that conducted the minor trials and who later prepared a report on their aftermath, was a simple: "Yes."⁴ This was not disclosed to the Australian people at any time during the experiments. It would be perhaps fruitless to speculate on whether the experiments might have been conducted more safely if they had been held in the UK, though that remains within the realm of possibility given more rigid regulations and more intrusive and active media in that country. What we do know is that when the UK did the same experiments in Nevada with the Americans, Roller Coaster⁵, these experiments were carried out with greater rigour and far more extensive documentation and monitoring⁶ – and were followed by a clean-up that removed the deadly plutonium from the site instead of

² Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, Her Majesty's Stationery Office, London, 1987, p. 225.

³ The Report of the Royal Commission into British Nuclear Tests in Australia, Vol. 2, AGPS, Canberra, 1985, p. 402.

⁴ *Ibid.*, p. 405.

⁵ John Moroney, letter to Pat Davoren, 28 November 1991. Roller Coaster consisted of four trials held between 15 May and 9 June 1963. Moroney obtained declassified technical information about these trials and analysed them in comparison with Vixen B data, as outlined in Chapter Three.

⁶ *Ibid.*

leaving large quantities lying around in the open as happened at Maralinga. As radiation scientist Peter Burns would later comment:

“The Americans had a much more intensive assessment of the fallout by taking many samples. They had labs on site at Nevada so they could take soil samples and do their measurements...they were determined to find every bit of plutonium on the ground so they did a very detailed study of what was there.”⁷

The aftermath of the minor trials dominated the media stories that finally began emerging in the late 1970s; journalistic determination to find formerly obscure sources of information guaranteed this. The momentum of criticism against the minor trials was boosted by the 1985 McClelland Royal Commission, which condemned the experiments. Their profile was raised also by Labor deputy leader Tom Uren, who remained uncompromisingly angry about them for years, as did outspoken nuclear veterans such as Avon Hudson. The most recent clean-up of the site mostly dealt with the Vixen B contamination⁸. A significant portion of the reporting in Australia from 1978 onwards deals with the consequences of these trials, and several books written by journalists reserve much of their scorn for the Vixen B experiments⁹. The courts are still hearing claims from nuclear veterans, some of whom are seeking compensation for health problems caused by alleged contamination from Vixen B.

Vixen B was indeed a problematic series of scientific experiments. In truth, it will never be known how many people were harmed by these experiments as it is nearly impossible to draw a clear and legally-binding causal link between the experiments and later health problems among people who were at the site during or after the tests. Indeed, this lack of knowledge about the exact effects on people is one of the reasons they may be called the most dangerous of Australian experiments, because they were conducted without the kinds of safeguards and

⁷ Peter Burns, interview with Elizabeth Tynan, ARPANSA, Melbourne, 15 April 2004.

⁸ Lorna Arnold and Mark Smith, *Britain, Australia and the Bomb: The Nuclear Tests and Their Aftermath*, Second Edition, Palgrave Macmillan, New York, 2006, p. 240.

⁹ Some of the most detailed, passionate and scathing book-length accounts of the legacy of Maralinga have been written by journalists – most notably the Australian Robert Milliken (*No Conceivable Injury*) and the British journalist Joan Smith (*Clouds of Deceit: The Deadly Legacy of Britain's Bomb Tests*).

monitoring that would enable analysis of risk and causation. This was not the case for comparable experiments in the United States, as mentioned in Chapter Three. Despite many court cases and claims for monetary recompense, only a relatively small number of Australians – military and civilian – have been compensated for health problems alleged to have been caused at Maralinga¹⁰. Even fewer of the many British service personnel present at Maralinga have been compensated, owing to British laws that until relatively recently (1987¹¹) limited liability for injury suffered during military service¹². The following year, the British government finally agreed to pay war pensions to service personnel who developed blood cancers after their service at Maralinga¹³. Even the McClelland Royal Commission into the British atomic tests, motivated as it was by a passionate chair who sought to assign blame to those responsible for the tests, failed to find sufficient evidence of specific harm caused. While there is much anecdotal evidence, some of which has been presented in court, proving causality has been extremely difficult:

“In a finding that continues to frustrate veterans, the Royal Commission concluded that illness, disease and abnormality cannot be unequivocally associated with radiation exposure well above the dose limit.”¹⁴

Nevertheless, despite the difficulty in establishing a strong causal link to health outcomes, the hazards that the Vixen B trials presented were unequivocally high

¹⁰ Documents associated with the Australian Participants in British Nuclear Tests (Treatment) Bill 2006 provide the following statistics: “Since the conclusion of the British Nuclear Testing Program, at least 79 common law actions against the Commonwealth have been instituted by ex-servicemen, other former Commonwealth employees and employees of Commonwealth contractors. Many of the cases before the courts have either been discontinued or withdrawn. Four cases have been heard by the court.” In addition, compensation has been paid under an administrative scheme to a number of servicemen, Indigenous people, civilians and some families of diseased people, with an average compensation payout of \$126,561. Australian Participants in British Nuclear Tests (Treatment) Bill 2006. Bills Digest no. 31 2006-07, Parliament of Australia Parliamentary Library.

¹¹ The UK *Crown Proceedings (Armed Forces) Act 1987* allowed service personnel for the first time to claim damages against the UK Ministry of Defence. Richard Lewis, Annette Morris and Ken Oliphant, “Tort personal injury claims statistics: Is there a compensation culture in the United Kingdom?”, <http://www.law.cardiff.ac.uk/research/pubs/repository/1445.pdf>.

¹² Denys Blakeway, and Sue Lloyd-Roberts, *Fields of Thunder: Testing Britain's Bomb*, George Allen & Unwin, London, 1985, p. 5.

¹³ Daniel Moore, “30 years on: Britain agrees to pay its Maralinga victims”, *Sydney Morning Herald*, 4 April 1988, p. 1.

¹⁴ Paul Brown, “British Nuclear Testing in Australia: Performing the Maralinga Experiment through Verbatim Theatre”, *Journal and Proceedings of the Royal Society of New South Wales*, Vol. 139, 2006.

because of their nature and the materials they used. The trials spread plutonium around the desert test site, where it was left for decades. Modern approaches to the use of plutonium contrast starkly with those during the minor trials; ^{239}Pu was used in the Vixen B tests in a way that could not be countenanced today, and was questionable even for the time, as will be outlined in this chapter.

As highlighted by the investigative journalist Brian Toohey in 1978 (see Chapter Seven), plutonium is tailor-made for weapons – indeed, this is its primary purpose and the main reason it is produced – and leaving it lying around on the ground, as happened in Australia, was foolhardy¹⁵. Only by good fortune was the plutonium not taken for terrorist purposes during the time that the test range at Maralinga was unpatrolled. A radiological (“dirty”) bomb could potentially have been fashioned from the material left at the range, and a few kilograms would have made a device capable of killing many people. According to Robert Seldon of the US Lawrence Livermore Laboratory, rebutting conventional wisdom that “reactor grade” plutonium is less suitable for this purpose than “weapons grade” (both forms were used by the British at Maralinga¹⁶):

“All plutonium can be used directly in nuclear explosions. The concept of...plutonium which is not suitable for explosives is fallacious.”¹⁷

After the well-controlled media coverage in the early to mid 1950s, from 1957 onwards journalistic stories about the British atomic tests stopped. With Supply Minister Howard Beale gone to Washington as Australian Ambassador¹⁸ and

¹⁵ Brian Toohey, “Killen warns on plutonium pile”, *Australian Financial Review*, 5 October 1978.

¹⁶ As Chapter Seven shows, the “discrete mass” of plutonium recovered in 1979 by the British from the Maralinga airstrip that had been left over from a Tims minor trial was weapons grade. The differences between weapons and reactor grade plutonium are based on levels of purity, with weapons grade being more pure than reactor grade.

¹⁷ Robert Seldon, Lawrence Livermore Laboratory, quoted in Frank Barnaby, plutonium and radioactive waste management policy consultant, “The management of radioactive wastes and the disposal of plutonium”, paper at the Medical Association for Prevention of War conference, 2000, p. 11.

¹⁸ Although later analysis indicated that Beale had fallen out with Menzies, some media at the time indicated that Beale’s Washington posting was a reward for a job well done. For example, the *Sun-Herald* of 19 January 1958 ran an item under the headline “Reward for a good boy” that commented: “Envious critics say that the rapid rise of the backbencher from Parramatta has been due to his slavish loyalty to the P.M., who appreciates deference and conformity.” Beale’s replacement as Supply Minister, between 1958 and 1961, was Alan Shallcross Hulme, who had little public exposure in connection with the atomic test program.

AWRE head William Penney largely removed from public exposure, there was no media coverage of ongoing activities at Maralinga at all. According to the official British historian of the trials, Lorna Arnold:

“There had been a certain amount of publicity for the nuclear tests and a great deal of press and public interest in them in Australia. It was not so with the minor trials (under their various titles).”¹⁹

In fact, both the British and Australian authorities were aware that news of the Vixen B trials could make it into the media, and planned for that eventuality. Media coverage of the plutonium tests did not come to pass, but several versions of a draft press statement are still to be found among the once-secret documents concerning Vixen B. A sequence of correspondence in the second half of 1960 discloses some of the official thoughts shared between the British and Australian governments on this issue. On 27 September 1960, the assistant secretary of the Prime Minister’s Department Maurice Timbs²⁰ wrote to Prime Minister Menzies to provide him with the text of a statement drafted by the British, to be used:

“...in the event of any public disclosure of the existence of these experiments [Vixen B]...The intention is that it will be held in readiness and released only if there is a public disclosure that these experiments are being carried out.”²¹

The letter has a handwritten annotation, above Menzies’ initials: “Discussed with Mr Townley [Defence Minister] and approved as amended.”²² Attached is a typed media statement with handwritten corrections. The statement begins by making the assertion that no nuclear explosions were being carried out on the Maralinga range. More detailed information about what was actually being carried out at the range is crossed out, in particular a statement that the experimental program involved radioactive or nuclear materials. What remains is the following:

“The Range is being used for experiments conducted on behalf of the United Kingdom Energy Authority which has a need to explore systems of

¹⁹ Arnold, *op. cit.*, p. 218.

²⁰ Maurice Timbs would later – from 1964 to 1973 – become an executive member of the Australian Atomic Energy Commission. Obituary for Maurice Timbs, *The Australian*, 22 December 1994.

²¹ Letter from M C Timbs to Prime Minister Robert Menzies, 27 September 1960, National Archives of Australia, Series No. A6456/3, Item R124/025.

²² *Ibid.*

safeguards [the previous few words crossed out by hand] to eliminate or to minimise the hazards which could arise from accidents involving radio-active materials. The Australian Government has agreed to the use of Maralinga for these experiments which are carried out in accordance with the requirements of the Safety Committee established by the Australian Government and under carefully controlled conditions to avoid any significant radio-active hazard.”²³

On 20 October 1960, the office of the UK High Commissioner in Canberra replied, indicating some disquiet around the use of the term “systems of safeguards” and saying that this terminology: “...may lead to difficulties and misunderstandings”²⁴ because it was similar to terminology being used in negotiations for the new Geneva nuclear weapons treaty. The term was also being used by the International Atomic Energy Authority regarding civil uses of nuclear technology.

“Thus the term ‘systems of safeguards’ has already acquired rather special connotations. It is therefore felt that it would be better if possible to avoid it in the draft press statement.”²⁵

On 15 November 1960, the secretary of the Prime Minister’s Department, John Bunting, sent a letter to the official secretary of the UK High Commissioner to Australia following through on this issue. Accompanying this letter was a further draft that had also been typed out and then amended by hand²⁶, with “systems of safeguards” removed. This final version was watered down a little more to produce a 100-word media statement that in the end was never issued.

There are several reasons why this much-refined statement was not needed. An important factor is the apparent passivity of the media in relation to the test program. Despite growing public disquiet that had become apparent by 1956 around the British tests generally (see Chapter Three), the media did not notice the

²³ Draft press statement 1 on activities at the Maralinga range, 1960, National Archives of Australia, Series No. A6456/3, Item R124/025.

²⁴ Letter from N E Costar, Office of the High Commissioner for the United Kingdom in Canberra, to M C Timbs, Prime Minister’s Department, 20 October 1960, National Archives of Australia, Series No. A6456, Item R150/001.

²⁵ *Ibid.*

²⁶ Draft press statement 2 on activities at the Maralinga range, 1960, National Archives of Australia, Series No. A6456/3, Item R124/025.

signs that major activities were afoot at Maralinga, including increases in military personnel and general increased activity in the area. Media behaviour at the time indicates that there was no active coverage of the atomic test program unless an official media release heralded it. Added to this was the conscious decision by the British test authorities to maintain secrecy. The minor trials, and especially Vixen B, sailed very close to the wind when it came the newly emerging international agreement on weapons tests decided in Geneva, as will be further shown below. The secrecy attaching to these trials was therefore not surprising. Since the British struggled among themselves even to define exactly what the Vixen B tests were, it was deemed safer to keep quiet about them, including maintaining a strict limit on information presented to much of the Australian government.

“The minor trials never attracted press or public attention in Australia, but international developments were taking place that were soon to put a temporary stop to major trials and to set a question mark against at least some minor trials.”²⁷

The media blackout that descended over Maralinga was extremely successful, almost certainly more so than would be likely today for a major operation of this kind. Given the level both of previous coverage of the British nuclear tests and the rise of anti-nuclear movements throughout the world, the lack of media activity and resulting public dissent is conspicuous. There appear to be no media reports at all about Vixen B, a test series that ran for three years and involved hundreds of personnel on site.

“Outside official circles, very few people apparently realised that Maralinga was used for these experimental programmes, and that it continued to be used after Antler [in 1957].”²⁸

Arnold claimed that the British authorities were “particularly anxious” not to attract any publicity during negotiations in Geneva²⁹ to limit nuclear weapons testing (see below). Vixen B was the major reason for the anxiety, since it did produce nuclear fission, albeit in small amounts, and tested an apparatus that came close to many of the characteristics of an actual nuclear warhead. Vixen B was

²⁷ Arnold, *op. cit.*, p. 204.

²⁸ *Ibid.*, p. 218.

²⁹ *Ibid.*

not only dangerous, but it is quite likely that it was right on the borderline of international law and may have crossed into illegality. The behaviour of the AWRE authorities at the time suggests that they knew Vixen B was in a grey area and its secrecy had to be preserved for political reasons.

The most dangerous scientific experiments in Australia took place after serious international moves had begun to find ways to slow the atomic arms race. This race had been underway since the wartime Manhattan project that created the first nuclear weapon in 1945 and had escalated in the years since as the United States and the Soviet Union had become armed not just with fission weapons like those dropped on Hiroshima and Nagasaki at the end of World War II but also with much the more powerful fusion weapon, the hydrogen bomb. The UK, while lagging behind the US and the USSR, tested its own hydrogen bomb in 1957³⁰. As enormous resources were directed by the major powers into larger and more powerful atomic weapons, public pressure opposing the growth of nuclear arms started to grow. Calls for the brakes to be applied became more strident and dissent more organised. Some respected scientists publicly raised concerns about the amount of radiation entering the atmosphere from above-ground nuclear tests³¹. Popular movements such as the UK's Campaign for Nuclear Disarmament (which was launched in 1958 and quickly became large and prominent³²) and intellectual movements such as the Pugwash Conference (1957³³) of scientists and other scholars opposed to nuclear weaponry got started. Intergovernmental moves began in 1958 to find a politically acceptable way to slow the race for nuclear arms. US President Dwight Eisenhower proposed that test ban negotiations should begin on 31 October that year, pledging a one-year moratorium on weapons testing, and the Soviet Union agreed³⁴. On that date, the Conference for the Discontinuance of Nuclear Weapons Tests opened in Geneva, Switzerland. From there arose a moratorium on the testing of atomic weapons that stayed in

³⁰ Robert Milliken, *No Conceivable Injury*, Penguin Books Australia, Ringwood Victoria, 1986, p. 206.

³¹ David McKnight, *Australian Spies and their Secrets*, Allen and Unwin, St Leonards, 1994, p. 183.

³² Arnold and Smith, *op. cit.*, p. 15.

³³ "About Pugwash", Pugwash online: conferences on science and world affairs, 222.pugwas.org/about.htm.

³⁴ Arnold, *op. cit.*, p. 205.

place until September 1961³⁵ when a permanent partial test ban treaty was put into place.

The Geneva agreement was a complication for the AWRE, as is shown below. The UK weapons authorities had no choice but to comply with an agreement that was binding on the UK government. On the other hand, the AWRE had an extensive program of minor trials underway at Maralinga and had plans to greatly expand this program to address safety issues encountered in the operational deployment of nuclear weapons. These new tests were clearly going to come close to the line drawn in Geneva. Ways had to be found to continue while skirting this obstacle. One of the ways to do this was to close down the PR operation that had been run by Howard Beale and his Supply Department during the major trials of the British nuclear test program. Since there were no large atomic clouds to make this difficult and since, in any case, there was little further propaganda advantage in discussing the tests in public as atomic weaponry was increasingly the subject of public disquiet and anger – and international treaty – the easiest thing to do was to behave as though the minor trials were not happening. The attitude of the time is summarised by the Australian chronicler of the tests, John Symonds:

“There is no reason to believe that these experiments could be regarded as an evasion of a Treaty, whatever the outcome of the present Geneva discussions. While there is no need to raise the point specifically in Geneva, there is no need to deliberately conceal it, but no public statement is to be volunteered.”³⁶

Without public statements, there was no media coverage. One of the points of difference between reporting at the time of the British tests and the reporting that came later was the reliance in the first era on official public statements. For the investigative journalism from 1978 onwards, politicians were forced to make public concessions about what had gone on after the reporters had received leaked secret documents or dug up evidence. In the earlier era, most coverage arose from

³⁵ *Ibid.*, pp. 205-206

³⁶ J L Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968: The Minor Trials – Assessment and Safety Tests”, National Archives of Australia, Series No. A6456/3, Item R023/003.

the stage-managed interaction between the officials and the media. This made the media easy to control and keeping Vixen B quiet did not require much effort on the part of the test authorities or the British and Australian governments.

Nearly all the minor trials in various ways tested how radioactive and other toxic substances would react when burned or exploded. The substances used were different in each series, but included beryllium and uranium as well as several isotopes of plutonium, the substances that most contaminated Maralinga³⁷. The short-lived radionuclides such as polonium-210, lead-212 and scandium-46 that were also released have subsequently decayed “to insignificant amounts”³⁸ since the time of the tests. The toxic legacy of Maralinga can almost entirely be summed up in one word: plutonium. When the Maralinga Rehabilitation Technical Advisory Committee (MARTAC) reported in 2002 on the outcome of the operation to remove contamination from the area, co-funded by the British government, it said:

“Plutonium (Pu) was almost entirely the contaminant that determined the scope of the [Maralinga rehabilitation] program. It is acknowledged as a very radiotoxic element if taken into the body, particularly by inhalation. A large literature on the health effects of plutonium exists.”³⁹

Almost all of the most dangerous isotope of plutonium still at the Maralinga range, ²³⁹Pu, was released by the Vixen B experiments. This isotope has significant consequences for the environment:

“To all intents and purposes, once [²³⁹Pu] is in the environment, it stays there permanently. Because of its radiotoxicity and long half-life the disposal of plutonium presents particularly difficult problems.”⁴⁰

³⁷ For details on the radioactive substances used in the minor trials, refer to Royal Commission Report Vol. 2, *op. cit.*, pp. 396-401.

³⁸ Royal Commission Report Vol. 2, *op. cit.*, p. 398.

³⁹ Department of Education, Science and Training, “Rehabilitation of Former Nuclear Tests sites at Emu and Maralinga (Australia) 2003”, report by the Maralinga Rehabilitation Technical Advisory Committee, Commonwealth of Australia, Canberra, 2002, p. xii.

⁴⁰ Frank Barnaby, “The management of radioactive wastes and the disposal of plutonium”, paper at the Medical Association for Prevention of War conference, 2000, p. 9.

The minor trials did not produce “fallout”⁴¹ in quite the same way that the mushroom clouds did. The major trials sent clouds of minute particles of debris into the stratosphere (more than 10km above the ground) and spread fallout of short-lived radionuclides over most of the continent of Australia, with some isotopes found as far away as Townsville⁴² in the Queensland tropics. In doing so, they provoked hostile contemporary scientific scrutiny by the Adelaide-based CSIRO scientist Hedley Marston, who had a high-profile wrangle with Ernest Titterton and the AWTSC over his study of the uptake of iodine-131 in the thyroids of grazing animals to the north and northeast of Maralinga.⁴³ The minor trials on the other hand did not attract the attention of Marston or any other non-involved scientist at the time. Their impact was more concentrated, more geographically contained, while being orders of magnitude more dangerous within a smaller area close to the firing site. Vixen B sent plutonium oxide between 800 and 1,000 metres into the air, where it was picked up by the wind and carried in plumes that spread out from the firing pads⁴⁴. The main sources of concern around the minor trials were those plumes of plutonium oxide that spread ²³⁹Pu particles in a pattern (northeast, north and northwest of Taranaki⁴⁵) about 150 kilometres long and many metres wide from the Taranaki site. Also, the structures and earth in the immediate vicinity of Taranaki became contaminated with plutonium. The main dangers posed were for people who were in that geographical area, principally service personnel and scientific staff who were conducting the tests, Indigenous people who either during or after traversed the land around Taranaki or later visitors to the site who may have unknowingly picked up radioactive materials or inhaled dust containing plutonium. For these people, the dangers would indeed be grave, although there is considerable dispute about exactly how badly people were affected. Official British tests chronicler

⁴¹ See Appendix B for a definition of fallout.

⁴² P N Grabosky, “A Toxic Legacy: British nuclear weapons tests”, Chapter 16 of Wayward governance: illegality and its control in the public sector, Australian Institute of Criminology, Canberra, 1989, p. 244.

⁴³ The Hedley Marston saga is a fascinating aspect of the British nuclear tests, pitting as it did two strong and colourful personalities, Titterton and Marston, in a battle of scientific wits. An account of the story is given in the Roger Cross book *Fallout: Hedley Marston and the British Bomb Tests in Australia*, Wakefield Press, Kent Town, 2001.

⁴⁴ Alan Parkinson, “The Maralinga Rehabilitation Project: Final Report”, *Journal of Medicine, Conflict and Survival*, Vol. 20, 2004, p. 72.

⁴⁵ *Ibid.*

Lorna Arnold in her published account took the view that the people exposed to the tests were not seriously affected by radiation, doses of which she says were well within the guidelines laid down by the International Commission on Radiological Protection (ICRP), and that the only lasting damage was to the lifestyle of the Indigenous people:

“The people most affected...were the Aboriginals, because of damage to their way of life rather than directly to their health. They had no rights and their interest in the land was not realized or respected; but this was, and had been, their general situation and was neither new nor peculiar to the weapons trials.”⁴⁶

While the impact on the Indigenous inhabitants that Arnold notes is undoubtedly true, other commentators would claim more widespread harm than she allows, including the many “nuclear veterans”, both Australian and British, who have endeavoured to seek compensation, as mentioned above. This is still a matter of some dispute, as will be further outlined below.

The Vixen series evolved over time, being split into Vixen A and Vixen B a year or so after first being formulated simply as Vixen. The original form of the experiments, which later became known as Vixen A, mostly used beryllium but did use small quantities of plutonium (0.98kg, of which 0.58kg was dispersed⁴⁷) although the experiments were of a different and somewhat less dangerous nature compared with Vixen B, without the huge plumes of plutonium oxide shooting up and out across the desert. Vixen A experiments involved studying how radioactive and toxic materials including beryllium, uranium and plutonium might behave in an incendiary or explosive accident, specifically examining how weather conditions influence the spread of radioactive and toxic materials⁴⁸. The tests involved burning the substances in a petrol fire or in an electric furnace, or dispersing them by high explosive⁴⁹. Thirty-one Vixen A experiments were carried out at a test site called Wewak⁵⁰, about 15km to the southeast of Taranaki.

⁴⁶ Arnold, *op. cit.*, p. 244.

⁴⁷ Royal Commission Report Vol. 2, *op. cit.*, p. 397.

⁴⁸ Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968, *op. cit.*

⁴⁹ *Ibid.*

⁵⁰ See p.6 for a map of the Maralinga test site.

The Vixen A experiments were troublesome for several reasons, not least because the balloons used to hoist a variety of monitoring devices aloft before detonating the bundles of radioactive materials kept slipping their moorings and heading off into the open sky⁵¹. After one such incident in July 1959, a balloon was found the next day about six miles (10km) away from the test site. Another escaping balloon was not found⁵². The balloon accidents associated with Vixen A caused major disruptions to the test program. In fact, the balloon problems with Vixen A were only a foretaste of more serious balloon incidents in September 1960 connected with Vixen B. At that time, a number of monitoring balloons broke their moorings and one was discovered as far away as Hungerford near the New South Wales-Queensland border, about 1,400km from Maralinga⁵³. These problems were not just related to practical matters concerning the tests themselves but extended to concerns about protecting the secrecy of the tests and the political implications of security breaches. Test authorities were worried that the footloose balloons would be noticed by people outside the site and subsequently reported on by the media – or indeed a balloon with a measure of radioactivity on its surface after a firing would find its way into the hands of someone outside the range, causing untold complications⁵⁴. Some media did report, without much detail, on balloons escaping from the test site⁵⁵. Worries about the balloon incidents turning into a major public controversy continued for safety committee chair Titterton throughout both Vixen A and Vixen B. After these incidents, the Australian Department of Defence ordered an inquiry that recommended that the use of balloons be restricted⁵⁶.

As outlined in Chapter Two, Vixen B were “safety experiments” in which simulated nuclear warheads were blown up with conventional explosives on the open range. The health and safety controls for the tests included a stand-clear

⁵¹ Letter from J L Knott, acting secretary of the Department of Supply, to Allen Fairhall, 29 July 1959, National Archives of Australia Series No. A6456, item R105/001.

⁵² *Ibid.*

⁵³ Milliken, *op. cit.*, p. 254.

⁵⁴ Arnold, *op. cit.*, p. 212.

⁵⁵ Royal Commission Report, Vol. 2, *op. cit.*, p. 429.

⁵⁶ Symonds, *op. cit.*, p. 503.

zone and dosimetry gauges⁵⁷ worn on the clothing by site personnel to detect radiation. Those personnel in the “forward area” close to the firing site⁵⁸ in addition wore safety garb of radiation protection suits, gloves, boots and full-face respirators⁵⁹. The only personnel allowed to be stationed close to the Taranaki site during Vixen B were British servicemen and AWRE representatives, and not even the Australian health physics representative Harry Turner was allowed onto the Taranaki site during a firing⁶⁰. Turner’s health physics unit was involved from a distance, however, since:

“[t]he Health Physics requirements for this Trial [Vixen B] were more demanding than any encountered previously, with the obvious exception of the major weapons tests.”⁶¹

A much larger stand-clear zone was established for Vixen B than for the other minor trials. The exclusion zone out of which personnel had to stay during a detonation began, in the first Vixen B in 1960, with a radius of 24 miles⁶² (40km) from the place of detonation. This was expanded to 27 miles in 1961⁶³ and ultimately to 35 miles by 1963⁶⁴. This compares with safety radii of between three and 16 miles for the other minor trials conducted at Maralinga at that time. As Symonds notes, the larger than normal safety zones induced some speculation and curiosity:

“The instrumentation and observation posts [for Vixen B] were placed well away from the test site as though for a full nuclear weapon test, a point which was remarked upon at the time.”⁶⁵

⁵⁷ For information on how these gauges, worn on the clothing of test personnel, functioned refer to Royal Commission Report Vol. 1, *op. cit.*, pp. 34-36. Also, see the Glossary at Appendix B for definitions of the two kinds of dosimeters used at Maralinga.

⁵⁸ Raymond Frank Carter, statement in evidence to the Royal Commission into British Nuclear Tests in Australia, London 7 March 1985, National Archives of Australia Series No. A6455/1, Item RC408.

⁵⁹ For information on safety clothing worn by test personnel, refer to Royal Commission Report Vol. 1, *op. cit.*, pp. 37-38.

⁶⁰ Duties of the Health Physics Representative, revised 10 April 1961, reproduced in Symonds, *op. cit.*, p. 476.

⁶¹ Royal Commission Report Vol. 1, *op. cit.*, pp. 37-38.

⁶² Roy Pilgrim, Maralinga Experimental Programme 1960 Safety Statement, National Archives of Australia Series No. A6455, Item RC371.

⁶³ Roy Pilgrim, Maralinga Experimental Programme 1961 Safety Statement, National Archives of Australia Series No. A6455, Item RC371.

⁶⁴ Roy Pilgrim, Maralinga Experimental Programme 1963 Safety Statement, National Archives of Australia Series No. A6455, Item RC371.

⁶⁵ Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968”, *op. cit.*

The greatest radiological contamination at the conclusion of the Vixen B tests was to be found in an area roughly in a one-kilometre radius from the firing pads, within which plutonium contamination was said to be “extensive”⁶⁶. Arrays of sampling instruments were arranged to the north of the Taranaki firing range, to measure atmospheric dispersal and contamination levels for each Vixen B firing⁶⁷, although bad weather often compromised the readings that the Vixen B monitoring team was able to take⁶⁸. The Vixen B safety experiments were the one-point trials discussed in Chapter Three, where a matrix of explosives and plutonium were arranged in a manner almost identical to a real nuclear warhead⁶⁹ that were later shown to have created small atomic explosions⁷⁰. Evidence given to the Royal Commission indicated that the Vixen B assemblies were deliberately made to fit a definition imposed unilaterally by the AWRE (a definition not ratified by the Conference for the Discontinuance of Nuclear Weapons Tests in Geneva), that they “did not give a nuclear reaction in excess of ten tons of fission TNT equivalent”⁷¹. Questioning by Counsel assisting the Royal Commission Peter McClellan of W E Jones, AWRE’s co-ordinator of operations for Vixen B, was revealing of the determination at the time of the test authorities to skirt around the new international restrictions on atomic testing:

“Q: In scientific terms there was no difference of real significance if you stayed under the ten tonnes, but the chances are you would not get caught, is that right?”

“A: I suppose that is a way of putting it politically.”⁷²

By the time Vixen B was first being planned, in 1958, Britain had undertaken six years of atomic weaponry development and its nuclear arsenal was sufficiently advanced to go into operational deployment. Questions arose at that point about safety of storage and transportation⁷³, requiring the formulation of the Vixen A and B safety experiments. These experiments were carried out by both the UK

⁶⁶ Symonds, *A History of British Atomic Tests in Australia*, *op. cit.*, p. 540.

⁶⁷ Carter, *op. cit.*

⁶⁸ *Ibid.*

⁶⁹ Arnold and Smith, *op. cit.*, p. 216.

⁷⁰ Royal Commission Report Vol. 2., *op. cit.*, p. 410

⁷¹ *Ibid.*

⁷² *Ibid.*

⁷³ Symonds, “British Atomic Tests in Australia Chronology of Events: 1950-1968”, *op. cit.*

and the US in response to fears that an accidental triggering of a nuclear device would produce nuclear yield.

“While they were said to be to test the safety of nuclear weapons in storage or transit, there was also an element of weapons development in these trials.”⁷⁴

Once the test assemblies were detonated, a jet of molten plutonium shot up into the air, mixing with oxygen to produce plutonium oxide, whereupon it blew across the landscape in large plumes. While the restricted area was the largest for any of the minor trials, the plumes actually extended well beyond its limits – 150km or more from the Taranaki site, as Ian Anderson’s *New Scientist* story revealed⁷⁵. Test personnel entered the restricted zone only 20 minutes after each firing to measure contamination⁷⁶. The British engineer, Raymond Carter, who was present during Vixen B and later gave evidence to the McClelland Royal Commission, reported that in the first Vixen B series there was a problem with one of the test platforms, the feather bed, which presented immediate difficulties to the site personnel:

“Failure of the engineering construction of the Feather Bed and its associated structure resulted in a heap of debris that rendered monitoring for contamination levels virtually impossible for any accurate fissile inventory requirements.”⁷⁷

The feather beds and related structures were to remain of considerable concern right up to the time of the most recent Maralinga clean-up (carried out between 1996 and 2000⁷⁸), as they became heavily imbued with plutonium, adding to the hazard posed by contaminated dust and rock fragments. Each Vixen B blast blew the feather beds apart and they could only be used once. The used feather beds were buried in pits dug close to the Taranaki site⁷⁹. As Raymond Carter later asserted, “[t]he quantities of contaminated debris at the Firing Sites had been

⁷⁴ Alan Parkinson, “The Maralinga Rehabilitation Project: Final Report”, *op. cit.*, p. 71.

⁷⁵ Anderson, Ian, “Britain’s dirty deeds at Maralinga”, *New Scientist* 12 June 1993, p. 13.

⁷⁶ Carter, *op. cit.*

⁷⁷ *Ibid.*

⁷⁸ Department of Education, Science and Training, “Maralinga rehabilitation project”, www.radioactivewaste.gov.au/Rehabilitation_former_test_sites.htm.

⁷⁹ Alan Parkinson, *Maralinga: Australia’s Nuclear Waste Cover-up*, ABC Books, Sydney, 2007, p. 7.

much greater than originally planned...”⁸⁰. In total, Vixen B scattered 22.2 kg of ²³⁹Pu around Taranaki, with some 20kg initially thought to be in the adjacent burial pits and over 2kg dispersed across the test range⁸¹. Exact figures have never been established, although it was later found that rather than the 20kg just sitting safely in the 21 Taranaki burial pits that were bulldozed at the time to hold waste material, it was actually spread all around the site in particles of widely divergent size. Once Vixen B was underway, the contaminated areas around Taranaki were enclosed by a wire fence with “keep out” signs hung at regular intervals, while maps showing the areas that were not to be entered were prepared for site staff⁸². During the Brumby clean-up operation in 1967, most of the fences and signs were removed in an effort to return the site to its pre-test appearance⁸³. In effect, the visible signs of the British tests were removed, but the invisible and more dangerous residue was not.

I assert that the Vixen B tests were the most dangerous scientific experiments in Australia. The most important reasons for regarding them as unprecedentedly dangerous experiments are the substance they used (²³⁹Pu), a radioactive isotope handled only under the most rigid controls today in Australia, the lack of information flow on the specifics of the tests from the British authorities to the Australian authorities, the unsafe way the experiments were conducted, the lack of post-test safeguards and the lack of public information and consent for experiments that could put members of the public at risk. For these and other reasons, they demand close attention and continue to be a dominant issue in any consideration of the legacy of Maralinga.

“Vixen B experiments differed from all the other minor trials since they used fissile material in a simulated weapon... These experiments had both political and safety implications, far more than any of the others.”⁸⁴

Plutonium-239 is a dangerous and persistent substance. It does not occur naturally but is created in a nuclear reactor by bombarding uranium-238 with

⁸⁰ *Ibid.*

⁸¹ Royal Commission Report, Vol. 2, *op.cit.*, p. 398.

⁸² *Ibid.*

⁸³ *Ibid.*, p. 535.

⁸⁴ Arnold, *op. cit.*, p. 201.

neutrons⁸⁵. Its hazards arise from the fact that it delivers ionising radiation – the kind that changes the cells of a living body by knocking electrons out of stable atoms – when ingested or inhaled. Plutonium-239 tends not to affect the skin but must enter the body to do harm. The alpha particles emitted by plutonium are very weak, and can travel only a few centimetres in air⁸⁶. Plutonium is one of the most toxic substances known and modern day uses of it are strictly controlled in this country and in other Western nations, with licences and transparent monitoring protocols required⁸⁷. It can no longer be blown up or spread around an open landscape the way it was in the Vixen B series. It is certainly not these days left in large lumps in unsupervised locations that can be accessed by the general public – or indeed by would-be terrorists looking to power a bomb. Current protocols for the use of plutonium in Australia and internationally have been formulated in recognition of the dangers it poses to anyone who has to work with it or otherwise comes into contact with it. These protocols also recognise the terrorism potential associated with ²³⁹Pu.

“It has been estimated that one millionth of a gram of plutonium-239 may be sufficient to cause lung cancer if inhaled...The fissile core of a single weapon would, if perfectly dispersed so that each individual had one millionth of a gram in his or her lungs, be sufficient to threaten cancer in every single member of the human race.”⁸⁸

This was the substance that was blown up on the feather beds at Taranaki, with the main safety procedures being a clear zone to exclude personnel during the detonation and some safety equipment that was often not used properly. Later

⁸⁵ Ernest Titterton, *Facing the Atomic Future*, Macmillan, London, 1956, p. 38.

⁸⁶ K H Lokan and G A Williams, “Maralinga – Radiological Safety for APS Personnel”, first prepared June 1998, revised January 1995, attachment to P C Crouch, F J P Robotham and G A Williams, Submission to the Senate Foreign Affairs, Defence and Trade Committee on the Australian Participants in British Nuclear Tests (Treatment) Bill 2006; and the Australian Participants in British Nuclear Tests (Treatment) (Consequently Amendments and Transitional Provisions) Bill 2006, 25 October 2006.

⁸⁷ Very little plutonium-239 is used these days in Australia. What is used is mostly under the auspices of the Australian Nuclear Science and Technology Organisation, ANSTO, which adheres to safety requirements laid down in the Australian Radiation Protection and Nuclear Safety (ARPANS) Act 1999, in addition to the ARPANS Regulations 1999. ²³⁹Pu is mostly used as a measurement standard and to calibrate radiation detection equipment. Dr Mark Reinhard, Research Leader, Australian Nuclear Science and Technology Organisation, pers. corres., 11 February 2010.

⁸⁸ Shaun Gregory, *The Hidden Cost of Deterrence: Nuclear Weapons Accidents*, Brassey’s (UK), London, 1990, p. 89.

claims by the many service personnel who sought compensation for damage suffered at Maralinga were based on several main factors, including the lack of information they received and also the inadequate safety measures put in place during all the tests, but most particularly Vixen B.

“The inability of the UK and the Australian Government to produce proper records of dose, exposure and proper medical records and service records setting out accurately the test involvement of participants show the tests were not properly conducted from the point of view of safety of the participants.”⁸⁹

Calculations for how far away people should be stationed during the explosions were later considered to be inaccurate, but even now it is hard to establish what sort of safe zone would be suitable, since this form of experiment would never be countenanced. Two main kinds of health hazard are posed by plutonium: deterministic (also known as non-stochastic) and stochastic⁹⁰. The deterministic hazard involves a threshold level of radiation exposure above which people may be severely harmed or killed, sometimes quite quickly. Radiation sickness is an example of this kind of effect. The stochastic hazard, on the other hand, involves a longer-term process based on the probability of developing cancer or genetic damage, in which the probability is directly correlated with dose. In this latter category there is no threshold, meaning in effect that if a given number of people are exposed to any amount of ionising radiation, the probability is that a statistically predictable number of them will suffer cancer or genetic damage. In other words, there is no safe dose and any exposure may cause risk of serious illness. There are some anecdotes of deterministic harm caused by British nuclear tests⁹¹, although few are specifically related to the minor trials at Maralinga. In the

⁸⁹ Submission on behalf of the Australian Nuclear Veterans Association, South Australia, and the Maralinga and Monte Bello Islands Ex-Servicemen's Association, quoted in "Protection was 'inadequate'," *Sydney Morning Herald*, 19 September 1995, p. 4.

⁹⁰ A useful discussion of both stochastic and non-stochastic effects of radiation may be found in the Royal Commission Report Vol. 1, *op. cit.*, pp. 85-97.

⁹¹ The best-known allegation of deterministic harm caused by the British tests is the "black mist" experienced by Indigenous people around a settlement called Wallatinna, not far from Emu Field. During the Totem tests in October 1953, eyewitnesses saw a black mist that is said to have caused severe sickness among many people in the area. A young Aboriginal boy, Yami Lester, who as an adult later gave evidence to the Royal Commission, claimed to have been blinded by the black mist. While the black mist story had gone into local Indigenous folklore, it only had its first public airing in 1980 in the South Australian media. The Royal Commission later concluded that weather conditions for the first Totem blast, the test associated with the black mist, were unsuitable and the test should not have proceeded. Royal Commission Conclusions and Recommendations, *op. cit.*, p. 16.

context of the minor trials, it is the stochastic effects that have caused the greatest concern, particularly because they occur over a long timeframe and are not always apparent for many years after exposure, and so the risks are hard to manage and to compensate. These problems with stochastic effects are further complicated by the fact that it is not possible for medical science to distinguish a cancer caused by radiation from one caused by another trigger. As mentioned earlier, plutonium becomes a major long-term stochastic health risk only when inhaled, swallowed or transferred via cuts and wounds and held within the body tissues over a period of time. Plutonium must stay in the body to do long-term damage – if it just passes through then the risks are low. But lodgement in the lungs or in bone is extremely dangerous and likely to lead eventually to serious illness.

“...[plutonium particles] may remain in the lung for a long time where they may expose the lung tissue and give rise to lung cancer. Alternatively...because of its long residence time, this material can very slowly dissolve in the lung fluids. Once it goes into solution...it can cross the boundary between the lung and the bloodstream and then make its way to the bones, and it is acknowledged as a potential source of some forms of bone cancer.”⁹²

Given the extreme dangers associated with ²³⁹Pu, it seems remarkable now that the name of the isotope was not originally stated by the AWRE authorities when briefing the Australians on the Vixen B test series. In the end, this apparently deliberate trickiness backfired because the Australian authorities were starting to wonder why they seemed to be cut off from crucial information and they eventually made a change to how minor trial information was provided. Because of these first expressions of concern from Australian government officials about low levels of information, planning for the Vixen experiments did not proceed smoothly. Without doubt, this was more to do with the politics of the situation and the increasing restiveness of the Australian government than what would now seem to be the sheer foolhardiness of the experiments themselves. At the time the Vixen series was being devised by the British, even the notably compliant Australian authorities were starting to have serious doubts, not least because the tests seemed even to a superficial examination to be close to breaching the nuclear

⁹² Evidence by Dr Keith Lokan, Head of the Australian Radiation Laboratory, to the Joint Committee on Public Works, 23 February 1995, in Minutes of Evidence relating to the Maralinga Rehabilitation Project, Parliament of the Commonwealth of Australia, 1995, p. 120.

weapons moratorium just signed in Geneva. This was becoming a cause of considerable disquiet among the select few who knew about the tests in Australia, as well as much scrambling among the British authorities to make the minor trials fit the new treaty conditions. As a result, the secrecy around them closed in even tighter than for the mushroom cloud tests. John Moroney, who featured earlier in this thesis as the former AWTSC secretary who went on to expose British deceit about Maralinga plutonium contamination, said:

“Both [the UK and the US] believed that these studies were not nuclear weapons tests within the terms of the moratorium, but they were anxious not to be seen to be infringing the terms in any way. Accordingly, they performed the tests on reduced assemblies of the fission triggers to ensure that any nuclear yield was small, and conducted them under tight security, away from prying eyes.”⁹³

In fact, such was the concern about the tests being made public that the increase in Maralinga personnel who would be shipped in to carry out the 1961 Vixen B test, which would bring to around 500 the numbers of service personnel on site, was seen as a potential threat to security.

“[The Acting Secretary of the Prime Minister’s Department] remarked that the population of Maralinga was to rise to about 500 during 1961 and this alone involved appreciable risks of Press speculation or leakage of information. Such a disclosure that an operation of the present magnitude was in hand would be difficult to handle.”⁹⁴

Ernest Titterton was explicitly criticised by the McClelland Royal Commission over the minor trials, in part because he had advised the British to say that the fission yield of the 1960 Vixen B tests was zero⁹⁵. Among the many scathing words the Royal Commission report had for Titterton were the following:

“This, of course, was a misrepresentation of the nature of Vixen B as Titterton well knew. The yield was expected to be small, even very small, but not zero.”⁹⁶

⁹³ John Moroney, “Aide Memoire on the nuclear tests in Australia in the context of the British weapons development program”, unpublished briefing document, 24 December 1992.

⁹⁴ J L Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985, p.524.

⁹⁵ Royal Commission Report, Vol.2, *op. cit.*, p. 519.

⁹⁶ *Ibid.*

Hundreds of “minor trials” were held, something of a catch-all term for the wide variety of radioactive tests that were not mushroom cloud atomic bombs⁹⁷. Only five such tests, part of the Kittens series, were held at Emu Field, while at least 600 were held at Maralinga⁹⁸. For accuracy, it is important to note that the term “minor trials” was more or less abandoned by test officials in 1959 in favour, first, of “assessment tests”⁹⁹, and finally in January 1960 “Maralinga experimental programme”¹⁰⁰, often abbreviated to MEP. Royal Commission Chair McClelland commented that:

“[t]here is an almost comical touch of camouflage in the changes of name of the minor trials, especially against the background of discussions of a possible international agreement to ban nuclear tests which were on the agenda from 1957 onwards.”¹⁰¹

In addition, all the code-names for the minor trials, such as Kittens and Vixen, were deliberately inscrutable and intended not to provide any clue to their nature¹⁰². The code-names were for the use of the people directly involved and did not become publicly associated with the British nuclear tests until later. The Kittens, Tims and Rats minor trials that had been held at both Emu Field and Maralinga from 1953 had been dangerous but were much less so than the Vixen B series that ran from 1960 to 1963. In May 1959, AWRE officials gave the first hint of the proposed use of the long-lived isotope of plutonium. However, the

⁹⁷ Please see Appendix A for a list of all minor trials.

⁹⁸ Royal Commission Report, Vol.2, *op. cit.*, p. 405.

⁹⁹ *Ibid.*, p. 512.

¹⁰⁰ *Ibid.*, p. 515.

¹⁰¹ *Ibid.*, p. 402.

¹⁰² This was the case for all the minor trials, and for the non-Maralinga major tests. The only exception to this was the code-name for the 1956 Monte Bello Islands test, Mosaic, which at least one British journalist – one of the few who obtained the code-names at the time – believed was a pointer to its nature. As Denis Warner wrote in a 1956 story in the UK’s *Daily Telegraph*, “Only in the unannounced code name for the test, ‘Operation Mosaic’ was there an official clue that this experiment was part of a much wider field of research and development. Since the code name was not a military inspiration, and in view of the earlier hints, it is a safe assumption that the bomb whose shadow hangs stupendously above this minesweeper as I am writing this was either a trigger for a hydrogen bomb or was directly related to some other aspect of the production of a much more powerful nuclear weapon.” *Daily Telegraph*, “British Atomic Test Explosion Successful: Step Towards Hydrogen Bomb: ‘Trigger’ Experiment”, 17 May 1956, part of a package of clippings collected by the Department of Supply, National Archives of Australia Series No. A6456, Item R058/006. Later, however, the Maralinga major trials code names, Buffalo and Antler, were used by the media and – strangely enough – most notably in a story written by the future Defence Minister but then backbencher MP, Jim Killen, who attended the first Buffalo shot in 1956 and who features prominently in Chapter Seven. The British journalist Chapman Pincher is credited with tagging the head of the test program William Penney with the nickname “Buffalo Bill”, based on Operation Buffalo. Woodward, Lindy, “Buffalo Bill and the Maralingers”, *New Journalist*, No. 43, April 1984, p. 18.

exact description of the toxic substance to be used, ^{239}Pu , was not mentioned to the Australians immediately and was only revealed after repeated enquiries. The AWRE wanted to augment the existing Vixen series:

“...by adding a few burning trials to determine the dispersion of plutonium under representative field conditions.”¹⁰³

The AWRE told the Australian authorities next to nothing about what the minor trials involved¹⁰⁴, and that was as much the case for the new style of test represented by Vixen B as for the others. Nevertheless, and especially as plutonium-239 was going to be used for the Vixen B tests, the British knew they would have to tell the Australian government *something* about them. The Vixen B experiments would spark a series of correspondence between the two governments and the test authorities that would continue for a couple of years. Some of these letters contained a heated or exasperated tone, as relations between the parties became increasingly strained. The correspondence began with a carefully worded letter sent by Ernest Titterton, in his role as head of AWTSC, to Allen Fairhall (who in 1959 was a member of the Parliamentary Standing Committee of Public Works and would in 1961 become Minister for Supply), letting him know that the longest-lived isotope of plutonium was on the agenda and that this might have some political overtones given the events in Geneva. This letter, sent on 10 July 1959, was followed on 30 July 1959 with a formal request for approval of the relevant tests, the Vixen A and B minor trials at Maralinga, from the UK Minister for Supply to his Australian counterpart. The letter said in part:

“Although these experiments are in no sense nuclear tests, it will be desirable to avoid publicity for them in order to remove the risk of their being misrepresented by ignorant or ill-intentioned persons”¹⁰⁵.

The following day the Australian Minister for Defence, Athol Townley¹⁰⁶, who had also received a copy of this letter, sent a reply notable for its glimpse into the preoccupations of that era. He said:

¹⁰³ Royal Commission Report Vol. 2, *op. cit.*, p. 514.

¹⁰⁴ *Ibid.*, p. 505.

¹⁰⁵ *Ibid.*, p.407.

¹⁰⁶ Athol Townley had taken over from Phillip McBride in the Defence portfolio in 1958.

“I am not troubled very much by the trials themselves... The political aspects, however, can be potentially dangerous....for the first time it is proposed to use explosives on the Woomera [sic] Range which will bring the usual howl from the ‘Ban the H Bomb’ section of the community – Communist and otherwise. It is my view, therefore, that there should be some political discussion on it....I would hesitate to put it into full Cabinet, purely on the ‘need to know’ basis”¹⁰⁷.

Roy Pilgrim, head of safety co-ordination for AWRE at Aldermaston, was responsible for issuing the highly confidential and later contentious Maralinga Experimental Programme 1960 Safety Statement at the end of 1959. The 1960 experimental program included Tims, Rats and Kittens minor trials. For the first time it also included Vixen B at the Taranaki firing pads, with information about the new form of trial slipped in rather quietly, without specifics:

“Vixen B firings will use long lived radioactive elements including fissile materials. In some rounds the possibility of a fissile reaction is envisaged but the quantity of fission products which would be produced is not radiologically significant compared with the parent material.”¹⁰⁸

Handwritten at the end of the document is a short list of people to whom copies should be sent, including Titterton. Significantly, the official document requesting Australian government approval for the 1960 MEP did not mention Vixen B explicitly, even though this experiment had been discussed with Titterton in his role as head of the AWTSC. Titterton had conveyed the view to the AWRE that “the approval process already granted by the Australian Government for the series of experiments now at Maralinga in 1960 covered the type of experiment we now wish to carry out.”¹⁰⁹ In the report of the Royal Commission it is noted:

¹⁰⁷ *Ibid.* This letter attracted the scorn of Royal Commission chair James McClelland, who said: “The decision to allow fissile material with a half-life of 24 000 years to be spread on Australian soil, no matter how remote, was evidently in the hands of politicians, one of whom [Townley] did not know that the Woomera Range and the Maralinga Range were not the same thing, and with the exclusion from such a decision of all but two or three members of the Cabinet. This is an instructive little lesson in the style of democratic government in Australia during the Menzies era.” *Ibid.*, pp. 407-408.

¹⁰⁸ Roy Pilgrim, Maralinga Experimental Programme 1960 Safety Statement, *op. cit.* Later in evidence at the Royal Commission, British scientist Noah Pearce admitted that “at least the 1959 and 1960 [safety] statements provided a totally inappropriate basis on which the Australian authorities could form a judgement about the safety of the proposed tests.” Royal Commission Report, Vol. 2, *op. cit.*, p. 406.

¹⁰⁹ Royal Commission report, Vol. 2, *op. cit.*, p. 516.

“[Titterton] did not advocate a further formal approach through the Commonwealth Relations Office because, inevitably, detailed questions would be asked about the precise nature of the experiments, and how they differ from those already approved.”¹¹⁰

That was not the end of the matter, however. The Australian authorities were not happy about being denied specific information on the Vixen A and B tests and began exercising an unprecedented capacity to temporarily stall and hinder the test program, much to the chagrin of the British test authorities.

“The 1960 proposal for assessment tests, which included the Vixen B tests, caused Australian officials, particularly in the Department of Defence, to question the existing procedures for approval of the program. It was apparent that decisions which demanded political input were being taken by the AWTSC, through its Chairman, without reference to the appropriate Ministers.”¹¹¹

The conclusion drawn by the Royal Commission was the Titterton had gone too far and was giving the go-ahead to extremely dangerous tests for which the Australian government did not have sufficient information on which to base a judgement. Allegations levelled against Titterton that his first loyalties were to the AWRE and not to his employer, the Australian Government, are supported by his attempts to push the Vixen series through the approval stage. Titterton's behaviour was not welcomed by the Australian officials, who began to have doubts about a process that saw all safety information from Aldermaston connected to the test program being sent only to Titterton, whereupon it often stopped altogether. With new and more dangerous kinds of tests on the range (both physically and politically), this became increasingly unacceptable:

“The tests seemed to Australian officials to involve matters of deep political significance and not just safety and public health.”¹¹²

The dynamics at Maralinga were changing and Titterton's unquestioned status and authority started to crumble. At this point Prime Minister Robert Menzies got

¹¹⁰ *Ibid.*

¹¹¹ Royal Commission Conclusions and Recommendations, *op. cit.*, p.10.

¹¹² Symonds, *op. cit.*, p. 502.

involved in the exchange of messages over the political implications of the plutonium tests.

“When told of the UK proposal, the Australian Prime Minister consulted with senior Departmental officials whose advice contained the warning that Australia had very little information concerning these particular tests. It was not clear to them that the AWTSC [was] any better informed though it was possible that the Chairman [Titterton] had been given some information by AWRE officials.”¹¹³

In reality, Titterton was far better informed than any other Australian official. As later emerged in the McClelland Royal Commission, he did not see the necessity of making the Australian officials better informed. One of the conclusions of the Royal Commission was:

“Titterton played a political as well as a safety role in the testing program, especially in the minor trials. He was prepared to conceal information from the Australian Government and his fellow Committee members if he believed to do so would suit the interests of the United Kingdom Government and the testing program.”¹¹⁴

A letter from the British Deputy High Commissioner Neil Pritchard to Maurice Timbs in the Prime Minister’s Department attempted to play down the annoyance the Australians were increasingly feeling over the Vixen series and smooth away the growing disquiet.

“As I understand that your Government would like some further information about the additional trials, which for convenience have been given the code name of ‘Vixen B’, we have now been asked to advise you as follows...”¹¹⁵

The letter then sets out some basic information about Vixen B, in five dot points. Among the information provided is:

“The details of the likely contamination and of the precautions to be taken have been passed by the [Director of the Atomic Weapons Research Establishment, William Penney] in his safety statement [noted above,

¹¹³ *Ibid.*, pp. 501-502.

¹¹⁴ Royal Commission Conclusions and Recommendations, *op. cit.*, p. 11.

¹¹⁵ N Pritchard, High Commission for the United Kingdom, letter to M C Timbs, Prime Minister’s Department, 3 June 1960, National Archives of Australia Series No. A6456, Item R107/005.

written by Roy Pilgrim] to Professor Titterton for the Safety Committee. Agreed health physics precautions will be applied.”¹¹⁶

The letter concludes with a plea for rapid resolution of the remaining issues around clearance for Vixen B:

“In view of the foregoing we should be grateful for your urgent agreement to add the ‘Vixen B’ experiments to this year’s Maralinga Experimental Programme. As you know, the experiments have been agreed by the [Maralinga] Board of Management subject to this formal approval and all precautions are in hand. We expect the United Kingdom Servicemen to arrive early in July.”¹¹⁷

This letter clearly indicates that the UK government had taken the view that the experiments had already been approved as part of the broad agreements already in place that did not specifically mention the special nature of Vixen B. In fact, at this stage there was no formal approval. It appears that British were surprised by the questions being asked by the Australians and were keen just to get on with it, being unaccustomed to Australian interrogation on Maralinga plans. After this letter was received and reviewed by Allen Fairhall, he wrote to the Defence Minister, Athol Townley, indicating his support for Vixen B but handing the matter to Townley for the final decision¹¹⁸.

“Defence officials investigated the new situation and noted that, outside the AWTSC, knowledge of the trials was limited to the very general comments about them in the UK High Commissioner’s note.”¹¹⁹

The fact that these trials clearly involved the deliberate detonation of long-lived radioactive material, and possibly of a complete nuclear warhead, was of considerable concern to the Defence Department, and the sketchy detail was making them nervous. Vixen B was not approved by the Australian government until 18 August 1960, and the approval was conveyed to the UK High Commissioner on 30 August¹²⁰. The Defence Department in particular was

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.*

¹¹⁸ Symonds, *op. cit.*, p. 511.

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*

concerned about how little information was getting through, though it was concerned less about the safety arrangements than:

“...the possibility of knowledge of the arrangements falling into wrong hands. It was a matter for political judgement how serious any embarrassment stemming from such knowledge might be”¹²¹.

Nevertheless, the Defence Department did finally approve the tests, with some new conditions for approval of future Maralinga tests:

“The way was then clear for further discussions about some more formal channels of communication between Australia and the UK authorities in addition to the original AWTSC/AWRE channel”¹²².

In the end, Vixen B rebounded badly on Titterton. His decision to keep the details of the series secret from his employers, the Australian government, led to him being sidelined, with the Departments of Supply and Defence eventually bypassing him and going direct to AWRE for information. The depths to which he had sunk in the estimation of the Defence Department and the Prime Minister’s Department is evident in a rather brief and uninformative letter written by the secretary of the Department of Supply, John Knott, which said in part:

“May I say at once...that you and your Committee [the AWSTC] have the full confidence of the Department of Supply and equally I feel sure would this be so [sic] in respect of all other Departments and officials concerned.”¹²³

This less than fulsome letter was in response to a lengthy letter to Knott from Titterton on 24 August 1960 in which he set out the growing disquiet he was hearing from the both the Defence Department and the Prime Minister’s Department over Vixen B. In particular, Titterton was concerned about a view that had been expressed, particularly by Maurice Timbs from the PM’s Department, that the Safety Committee did not have enough information on the exact nature of Vixen B to properly assess its safety.

¹²¹ *Ibid.*, p. 513.

¹²² *Ibid.*, p. 514.

¹²³ Letter from J L Knott, Secretary of the Department of Supply, to Professor E W Titterton, 26 August 1960, National Archives of Australia, Series No. 6456, Item R150/001.

“The Committee takes a most serious view of this: it reflects on our integrity and suggests that we agreed to trials without knowing whether they were safe or not.”¹²⁴

The letter prompted Knott two days later to send the letter quoted above, expressing confidence in Titterton and his committee. There was a veiled threat in Titterton’s letter to which Knott may have been responding:

“We would feel it most improper for us to continue in our work unless we can be assured that we have the complete confidence of the Prime Minister’s Department, the Department of Defence and the Department of Supply.”¹²⁵

It appears that the Department of Supply was the only Australian department that came forward with the requested vote of confidence. There was silence from the other two.

“The skirmish over Vixen B for 1960 seems to have marked the end of Titterton’s period of control. His role and influence hereafter diminished.”¹²⁶

As far as the AWRE authorities back at Aldermaston were concerned, the main problems were not the developing turf war with Australian officials, which was something of a sideshow, but what to do about the events in Geneva and how to ensure that the Vixen B problem was squared away in the most efficient and low-key way possible. As mentioned earlier, one way to do this was to ensure that the media were granted no access to the ongoing test program at Maralinga.

“At the ninth meeting of the [Maralinga Board of Management] on 17 December 1959, MEP60 [Maralinga Experimental Programme 1960] was given consideration after a brief introduction by the UKMOSS(A) [UK Ministry of Supply Staff Australia] Head of Staff. He stressed that, as in 1959, the UK authorities were anxious to avoid publicity being given to the MEP60 tests in view of the discussion which had been taking place in Geneva.”¹²⁷

¹²⁴ Letter from Professor E W Titterton to J L Knott, Secretary of the Department of Supply, 24 August 1960, National Archives of Australia, Series No. 6456, Item R150/001.

¹²⁵ *Ibid.*

¹²⁶ Royal Commission Report, Vol. 2, *op. cit.*, p.520.

¹²⁷ *Ibid.*, p. 505.

A document prepared in 1958 at Aldermaston by AWRE's Senior Superintendent Weapons Assembly, A R Bryant, under the direction of the Assistant Deputy Director of AWRE at Aldermaston, Admiral P W B Brooking, sheds some light on the ongoing use of the Maralinga site for tests that could have feasibly been done in the UK. In a top secret memo titled "Maralinga Minor Trials in Relation to a Ban on Nuclear Testing"¹²⁸, which was distributed to only three other people including Brooking, Bryant stated:

"While the word minor trials is at present associated with Maralinga, to distinguish them from major or fissile trials, there is increasing evidence that most of such trials could in fact be carried out in this country [UK] safely and with much consequent gain in efficiency and time....The present policy of carrying out all such firings in Australia is believed to hang on the precise wording of a statement given by Lord Salisbury¹²⁹ to Parliament, which in fact bans firings at Foulness [the AWRE test range on the Thames estuary] using hazardous materials, even in amounts so small that the experiment as a whole involves no hazard. This illustrates the importance of precise phrasing and definition in any policy ban imposed internally in the United Kingdom."¹³⁰

This memo suggested two definitions of minor trials that could be suitable to ensure no apparent conflict with the international ban on nuclear testing. These definitions were:

Definition 1: "A minor trial is defined as a trial in which small amounts of radioactive or fissile material are involved in association with the detonation of conventional high explosive in such a manner that no fission results.

Definition 2: "A minor trial is a trial involving high explosive, or other source of chemical energy, in association with such small amounts of radioactive or fissile materials that radioactive materials are not dispersed

¹²⁸ A R Bryant, "Maralinga Minor Trials in Relation to a Ban on Nuclear Testing", 29 August 1958, National Archives of Australia, Series No. A6455, Item RC386.

¹²⁹ This refers to an answer given in the UK House of Lords on 7 April 1954 by the Lord President of the Council, the Marquess of Salisbury, in which he stated *inter alia* "I can say definitely that no nuclear explosions have been or will be made, nor will experiments be made with fission products or any other hazardous radioactive material". According to the McClelland Royal Commission, this statement was often cited "as constituting an unbreachable veto on the use in Britain of radioactive materials in explosive nuclear experiments". Royal Commission Report Vol. 2, *op. cit.*, p. 404.

¹³⁰ Bryant, *op. cit.*

so as to exceed certain agreed tolerance levels outside some agreed radius X miles from an agreed site Y.”¹³¹.

Neither of these definitions actually does define Vixen B, which clearly did produce fission – acknowledged by AWRE only a short time later in Pilgrim’s safety statement – and whose radioactive materials were dispersed in plumes far beyond an agreed radius and agreed tolerance levels.

In explaining why he ordered Bryant’s memo, Admiral Brooking said in a top secret note to Sir William Cook, the AWRE Chief Scientist who led the British H-bomb project in the Pacific:

“Captain Lloyd (in the absence on leave of D.G.A.W [Director General Atomic Weapons William Penney]) has asked us to consider the political propriety of continuing minor trials at Maralinga, after whatever date may be internationally agreed for the suspension of trials. If, as I assume, we do need to continue these trials, it would seem necessary to get Ministerial and Australian agreement to a definition of what forms of trial we can continue. Clearly such a definition, to be useful to us, must not rule out trials involving RadioActive [sic] materials (e.g. Rats) or even fissile material (U.238 being a border-line case). ‘Fission products’ sounds a good criterion, but from the newspaper point of view this could enable one to test a megaton ‘clean’ weapon.”¹³²

A few weeks later Brooking wrote to AWRE Director William Penney to put in writing further advice that they had been discussing at the latter’s home on the minor trials in the light of the international agreement.

“If we are convinced that Maralinga is THE place to do these ‘unsuspended’ trials, then the Australian Government will have to be told or asked – and here the [Ministry of Supply] and presumably [Commonwealth Relations Office] will suggest waiting until after the November Elections [in Australia]. All this seems to point to doing nothing, but...it appears essential that we and the U.S.A. agree a form of words to define just what it is we are willing to suspend and I feel the [Foreign Office] should immediately start raising this matter with the U.S.

¹³¹ *Ibid.*

¹³² P W B Brooking, letter to Sir William Cook, 29 August 1958, National Archives of Australia Series No. A6455, Item RC386.

to ensure that both sides (U.K. and U.S.) talk with one voice at the October 31st ‘talks’.”¹³³

He concluded in response to the UK Ministry of Supply’s idea to stage the minor trials in the UK: “...I know you feel that radio-active contamination in U.K. is politically impossible.”¹³⁴ The tests would continue to take place at Maralinga. Now that the US had removed the decade-long constraints on joint UK-US atomic weapons development and testing imposed by the McMahon Act, they would soon take place in Nevada and at Los Alamos too.

Brooking followed this correspondence up with another letter to Penney on 29 September discussing in more detail the definitions of minor trials that were doing the AWRE rounds.

“From the purist’s point of view it might be taken to rule out ‘single point detonation’ trials [which were part of Vixen B] and maybe certain nuclear trials which could give rise to small amounts of fission. We can however argue that such fission is not the intention of the trial and that if we did produce any it would be an accident, which we are, of course, unable to guard against.”¹³⁵

This appears to imply that fission could be produced “accidentally on purpose”, after which culpability could be plausibly denied if they were found out.

Brooking continued: “...the U.S. intends to carry out such trials if their politicians will let them.” Indeed, the US did go ahead with very similar tests, Roller Coaster in Nevada, and these tests ultimately played a part in uncovering the true nature and legacy of the Maralinga minor trials (see Chapter Three).

Justice McClelland took a rather jaundiced view of the series of AWRE documents quoted above, when they were used as evidence during his Royal Commission. He said:

¹³³ P W B Brooking, letter to William Penney [Director AWRE], 23 September 1958, National Archives of Australia, Series No. A6455, Item RC386.

¹³⁴ *Ibid.*

¹³⁵ P W B Brooking, letter to William Penney [Director AWRE], 29 September 1958, National Archives of Australia, Series No. A6455, Item RC386.

“The disingenuous tone of this debate to be found in documents hitherto circulating only among Britain’s nuclear elite hardly encourages a belief that the Royal Commission has been told the full story of the minor trials...”¹³⁶

Some of the most scathing criticism to be found in the highly critical Royal Commission report was directed at the Vixen B minor trials. Given the experiments’ long legacy of contamination and the cavalier approach to procedures around their execution, it is hardly surprising. Robert Milliken, writing before the clean-up of the Maralinga range got underway in the 1990s, quotes evidence given to the Royal Commission as confirming that:

“...Maralinga is probably the only place in the Western world where plutonium is dispersed without precise knowledge of how much is above and below the ground.”¹³⁷

At the conclusion of the minor trials, John Moroney was still secretary of the AWTSC. As early as November 1963 Moroney was pointing to possible future problems with plutonium arising from the Vixen B experiments. He wrote to the AWRE head of safety and co-ordination, Roy Pilgrim, setting out his concerns about the test range.

“In the process of going over all the data and pondering a little on possible future uses of Maralinga, I became confirmed in the view that:

- Residual plutonium will continue to constitute the predominant radiation hazard at the Range
- There are a few areas, which we believe to be well protected, in which the plutonium levels could constitute a serious radiation hazard
- The present residual plutonium contamination at Maralinga will continue to be a potential hazard for many years and far beyond the period for which activities at Maralinga of the MEP [Maralinga Experimental Programme] type can be envisaged.”¹³⁸

Moroney correctly pointed out that the main hazard remaining at the site was from inhalation of plutonium in the dust:

¹³⁶ Royal Commission Report Vol. 2, *op. cit.*, p. 404.

¹³⁷ Milliken, *op. cit.*, p. 241,

¹³⁸ John Moroney, letter to Roy Pilgrim, 8 November 1963, National Archives of Australia Series No. A6456, Item R069/032.

“Experience at Maralinga indicates that plutonium moves quickly into the top few millimetres of soil; we do not know how deep it will move ultimately but in a low rainfall region such as Maralinga it may not go far.”¹³⁹

He went on to suggest that using the Maralinga site to conduct experiments to assess the hazards of soil borne plutonium would be a good use of the facilities, in light of the problems he could see with the area. In his respectful way, he concluded:

“If you have all the answers, or most of them, then there is no problem and I hope that you can let us have the data. On the other hand, if major uncertainties remain, perhaps some experiments at Maralinga could help, in which case we would be most interested to have your views.”¹⁴⁰

Moroney complained in a memo the following year that Pilgrim had never replied to this letter, although he (Moroney) remained concerned about the plutonium at the site¹⁴¹. Eventually, the AWRE scientist Noah Pearce replied to Moroney addressing some of these concerns as plans moved forward for the first clean-up operation, known as Hercules, in 1964 – the first of several ineffectual attempts overseen by Pearce to clear the radioactive contamination from the Maralinga site. Pearce specifically referred to Moroney’s neglected November 1963 correspondence, saying:

“This clean-up operation has, of course, precipitated the programme on which we were engaged as a result of your letters of November 1963.”¹⁴²

In this letter, Pearce affirmed that the UK had no intention of repatriating any of the Maralinga plutonium, or “radioactive sources” as he described the material imbued with plutonium, to where it came from:

“...and so [we] have the option of disposing of [the radioactive sources] in Australia or of burying them at Maralinga.”¹⁴³

¹³⁹ *Ibid.*

¹⁴⁰ *Ibid.*

¹⁴¹ John Moroney, “Radiological Hazards of Plutonium”, memorandum, 25 June 1964, National Archives of Australia, Series No. A6456, Item R57/6/65.

¹⁴² Noah Pearce, Superintendent, Radiation Measurements and Instrumentation, AWRE, letter to John Moroney, Secretary, AWTSC, 24 July 1964, National Archives of Australia, Series No. A6456, Item R069/032.

Both Operation Hercules in 1964 and Operation Brumby in 1967 were ineffectual, according to the Australian radiation scientists who carried out the 1984 survey¹⁴⁴. Many of the concerns raised by Moroney proved prescient and the UK-based AWRE officer charged with safety at the range, Pilgrim, simply ignored them.

Much later, when Ian Anderson was doing the groundwork to break the Maralinga plutonium contamination story in 1993, his lengthy interview with radiation scientists Geoff Williams and Peter Burns formed a strong basis for Anderson's understanding of Taranaki and Vixen B. A tape recording of the scientists has Geoff Williams saying:

"...if an important part of the [minor] tests was getting information on where the plutonium ended up, the environmental consequences of such an accident, then you would think they would put the effort and more scientific thought into getting those measurements more or less right. We know full well that other countries performing these experiments at the same time certainly did get it right. The Americans got it right. So you would think the British should have given thought to getting those measurements right."¹⁴⁵

Instead, the scientists found that the radioactive fragments left over from Vixen B far exceeded any allowable limit placed on the scientific use of such material. According to Peter Burns:

"We are talking about every one of those fragments that we found at Maralinga – we don't call it a fragment if it is below 100 kilobecquerels, our instruments won't really pick it up too much. But every particle of those hundreds of thousands of particles is 100 kilobecquerels or more, hundreds of times the quantities that state licensing people get worried about."¹⁴⁶

¹⁴³ *Ibid.*

¹⁴⁴ Peter Burns and Geoff Williams, interview with Elizabeth Tynan, ARPANSA, Melbourne, 15 April 2004.

¹⁴⁵ Peter Burns and Geoff Williams, tape recording of interview with Ian Anderson, 1993 - exact date unknown. In this interview, Burns said: "In 1967, in the Brumby operation, the solution was to plough and mix [the plutonium] into the top[soil]. That might have sounded very nice in the lush fields of southern England, but out there [at Maralinga] you have three or four inches of sand on top of very hard limestone so in many cases the scraper [used in Brumby] was just bumping along the limestone...All it did was make a bigger mess."

¹⁴⁶ *Ibid.*

Both Williams and Burns were involved for years in the Maralinga issue and both contributed to the then-ARL's submission on the clean-up that took place after the British paid a share of the costs. This submission was based on extensive radiological surveys of the various test sites at Maralinga, in particular Taranaki:

"Taranaki is the site at Maralinga which is most extensively contaminated with plutonium, and therefore represents the major remaining potential hazard to health...Between 1960 and 1963, the area just to the north of ground zero was used for 12 Vixen B trials in which about 22 kg of plutonium was explosively dispersed in a sector of several hundred hectares, extending from the west, through north to the north-east of the site."¹⁴⁷

These were not experiments that could pass any accepted protocols in an Australian research institution today. In fact, although the era in which they were conducted was less enlightened about the complexities and hazards of radioactivity than now, these experiments would not have been acceptable in any research institution of the time either. They were carried out in the open without regard to protocols that existed at the time, as the findings of the Royal Commission stated:

"The condition of the plutonium-soaked areas would not have met the standards of the time, and certainly does not meet the standards of today."¹⁴⁸

One well-known eyewitness account of the Vixen B trials at Maralinga comes from the outspoken former engineer at the site, Avon Hudson. Hudson was a member of the Royal Australian Air Force (RAAF) who came to Maralinga in 1960, at the start of the Vixen B test program, and who years later campaigned for recognition of the suffering of the nuclear veterans. He was to become the first Maralinga veteran to speak to the media about his knowledge of plutonium waste at the test site (see Chapter Seven). He was among a number of veterans who gave evidence at the McClelland Royal Commission, and also co-wrote a book with an Australian academic on the Maralinga legacy¹⁴⁹. He tells a tale of lax

¹⁴⁷ Australian Radiation Laboratory, "Maralinga Rehabilitation Project: Submission for Public Works Committee", 27 January 1995, p. 26.

¹⁴⁸ Royal Commission Report Vol. 2, *op. cit.*, p. 540.

¹⁴⁹ Roger Cross and Avon Hudson, *Beyond Belief: The British Bomb Tests: Australia's Veterans Speak Out*, Wakefield Press, Kent Town, 2005.

health procedures and pressure to carry out dangerous orders while the Vixen B experiments were underway. Hudson helped to build the feather bed firing platforms that held the plutonium-filled assemblies being exploded.

“These firing platforms were the ones that could cause so much havoc when it came to spreading radioactive pollution on the range. We knew nothing of what we were doing at the time. The platform was a huge steel structure, weighing about 60 tons. It was on four legs – about as tall as a man – with a lot of gear mounted on top of it. It had a hole right in the middle where the nuclear device would be put when it was exploded with conventional explosives.”¹⁵⁰

Hudson asserted that he and his colleagues were never told exactly what the experiments were or whether there was any danger. He also recounted incidents where the Australian health physics officer on site, whom he does not name but would have been Harry Turner, who was attempting to enforce safety procedures for a party of workers assigned to clean up the contaminated area, was overruled by a British Army captain.

“Those young men must have been in the worst sort of danger – the ground there was heavily contaminated and at the time we weren’t aware that it was plutonium. As it turned out they were testing these devices with plutonium-239.”¹⁵¹

The workers at the site were warned repeatedly about the requirement for secrecy, which extended to information supplied to the national census that was held in 1961. Hudson maintained that the instruction from the Australian Army Range Commander was that Maralinga was not to be mentioned in the census:

“That seemed odd in the extreme and we talked about it among ourselves; they clearly didn’t want any publicity or anything recorded about Maralinga. They were more secretive about the Minor Trials than the atomic bomb tests.”¹⁵²

Many eyewitnesses have come forward in the years since the mid 1970s to tell anecdotes of conditions at Maralinga during the minor trials. For example, British

¹⁵⁰ *Ibid.*, p. 112.

¹⁵¹ *Ibid.*, p. 113.

¹⁵² *Ibid.*, p. 116.

nuclear veteran Barrie Roberts claimed that the police officers at the access gate to the test forward area often let people through without any checks.

“In one incident, two army men were found in the forward area doing routine maintenance work, ignorant that a test was about to be fired.”¹⁵³

Another account involves a civilian, a Mr Dovey, who worked for AWRE on the test site radiation monitors and died in 1983 of multiple myeloma, an ailment that crops up often when examining the testimony of nuclear veterans. In the lead-up to his death, he linked his illness to an incident at Maralinga.

“He had been operating remotely controlled callipers to manipulate fissionable materials (most likely plutonium) inside a ‘hot-box’ when apparently the remote instruments broke down, necessitating the rapid separation of the material to prevent it ‘going critical’ and a chain reaction taking place. Dovey had leant over the brick wall behind which he was working in order to do this....[H]e believed he then received a very high dose which was not properly registered on his film badge because it was shielded by the wall over which he leant...[H]e said it was known that he had been exposed to ‘at least a year’s dose in three minutes.’”¹⁵⁴

The Royal Commission remarked upon the fears that the tests had engendered in participants that have stayed with them well into the future:

“Operation of the ‘need to know’ principle and the minimal amount of information given to participants has been a factor contributing to participants’ concerns and fears regarding what might have resulted from their experiences at Maralinga.”¹⁵⁵

These findings contribute to the general sense that the events at Maralinga have yet to be properly and fully dealt with by the Australian nation. The absence of media coverage and public debate created a gap in most people’s understanding of Maralinga, making it in many ways a uniquely tangled national issue, still mysterious and perplexing.

“These circumstances – an incomplete scientific testing program and abiding fear and uncertainty amongst veterans – indicate the need for new

¹⁵³ Blakeway and Lloyd-Roberts, *op. cit.*, pp. 138-139.

¹⁵⁴ *Ibid.*, p. 139.

¹⁵⁵ Royal Commission Conclusions and Recommendations, *op. cit.*, p. 21.

knowledge, if possible to be constructed through integrated social processes”¹⁵⁶

In summary, my argument for the unprecedented risk presented by the Vixen B experiments is five-fold. Firstly, the main substance used in the explosive assemblies, ²³⁹Pu, is widely acknowledged to be among the most toxic materials known, with a radioactive half-life of more than 24,000 years and the capacity to kill people through stochastic radiation effects if taken into the body. Secondly, the nature of the experiments themselves, where simulated nuclear warheads were detonated on the open range using conventional explosives that blasted radioactive material high into the air where it spread out in 150km plumes, was self-evidently dangerous. Thirdly, the experiments were conducted in the presence of hundreds of service personnel, some of whom were able to access the blast scene within 20 minutes of an explosion while wearing only basic protective clothing. Fourthly, the experiments were conducted without the kinds of safeguards and monitoring that would enable analysis of risk and causation. Finally, the radioactive residue of the experiments was allowed to remain at the site for decades, in many cases combined with dust or as larger particles on the surface, without robust safeguards and, for periods of time, without patrols to keep sightseers or Indigenous people away from the contaminated areas. Had these tests been carried out in the UK, greater scrutiny and inherent geographical limitations and closer proximity to population centres would have demanded stricter safety measures based on knowledge of the danger of plutonium that was well-known among test authorities at the time. In Australia, the tests were held away from major population centres but not away from people. Service personnel, Aboriginal people and – later – casual visitors to the site were all at risk from the plutonium contamination left behind. The hazards posed by the tests were significant and continued for many years. However, the tests were not available for public assessment largely because the media, in line with official British and Australian government policy, did not place these experiments into the public arena. This case study therefore shows a mismatch between the

¹⁵⁶ Brown, *op. cit.*, p. 41. This article shows one way “integrated social processes” are dealing with Maralinga. The “Half a Life” oral history and theatre project involves Maralinga veterans telling of their experiences in the form of a theatre production.

demonstrable public interest of the Vixen B experiments and the actual information made available to the public.

When Britain finished its testing activities at Maralinga, at the conclusion of MEP63 in April 1963¹⁵⁷, the highly dangerous aftermath of the minor trials lay openly on the ground or just below the surface. Clean-up operations Hercules (1964) and Brumby (1967), if anything, made the problem worse¹⁵⁸. Vixen B had scattered a deadly substance across the Maralinga lands, and had left an equally toxic legacy of cover-up and deceit that took a different kind of toll to match its physical damage. Australia had fulfilled the role its government had volunteered it for 11 years earlier, but the cost had been huge.

“The tests were held; they were a success; Britain developed its very own bomb; and humankind increased its capacity for self-destruction – all with Australia’s diffident acquiescence.”¹⁵⁹

The British government and test authorities had been aware of the damage they left behind, as Ian Anderson would later show, and the Australian government had allowed this to happen through both omission and commission.

“The 1963 trials brought to an end a drama characterised by persistent deception and paranoid secrecy. In their desire to avoid international repercussions, the British authorities embarked on a course of determined concealment of information from the Australian Government aided and abetted by the ‘Australian custodian’, Titterton.”¹⁶⁰

¹⁵⁷ The formal cessation of British activities at Maralinga dates from an agreement in 1968, signed after the clean-up operation Brumby.

¹⁵⁸ The Royal Commission concluded that: “Operation Brumby was based on wrong assumptions. It was planned in haste to meet political deadlines and, in some cases, the tasks undertaken made the ultimate clean-up of the Range more difficult.” Royal Commission Conclusions and Recommendations, *op. cit.*, p. 24. In later information from the Australian Government on the clean-up completed in 2000, both Hercules and Brumby were described as being “based on a series of assumptions now recognised to be inaccurate, and did not rehabilitate the site to the standard later recognised to be necessary for the protection of people and the environment”. Department of Education, Science and Training, “Maralinga rehabilitation project”, www.radioactivewaste.gov.au/Rehabilitation_former_test_sites.htm.

¹⁵⁹ Tim Sherratt, “A Political Inconvenience: Australian Scientists at the British Atomic Weapons Tests, 1952-53”, *Historical Records of Australian Science*, 6(2), December 1985, p. 149.

¹⁶⁰ Royal Commission Report Vol. 2, *op. cit.*, p. 414.

There the saga remained for years until the nation's fourth estate finally asserted itself in relation to Maralinga. In 1978 the media started to deliver the news that Australians had long been denied – that their land had been used for the most dangerous scientific experiments ever conducted on Australian territory but no-one had told them about either the experiments or their dangerous residue still present at the site. The fact that the experiments could have been held in Britain, with all the accountability which no doubt would have been required for that location, added insult. Through a combination of deliberate government secrecy and media inability to investigate the hidden stories of the British nuclear tests, the general population was kept ignorant and powerless for a long time. When better equipped and more fearless and resourceful journalists decided to take on this story, they did so with a new approach and different skills, the better to fully reveal the story, as the next chapter shows.

Chapter Seven

“Mr Killen exploded in the megaton range”: Maralinga reporting from 1978

It is probably too early to say whether the controversy over radioactive waste buried at Maralinga will end with a bang or a whimper. But certainly, in terms of the apparent political mileage available to the Labor Party after the revelations in the Financial Review last week, the Opposition in Question Time was an even more [discrete] mass than the half kilogram of plutonium which is the centre of the argument.

Mungo MacCallum, *Australian Financial Review*, 11 October 1978.

Investigative journalism, defined as the active and sustained examination by a journalist of a possible abuse of power, is viewed as one of the more effective means of exposing wrongdoing in government.

Marina Caparini, *Media in Security and Governance*, 2004.

This thesis argues that by the late 1970s there had been a marked change in how the Australian media covered the British nuclear tests. The coverage of this latter era is characterised by a determination to discover the exact nature of the events at Maralinga, in contrast to media activity at the time of the tests that (as shown in Chapter Four) was tightly controlled by the secrecy agenda of government authorities. The relevant laws had not changed and the D-notice system was still in place. However, both Australian politics and the Australian media had changed fundamentally by this time. The political situation had become more complex since the days when the simple truisms of the anti-communist Cold War 1950s had prevailed. Although the Soviet bloc was yet to be dismantled, there had been global progress towards nuclear non-proliferation and the good versus evil grand narrative of the Cold War had lost much of its power to animate Australian politics. The Australian media had dropped its Menzies era compliance and was nurturing some influential and resourceful investigative journalists who were not interested in comforting the powerful. A transformation of Australian society had followed the end of many years of conservative government in 1972 with the election of a Labor Party government headed by Gough Whitlam. There was much for the rising generation of ambitious investigative journalists to write about, not least the sacking of that government by the Governor-General John Kerr in 1975 after a period of rapid reform and political scandal.

This chapter will examine mainstream media coverage of the British nuclear tests from this second reporting era, with particular emphasis on the landmark print

media stories that revealed more of the Maralinga story than ever before. These new media activities essentially made the story available to the Australian population and led to a process of uncovering that included the McClelland Royal Commission in 1984/85 and John Moroney's revelations reported in Ian Anderson's *New Scientist* story in 1993. The language and detail of the stories and the range of authoritative sources that were in some prominent cases leaked secret documents all stand in contrast to the examples from stories about the British nuclear tests from the 1950s.

Also, the way the Australian government ministers primarily responsible were regarded and treated by media was significantly different between the eras. During the 1950s the Minister for Supply Howard Beale had been the main Australian government representative presenting information on the test program to the media. Although he indicated in various documents that he was concerned with fulfilling the wishes of the media¹, much of his interaction involved quarantining what he knew from them, and carefully managing the rest². His requests for journalists to abide by information restrictions, backed by D-notices that placed specific limits on what could be reported, were largely obeyed (see Chapter Four). The politician who later had prime responsibility for managing the issue, at least in the first part of this later era, Liberal Party Defence Minister Jim Killen, had no such control over the media. His apparent initial lack of understanding of what was at Maralinga caught him out, and skilled, motivated journalists kept up the pursuit and placed enormous pressure on him and on the government, as this chapter will show. Killen's *bon vivant* and urbane image, not dissimilar to Beale's, was by this time something of an anachronism and his disdain for media scrutiny worked against him rather than protecting him as it did for Beale. The journalists who worked on the Maralinga issue in this era had no interest in waiting for officially cleared media statements to arrive. They went looking.

¹ Cf cable from Cook, Melbourne, to Herington, Adelaide, on Press Arrangements, 11 September 1956, National Archives of Australia, Series No. A6456 (A6456/3), Item R047/011. Also, Beale's autobiography, *This Inch of Time*, reveals his account of a co-operative relationship with the media.

² This attitude was revealed in the later era of this thesis when Beale weighed into the controversy over revelations of plutonium contamination at Maralinga. See Howard Beale quoted in author unknown, "Plutonium scare 'ridiculous'", *Sydney Morning Herald*, 11 October 1978, p. 2.

As a more assertive media developed in Australia, it became inevitable that the story about plutonium contamination at Maralinga would come out eventually. The ongoing health problems suffered by both service personnel and Indigenous people who had been in the vicinity of the Maralinga and Emu Field tests were worsening and campaigning started to emerge. Also, the rise of the Indigenous rights movement throughout the 1970s and the prospect of the Maralinga lands being returned to the original owners in 1984 forced discussion on the state of the test site³.

The issue had come to the surface intermittently, particularly in 1972 when some rather inaccurate stories based on questions asked in parliament of then Liberal Minister for Supply Vic Garland had appeared but quickly died down. On 14 September 1972, Minister Garland had been asked a question by the deputy leader of the opposition, Lance Barnard⁴. Barnard's question, about radioactive contamination at Maralinga, specifically inquired whether the British had flown in lead-lined boxes of radioactive waste to bury surreptitiously at the test site⁵, an allegation that would be repeated in media reports four years later by nuclear veteran Avon Hudson (see below).

Vic Garland's less than satisfactory answer in Parliament, and a misleading public statement at the same time, would become a problem for Defence Minister Jim Killen a few years later when the issue arose again and Killen initially followed Garland's lead. Garland had maintained in 1972 that the radioactive waste buried at Maralinga had a half-life of 15-20 years⁶, and did not acknowledge the much more dangerous long-lived plutonium contamination at the site. Garland had had access to the classified Pearce report since 1968, as it had been available to all

³ Dieter Michel, "Villains, Victims and Heroes: Contested Memory and the British Nuclear Tests in Australia", *Journal of Australian Studies*, No. 80, 2004.

⁴ Extract from Australian Federal Parliament Hansard, 14 September 1972, attached to a briefing paper by G F Cadogan-Cowper, senior adviser Resources Branch, for Prime Minister Malcolm Fraser, 13 October 1978, National Archives of Australia Series No. A6456, Item R065/080.

⁵ *Ibid.*

⁶ Parliament of Australia Hansard (Questions), 14 September 1972, pp. 1501-1502, National Archives of Australia Series No. A6456, Item R065/080.

security-cleared members of the Australian government⁷, but his statements in 1972 did not indicate any knowledge of the report and its contents⁸. In that year, the French were carrying out atmospheric atomic tests in the Pacific and there was some anxiety about the implications of tests so close to Australia. The thoughts of some commentators had inevitably turned to Australia's own role in testing atomic weapons. A story in the *Sydney Morning Herald*, one of the few that picked up on the Garland statements, harked back to the British test series:

"The chairman of the [then] newly formed Atomic Weapons Test Safety Committee, Professor E. W. Titterton, said 'There is no danger of significant fallout outside the immediate target area'. That was virtually all that was reported [on the air-dropped Buffalo shot in October 1956] in the newspapers at the time, although there was a continuing debate among politicians and scientists about the Maralinga tests..."⁹

The issue rapidly died away again, to be revived four years later in Federal Parliament by prominent left-wing Australian Labor Party (ALP) politician Tom Uren. Uren, who was attuned to nuclear issues (such as uranium mining) more broadly as well as being responsive to representations from nuclear veterans who were concerned about their rising incidence of health problems¹⁰, was among the first to place the plutonium legacy at Maralinga onto the crowded political agenda. In 1976 he was deputy leader of the opposition, working with the party leader Gough Whitlam to find a way forward for the ALP following the political catastrophe of the year before. The Whitlam Labor government had been sacked on 11 November 1975 by Governor-General John Kerr in Australia's most notorious constitutional crisis, and was in disarray after its subsequent crushing defeat at the December 1975 election¹¹. In his task as deputy ALP leader, Uren had plenty of challenges. But he was increasingly dedicated to advocating for the

⁷ Confidential teletype message sent from Prime Minister Malcolm Fraser to the Premier of South Australia, 20 October 1978, National Archives of Australia Series No. A6456, item R188/014. This document indicates that the major sources of Australian government information on the plutonium at Maralinga are the Pearce report and a separate 1967 report from the AWSTC. The statement says both these reports were passed on to the South Australian government in November 1969.

⁸ Extract from Australian Federal Parliament Hansard, 14 September 1972, attached to a briefing paper by G F Cadogan-Cowper, senior adviser Resources Branch, for Prime Minister Malcolm Fraser, 13 October 1978, National Archives of Australia Series No. A6456, Item R065/080.

⁹ Michael Symons, "Is it Russian roulette?", *Sydney Morning Herald*, 16 June 1972, p. 7.

¹⁰ Tom Uren, *Straight Left*, Vintage, Milsons Point, 1995, p. 303.

¹¹ Stuart Macintyre, *A Concise History of Australia*, Second Edition, Cambridge University Press, Port Melbourne, 2004, p. 240.

nuclear veterans and became one of their staunchest defenders. This followed on from the strong record he had established, as an ALP left-winger, in opposing uranium mining¹². Uren asked a question of the Minister for Defence, Jim Killen, in Parliament on 9 December 1976:

“Is it true that, during the moratorium on nuclear weapons testing between 1958 and 1961, Australia co-operated with the British on conducting secret atomic ‘trigger’ tests at Maralinga and that waste and debris from these tests were buried at Maralinga?”¹³

In his question to Killen, Uren also explicitly requested that a royal commission be set up to investigate all aspects of the Maralinga test program. At the same time, Uren issued a public statement saying:

“During [the test] moratorium period the Australian government co-operated with the British government to secretly carry out certain atomic tests in the Maralinga area...The explosions caused by these tests were so small that they could escape public scrutiny and international detection.”¹⁴

Killen’s response at the time indicated that he thought the tests had ended in 1956¹⁵, before the final major trial, Antler, and long before Vixen B got underway, although he alluded to what might be the minor trials. He said *inter alia* in reply:

“I am not aware of any explosions that took place between 1958 and 1961. I am aware of certain trials, which I distinguish from explosions, as presently advised, that took place. They were conducted pursuant to an agreement between the United Kingdom and Australia.”¹⁶

Killen undertook to carry out further enquiries, while telling Parliament the salient fact that in 1956 he was one of a group of four Members of the House of

¹² Uren, *op. cit.*, p. 299. In his anti-uranium mining stance, Uren claims to have been greatly influenced by a series of articles in the 1960s in the Melbourne broadsheet *The Age* by Barry Commoner, an American biologist, who had suggested that there was no possible solution to the problem of nuclear waste.

¹³ Parliamentary Debates (Hansard), House of Representatives, Third Session of the Thirtieth Parliament, Vol. 102, 16 November to 9 December 1976, The Acting Commonwealth Government Printer, Canberra 1977, p. 3574.

¹⁴ Uren, quoted in Robert Milliken, *No Conceivable Injury*, Penguin Books Australia, Ringwood Victoria, 1986, p. 263.

¹⁵ *Ibid.*, p. 263.

¹⁶ Hansard 1976, *op. cit.*, p. 3574.

Representatives who had witnessed Operation Buffalo, which he (wrongly) described as the last test series at Maralinga¹⁷.

Although there were some tantalising pieces of information now starting to come out, the media did not pick up the story at that stage; Maralinga had yet to become a significant political issue and few people would have known the name. The only media outlets that made substantial reference to possible plutonium still lying in the South Australian desert were the two main Adelaide papers, the (then) broadsheet *The Advertiser* in a sequence of stories between 3 and 10 December 1976, and the tabloid paper *The News* in a prominent article on 17 December 1976. *The Advertiser* ran a story based on the revelations of Maralinga veteran Avon Hudson (see Chapter Six), following an interview the day before on the ABC radio program *AM*. When subsequently interviewed by *The Advertiser*, Hudson again asserted that plutonium was buried at Maralinga:

“Mr Avon Hudson, of Balaklava, broke 15 years silence last night to talk of his role in what he called a dumping ground for radioactive waste from Britain in the late 1950s and early 1960s.”¹⁸

These were the claims first publicly aired in Australia by Lance Barnard when he asked his question of Vic Garland in Parliament in 1972 (see above). Hudson repeated these claims of radioactive waste shipped in by the British to be buried at Maralinga, saying that his conscience drove him to the media to tell his story:

“It has had a marked effect on my life, knowing there are dangerous elements out there – elements that I now know are the most dangerous things in the world.”¹⁹

He also told an anecdote of an official from Aldermaston who, when he was “under the weather”, asserted that the radioactive contents of the barrels that

¹⁷ *Ibid.* A number of Australian parliamentarians, including later Australian Labor Party Prime Minister Gough Whitlam, attended the second Buffalo test. A story written by Killen appeared in the Brisbane *Sunday-Mail* on 7 October 1956 titled “Watched ‘small’ A-blast: sight I will never forget”.

¹⁸ Author unknown, “Nuclear waste dump in SA: ex-RAAF man”, *The Advertiser*, 3 December 1976, p. 1. Former RAAF serviceman Avon Hudson went on to become a vocal advocate for nuclear veterans over decades and was featured on 9 November 2005 in a segment on ABC TV’s 7.30 Report again giving his account of lax safety measures at Maralinga.

¹⁹ *Ibid.*

Hudson believed contained plutonium should have been dumped into the Atlantic Ocean in order to save “a lot of trouble”.²⁰ While it now appears unlikely that the British actually imported waste unrelated to the Maralinga atomic tests to bury at the site, Hudson’s allegations did have the effect of directing attention to exactly what was there.

The next day *The Advertiser* kept the issue going, this time with input from a current member of a salvage party at Maralinga, a Mr E Dutsche²¹. Dutsche said he had been assured by people at the site, quoting Defence Department officials, that there was no danger and that no plutonium had been buried in the area²². Avon Hudson was again approached for comment, and he said he was not surprised by the denials since this was all he had ever received on the issue from politicians²³. The South Australian Minister for Mines and Energy, Hugh Hudson (no known relation to Avon Hudson), was quoted as saying that the issue was a Commonwealth matter,²⁴ while a spokesman for the Atomic Energy Authority in the UK said “it was ‘highly unlikely’ Britain had ever exported nuclear waste to Australia.”²⁵

Further stories ran in *The Advertiser* on 9 and 10 December 1976. The coverage was prominent and extensive, including on 9 December two large, linked stories on page 1. One of these, by science writer Barry Hailstone, reported the views of Professor H J De Bruin, who called for an enquiry into waste at the site²⁶. De Bruin had been a principal research scientist for the Australian Atomic Energy Commission. This story was among the first to bring some scientific fact into the coverage of the plutonium at Maralinga. In this case, the story was a fairly straightforward account of quotes by Professor De Bruin on the likely health risks from radioactive substances and speculation on the exact nature of the contamination identified by Avon Hudson. On 10 December the paper ran a front

²⁰ *Ibid.*

²¹ Author unknown, “Nuclear dump ‘does exist’ at Maralinga, *The Advertiser*, 4 December 1976, p. 3.

²² *Ibid.*

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ *Ibid.*

²⁶ Barry Hailstone, “Expert calls for enquiry into radioactive waste”, *The Advertiser*, 9 December 1976, p.1.

page story that reported on Defence Minister Killen ordering an enquiry into Maralinga, based on Killen's answer to Uren's question in Parliament the day before²⁷. This story reiterated British denials about radioactive waste at Maralinga. It also quoted John Coulter, then vice-president of the Australian Conservation Foundation and later an Australian Democrats senator, as saying:

“...that the Australian and British governments had maintained secrecy about nuclear testing at Maralinga after 1957 because such tests would have violated international agreements. But there [still] seems to be a blanket of silence about this.”²⁸

Like the stories in *The Advertiser*, the front page story in *The News*, which appeared with the huge banner headline “Plutonium buried at Maralinga”²⁹ could not have been more prominently displayed. However, this story and those published in *The Advertiser* did not get picked up by media outside of South Australia. The *News* story mentions (without much detail) three reports on the issue of radioactive waste, most likely including the still-secret Pearce report prepared by Noah Pearce in 1968, although it is not named in the story. The story also quotes the South Australian Minister for Mines and Energy, Hugh Hudson, and indicates that he had called on the Federal Government to instigate “radiation monitoring programs for the Maralinga area”³⁰ and recommended health checks for local Aborigines, a step forward from his earlier position of categorising it simply as a Federal matter. Still, it seemed everyone wanted to keep their distance from Maralinga if they possibly could. A minute paper from John Shelton, Acting Director of the federal Department of the Environment, stated clearly:

“Mr. Lansdown [an official in the Department of Environment] phoned to pass on a message from the Minister [for the Environment, Kevin Newman] to the effect that this Department is not to be active in the resolution of the problems at Maralinga. It is a primarily a Department of Defence problem and we are to leave it that way.”³¹

²⁷ Brett Bayly, “Killen orders enquiry into Maralinga”, *The Advertiser*, 10 December 1976, p. 1.

²⁸ *Ibid.*

²⁹ Rex Jory, “3 Government reports now confirm....Plutonium buried at Maralinga”, *The News*, 17 December 1976, p. 1.

³⁰ *Ibid.*

³¹ Minute paper by J P Shelton, Acting Director of the Department of Environment, 14 December 1976, National Archives of Australia Series No. A6456, Item R065/080.

On the same day, the acting Deputy Secretary of the Department of Foreign Affairs Roy Fernandez sent a secret teletype message to his Minister Andrew Peacock that spelled out the government's growing fears about the media's interest in what was left at Maralinga, especially as Australia pursued a place internationally as a miner and exporter of uranium. The claims by Avon Hudson reported in the media were causing high-level concern.

"The opening up of the issue of the burial of atomic waste carries serious implications."³²

Fernandez spelled out these implications under Australia's agreement with the International Atomic Energy Agency (IAEA) to ensure that it provided an inventory of all fissionable materials in Australia and to guarantee that no such materials could be used for the manufacture of weapons³³. This issue was to become a major media story in October 1978 (see below). The possibility of this story becoming a serious and potentially damaging problem for the federal government was well known to insiders including Fernandez:

"Both the delicate stage reached in the current uranium debate and the possibility that the safety criteria applying 15 to 20 years ago to the storage of plutonium might not be acceptable in the climate of to-day's opinion are good reasons both for avoiding excessive publicity and at the same time not allowing unwarranted speculation to develop around the Maralinga situation."³⁴

In February 1977, Killen wrote to Uren saying that there was no evidence to substantiate the existence of plutonium contamination at the site³⁵, a position that was already on extremely shaky ground and one that Killen would later have to retract once the facts started emerging. A *Sydney Morning Herald* story around the same time contradicted Killen's stance on the issue, using his own Department's report to do so. This story quoted the government's chief defence

³² Teletype message from R R Fernandez, acting deputy secretary, Department of Foreign Affairs, to the Minister for Foreign Affairs Andrew Peacock, 14 December 1976, National Archives of Australia Series No. A6456, Item R065/080.

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ Milliken, *op. cit.*, p. 264.

scientist Dr John Farrands, who had written a report based on his investigation of radioactive waste buried at Maralinga. The story claims:

“Defence Department sources have disclosed that about 40 kilograms of radioactive plutonium was buried in a shallow pit at Maralinga, which was fenced and guarded for a time. Mr Killen ordered the top-level inquiry [by Farrands] into tests after the Deputy Opposition Leader, Mr Uren, alleged in Parliament on December 9 last year that nuclear devices were exploded during an international moratorium on nuclear weapons testing.”³⁶

The story has a throw-away line at the end alluding to the fact that the radioactive waste was unguarded “and might be suitable for use in nuclear weapons”³⁷. But this was not picked up by other media; at least, not just yet.

The rumblings continued and a storm seemed to be coming. On 16 February 1977, opposition leader Gough Whitlam asked Killen if earlier assurances from the British that they had not flown radioactive waste to Australia for burial were still valid³⁸, to which Killen replied that they were valid. On 31 March 1977, Killen rose again in the House of Representatives to answer a question on notice. On 9 March, ALP parliamentarian and later leader, Bill Hayden, had asked:

“Can [Minister Killen] provide a full list of all nuclear explosions which have taken place in Australia giving the date, the size, location and purpose of each.”³⁹

Killen replied with a basic list of the major trials at all three test sites from October 1952 to October 1957, with no indication that he was aware of the minor trials or any information on when and where they had been held. He provided no correction to his earlier statement that the major trials had ended in 1956. He added, in addition to a table showing the major trials:

“The purpose of each explosion was related to the development of a British nuclear deterrent.”⁴⁰

³⁶ Defence Reporter, “Doubts cast on SA nuclear dump”, *Sydney Morning Herald*, 11 February 1977, p. 3.

³⁷ *Ibid.*

³⁸ Adrian Tame and F P Robotham, *Maralinga: British A-Bomb Australian Legacy*, The Dominion Press, Melbourne, 1982, p. 242.

³⁹ Parliamentary Debates (Hansard), House of Representatives 1977, Vol. 104, Commonwealth Government Printer, Canberra 1978, p. 880.

The parliamentary questioning, (limited) media coverage and Killen's correspondence with Uren seemed to be growing in frequency and volume. What began the December before with Uren's question in parliament and the Adelaide media interest started to gather pace. Killen ordered his Department to take a closer look – or perhaps he just took a closer look himself for the first time at what was already there. After all, the top secret Pearce report had been in Australian government hands for 10 years and it did show that plutonium was at the site. Although this report had not been made public⁴¹, it was available to senior government ministers. From the content of public statements by Killen, Garland and others, it appears that few people had read the Pearce report.

One of the most significant outcomes of the new scrutiny of the Maralinga issue was a secret Cabinet submission prepared for the Foreign Affairs and Defence Committee and tabled on 11 September 1978. Submission No. 2605 was titled "Plutonium Buried Near Maralinga Airfield". It raised a major potential security problem for the Australian government:

"It would not appear difficult for a small party of determined men who had received information to recover the substance in a single quick operation if they were willing to take large risks to themselves. They could then threaten, say, to exploit the extremely toxic properties of plutonium against the population of a major city."⁴²

Killen, in this submission, was plainly stating that the aftermath of the minor trials at Maralinga could be used for terrorism purposes; a horrifying prospect. He wanted permission from Cabinet to seek British co-operation in removing the half-kilogram "discrete mass" of plutonium that had been buried near the Maralinga airfield. He was not seeking remediation of the plutonium at Taranaki, which he conceded in the submission was "practicably irrecoverable"⁴³ as it was

⁴⁰ *Ibid.*

⁴¹ An edited version of the Pearce report was published in May 1979 and tabled in the House of Representatives on 7 June 1979. Statement to Parliament by the Minister for Resources and Energy, Senator Peter Walsh, 4 May 1984, reproduced in *Australian Foreign Affairs Record*, Vol. 55, No. 5, May 1984.

⁴² D J Killen, Minister of Defence, Cabinet submission No. 2606, "Plutonium Buried Near Maralinga Airfield", 11 September 1978. National Archives of Australia Series No. A12909, Item 2605.

⁴³ *Ibid.*

so dispersed. The airfield plutonium, which had been noted in the Pearce report, had been used in a Tims minor trial at a site called TM101 in 1961⁴⁴, and was not actually related to Vixen B. The extent of Vixen B contamination was yet to come out.

This secret Defence submission was to become central to the journalistic uncovering of Maralinga. Its contents were not intended to be made public – at least, not at first. This was clearly stated in the document in reference to the request to mount a reconnaissance operation to Maralinga to examine how best to remove the airfield plutonium. There was still a great reluctance among members of the federal government to open this issue up for public scrutiny and there were active attempts to limit media access:

“The precise purpose of the reconnaissance should not be announced. If it were necessary to make public reference to the reconnaissance party, some formulation such as ‘review of physical security measures and possible need for maintenance work’ might be used. A public statement would need to be made about the exhumation/repatriation operation: timing and text would require discussion with the British.”⁴⁵

The long-established method of stonewalling media scrutiny or diverting attention by formulating an acceptably bland and uninformative public statement in relation to the atomic tests was still in operation at this point, though was soon to become obsolete.

The secret submission sets out the nature of the problem, such as the possibility that the Maralinga plutonium might compromise Australia’s international obligations – this time a different set of obligations from those compromised by Vixen B when the Geneva moratorium agreement was the main issue. Now the prevailing international agreement was the Non-Proliferation Treaty.

“At the end of 1976 the Australian Safeguards Office (ASO), established to meet Australia’s obligations under the Non-Proliferation Treaty (NPT), suggested that some of the nuclear material buried at Maralinga may be safeguardable under the terms of the NPT and therefore declarable to the

⁴⁴ Milliken, *op. cit.*, p. 265.

⁴⁵ Killen submission, *op. cit.*

International Atomic Energy Agency (IAEA) on Australia's inventory of materials subject to safeguards... The Department of Foreign Affairs shares ASO's concern about the delicacy of Australia's position vis-à-vis the IAEA in relation to our safeguards obligations. The IAEA is aware of the possible presence of undeclared safeguardable material at Maralinga."⁴⁶

The Defence Department submission put forward three options for dealing with the plutonium, including the one favoured by the Department of asking the British to dig it up and take it home. This is the option that was in the end enforced and the British did – after initially refusing – recover the airport plutonium in 1979 and took it back to Britain⁴⁷. The Foreign Affairs and Defence Committee had formally responded to Killen's submission on 28 September 1978 confirming that it would accept the recommendation that the British be approached to repatriate their plutonium⁴⁸. Investigations by the nuclear affairs division of the Department of Foreign Affairs found that the plutonium in question was buried in six containers in "relatively shallow" pits⁴⁹. Despite the term "discrete mass" often used in connection with this plutonium, in fact it was not in a lump but dispersed through salt packed into the six containers.

Defence Minister Killen and his Department were concerned about a controversy erupting around this, and sought to prevent this happening or at least plan for that eventuality:

"It will probably be alleged that the Government's action is tantamount to an admission of past neglect. Answers to criticisms would need to emphasise the changed circumstances since the original burial was made – emergence of new obligations under [the Non-Proliferation Treaty], and of terrorism as a phenomenon which can no longer be ignored."⁵⁰

⁴⁶ *Ibid.*

⁴⁷ Royal Commission Report Vol. 2, *op. cit.*, p. 549.

⁴⁸ Cabinet minute, Foreign Affairs and Defence Committee, Decision No. 6812 (FAD), Canberra 28 September 1978, National Archives of Australia Series No. A12909, Item 2605. The Cabinet specifically asked that the Defence Minister "arrange for negotiation with the relevant British authorities for the repatriation of the plutonium".

⁴⁹ J R Kelso, acting first assistant secretary, nuclear affairs division, Foreign Affairs Ministerial Submission on Maralinga, 15 November 1978, National Archives of Australia Series No. A6456, item R188/014. It is interesting that on the original of this document, someone has underlined the words "relatively shallow" by hand and placed an exclamation mark alongside. They were a little over one metre below the ground.

⁵⁰ *Ibid.*

If they wanted to keep the story out of the public domain, Killen and his Department reckoned without the efforts of one of Australia's leading investigative journalists, the then-33 year old Brian Toohey. Toohey had been a political correspondent for the *Australian Financial Review* since 1973, and was later to become Washington correspondent and then editor of *The National Times* in 1982⁵¹. He is well-known for his unwillingness to stick to official versions of events, as fellow Canberra political correspondent Mungo MacCallum noted in a 1989 feature:

“As a journalist of unrivalled application and extraordinary contacts, Toohey dedicated himself to opening up things that politicians (and more particularly bureaucrats) wanted to keep secret, irrespective of what they were.”⁵²

Toohey remains active today in political reporting and commentary. A specialist in political, economic and security issues reporting⁵³, Toohey had an instinct for an important story⁵⁴. This was one of them. He was able to obtain the secret Cabinet document and use it as the basis of a series of stories that led to extensive scrutiny of this issue. While he remains constrained by confidentiality issues around sources, he was willing to talk to me in general terms about the Maralinga submission:

“The source was someone in the government who thought the information should be public, without being motivated by either a strong environmental, or nuclear disarmament, perspective.”⁵⁵

Toohey's story in the *Australian Financial Review* of 5 October 1978 was based upon the leaked Defence Department Cabinet submission. Headlined “Killen warns on plutonium pile” and with the strapline (sub-heading) “Terrorist threat to

⁵¹ Brian Toohey and Marian Wilkinson, *The Book of Leaks: Exposés in Defence of the Public's Right to Know*, Angus and Robertson, North Ryde, 1987, back cover.

⁵² Mungo MacCallum, “Toohey: making red faces in high places”, *The West Australian*, 2 September 1989, p. 9.

⁵³ *Ibid.*

⁵⁴ Toohey also had a long history of riling the Defence Department. In November 1984 he obtained using Freedom of Information legislation a graph prepared by the Department that charted 700 stories he had written between 1973 and 1976, under both Labor and Liberal governments. The chart was intended to show that the leaks upon which he had based his stories had not come from the Department – a claim that Toohey denies. Candida Baker, “A new eye focuses on the rich and powerful”, *The Age*, 15 August 1987, p. 3.

⁵⁵ Brian Toohey, pers. corres. 31 December 2009.

British atomic waste”⁵⁶, the page one story revealed the ticking time bomb of Maralinga for a wide audience. It was a factual account of the contents of the submission, with added commentary on the consequences arising from those contents. For example, the second option outlined by the submission for dealing with the plutonium involved Australian authorities extracting and characterising the plutonium at the site, a task described in the submission as potentially beyond the limits of Australia’s capacity to deal with radioactive materials:

“Although the submission does not make this point, the public is hardly likely to be reassured by the revelation that despite all the money spent on nuclear research within Australia, half a kilogram of plutonium is possibly too hot for the authorities to handle in line with IAEA requirements.”⁵⁷

Toohey noted the admission that the Menzies government in particular had not demanded sufficient safeguards at Maralinga:

“The [Cabinet] submission ... makes clear that Australian Governments in the past have taken an extremely lenient attitude towards the existence of the Maralinga plutonium through its nuclear weapons tests in Australia in the 1950s.”⁵⁸

In expanding on the theme of Australia and the Australian public being kept in the dark about the British nuclear tests and how the ramifications of this attitude of secrecy were still being felt, Toohey also recounted the story of how the atomic test era Supply Minister Howard Beale had been denied information about the test program until it was in place. References to these long-ago events hinted at what was to come. Toohey concludes:

“It is now 20 years since the tests finished. The fall-out, however, is still a very live issue in British-Australian relations however much both Governments want to keep the negotiations entailed in last Thursday’s Cabinet submission a closely guarded secret.”⁵⁹

⁵⁶ Brian Toohey, “Killen warns on plutonium pile”, *Australian Financial Review*, 5 October 1978, pp. 1 and 6.

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*, p.1

⁵⁹ *Ibid.*

Over 30 years later, Brian Toohey sees this landmark story as part of a continuum of stories that forced government accountability:

“These articles were worth doing because they gave the public a glimpse of what was being withheld in a democratic society.”⁶⁰

If the 5 October story hit hard, that impact was nothing compared with Toohey’s follow-up story on 11 October 1978. This article, titled “Maralinga: The ‘do nothing’ solution”⁶¹, brought the wrath of Defence Minister Killen down on Toohey’s head. The story questioned the Australian government’s response in light of a statement issued by the British High Commission on 10 October that nothing needed to be done⁶². The British stance had been backed by a supportive statement from the Australian Acting Foreign Affairs Minister Ian Sinclair, who played down any risks. Toohey was not deterred, particularly as the Cabinet submission had made strong statements about the terrorist threat that the material at Maralinga posed.

The 11 October story quoted from a media release issued by Killen on the evening of 5 October, after the first *Financial Review* story, in which the Minister also denied there was an immediate threat:

“No public reference has hitherto been made to the half kilogram of plutonium in a discrete mass for the very good reason that, unlike the other 95 per cent, it is considered to be in a recoverable form in accordance with standards determined since it was buried.”⁶³

This denial came despite the clear statement of this possibility contained in the Cabinet submission. Toohey had picked up on this, saying in his 11 October story:

“Mr Killen relied on his verbal dexterity in several answers he gave in Parliament yesterday [10 October]. For example, he said that no Cabinet submission prepared by himself had said the plutonium at Maralinga was

⁶⁰ Brian Toohey, pers. corres, *op. cit.*

⁶¹ Brian Toohey, “Maralinga: The ‘do nothing’ solution”, *Australian Financial Review*, 11 October 1978, pp. 1, 10 and 37.

⁶² *Ibid.*

⁶³ Jim Killen, quoted in Toohey, “Maralinga: The ‘do nothing’ solution”, *op. cit.*, p. 10.

‘currently’ a terrorist threat. Last Thursday [5 October] he said in his press statement that the [*Australian Financial Review*’s] report of his submission and its emphasis on the potential terrorist threat provided sufficient cause for him to substantially increase security at Maralinga on that very day.”⁶⁴

The story reported that Killen claimed in Parliament that he had not been told about the plutonium problem at Maralinga until early in 1977⁶⁵, which seems to accord with his statements around and before that time. Certainly in 1976, when ALP deputy leader Tom Uren and some elements of the media were starting to question exactly what was at Maralinga, the Defence Minister seemed not to know until he had asked his Department to dig deeper. Toohey concluded this contentious 11 October story by tying it to a then-current political debate:

“If the Government ends up doing nothing about the Maralinga plutonium it will only have succeeded in raising public doubts about the safety of nuclear materials at the same time as it is trying to convince the world that any Australian uranium exports will be on the strictest possible safety terms.”⁶⁶

Upon publication of this second Maralinga story, Killen took the unusual step of denouncing Toohey in Parliament. Specifically, he accused Toohey and the *Financial Review* of issuing an open invitation to terrorists to help themselves to the dangerous material at Maralinga and of reporting falsehoods. He said:

“It is a day for regret when a journalist and a newspaper, aided by a criminal act, have published a story that is against the interest of the nation and its people”⁶⁷.

Killen’s outburst in Parliament was reported in the stablemate Fairfax broadsheet the *Sydney Morning Herald* of 12 October 1978:

“[Killen] said a report in the *Financial Review* ‘written by one of that paper’s employees [Brian Toohey]’ has stated that he suggested there might be no need to do anything other than upgrade the police guard at Maralinga. ‘I said no such thing and suggested no such thing [on 10

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

⁶⁶ *Ibid.*

⁶⁷ Quoted in Robert Milliken, *No Conceivable Injury*, Penguin Books Australia, Ringwood Victoria, 1986, p. 265.

October],’ Mr Killen said.... ‘This is a pernicious, wicked and odious technique that has long been practised by this man,’ Mr Killen said... ‘The person concerned with the report wouldn’t be capable of accurately reporting a minute’s silence,’ Mr Killen said.”⁶⁸

The attack was detailed and sustained. Killen claimed that the Defence submission did not make assertions about an immediate terrorist threat, although one could conceivably exist if no action were taken, and that publicising this threat “...was an act of irresponsibility”⁶⁹.

Toohy took the attack in his stride and cannot today remember exactly how he reacted at the time:

“I can’t recall if I responded in detail in the AFR [*Australian Financial Review*]. But I knew that I had accurately reported Killen’s cabinet submission, despite his flamboyant, often incomprehensible, accusations against me. Perhaps his reaction reflected the way he was unaccustomed to media criticism.”⁷⁰

When he was interviewed in 1987, however, Toohey did nominate his Maralinga plutonium story as a career highlight and discussed it further.

“Jim Killen went berserk when [the discrete mass of plutonium] was revealed and he banned the paper from any contact whatsoever with the Defence Department. Fraser ordered him to lift the ban, but what Killen went ape about was the story being a breach of security. My point was that the real security problem lay in leaving unguarded plutonium at Maralinga.”⁷¹

While the drama around Brian Toohey’s plutonium disclosure was unfolding, the legendary denizen of the Canberra Press Gallery, Mungo MacCallum⁷², was watching on with his characteristic wry amusement. In his regular column *From the Gallery* on 11 October 1978, MacCallum reported on the events in Parliament

⁶⁸ Author unknown, “Killen attacks Review report”, *Sydney Morning Herald*, 12 October 1978, p. 9.

⁶⁹ *Ibid.*

⁷⁰ Brian Toohey, pers. corres., *op. cit.*

⁷¹ Brian Toohey, quoted in Candida Baker, “A new eye focuses on the rich and powerful”, *The Age*, 15 August 1987, p. 3.

⁷² Mungo MacCallum is a colourful satirist and political correspondent who spent 20 years in the federal parliamentary press gallery

the day before in a piece titled “Labor’s Maralinga attack very non-nuclear”⁷³. This column reflected on the less than effective attack mounted by the Labor opposition on the Federal Government, which was struggling to get on top of the Maralinga issue in the wake of Toohey’s story of 5 October. MacCallum stated that the Opposition’s response had not capitalised on the political implications of the disclosure.

“There were no explosions in the House but the fact that the affair might have a rather longer half life than the Government would wish was shown when the Acting Foreign Affairs Minister, Mr Ian Sinclair, said later that the United Kingdom was sending out a team to help evaluate the situation. And of course there is still Mr Killen’s definitive statement to come.”⁷⁴

The next day MacCallum had even more to write about. His column of 12 October 1978, titled “Killen throws a Maralinga bomb – with fallout”, chronicled Killen’s lambasting in parliament of Brian Toohey:

“Mr Killen exploded in the megaton range, and scattered his fallout widely – especially over this paper’s Canberra correspondent, Mr Brian Toohey. Mr Killen never actually named Mr Toohey; however, in a series of answers to questions, and in a ministerial statement designed to clear up the whole issue, he left no doubt as to his primary target.”⁷⁵

MacCallum recounted how the Opposition Leader Bill Hayden revealed that he had contacted the previous Labor Prime Minister, Gough Whitlam, and the two Whitlam government Defence Ministers, Lance Barnard and Bill Morrison, who had said they did not recall ever hearing about plutonium buried at Maralinga⁷⁶. Killen countered this with the fact that the still-classified Pearce report, which had referred to the Maralinga plutonium, had been provided to the then-Coalition government in 1968 and had therefore been available to the subsequent Labor government⁷⁷. This is an interesting and possibly self-defeating point to make, given Killen’s own expressed ignorance about the Maralinga plutonium before

⁷³ Mungo MacCallum, “Labor’s Maralinga attack very non-nuclear”, *Australian Financial Review*, 11 October 1978, p. 4.

⁷⁴ *Ibid.*

⁷⁵ Mungo MacCallum, “Killen throws a Maralinga bomb – with fallout”, *Australian Financial Review*, 12 October 1978, p. 4.

⁷⁶ *Ibid.*

⁷⁷ *Ibid.*

1977. He would have had access to the same report, but appeared not to know its contents in his own public statements. MacCallum reported that Killen, having savaged Toohey:

“...sat down to a big laugh and a round of applause.”⁷⁸

Toohey prepared two more stories in this series for the *Australian Financial Review* published on 12 October and 13 October, probing the issue still deeper and opening new angles. The 12 October story, which expands further on the option of the Australian government recovering the plutonium, referred to Killen’s attack. Killen is quoted as saying:

“It is characteristic of a certain kind of so-called journalism in this country that certain sections of my Cabinet submission were reported accurately, while other parts were selected for distortion to contrive a mixture that would create a sensational impact and alarm the public.”⁷⁹

Toohey followed up on 13 October with a story that questioned whether the size and unwieldiness of the Defence Department bureaucracy had contributed to the Maralinga plutonium controversy.

“In the Maralinga case...there have been accusations within the department that relevant information about the plutonium buried at the South Australian site of the British nuclear tests has not flowed to all levels of the department that needed to know.”⁸⁰

Toohey’s journalistic revelations were quickly picked up. The *Sydney Morning Herald*, also owned by Fairfax, was prominent among those outlets that ran with the story. To coincide with the *Financial Review*’s Cabinet leak-based story on 5 October, the *Sydney Morning Herald* was able to run a front page item declaring its sister publication’s scoop:

⁷⁸ *Ibid.*

⁷⁹ Jim Killen, quoted in Brian Toohey, “Govt may exhume plutonium waste”, *Australian Financial Review*, 12 October 1978, pp. 1, 10 and 14

⁸⁰ Brian Toohey, “Maralinga issue raises Defence Dept question”, *Australian Financial Review*, 13 October 1978, pp. 7 and 12.

“Federal Cabinet has been warned that extremely dangerous plutonium buried at Maralinga, South Australia, could be stolen by terrorists, the Financial Review reports today.”⁸¹

The *Sydney Morning Herald* assigned reporters to travel to Maralinga and see what was there. Killen had been reported as saying that he had had to urgently upgrade security at the site, thanks to the Toohey article, which he had characterised as an open invitation to terrorists.

“When journalists flew in there was no sign of the increased security measures announced on Thursday night [5 October] to guard a buried lump of plutonium from terrorists... When told of this yesterday the guards at Maralinga just chuckled.”⁸²

In this same issue of the *Sydney Morning Herald* a familiar name reappeared. Ernest Titterton was given a feature-sized spread to answer the growing controversy. It was one final free kick in the media before the McClelland Royal Commission would blacken his name and rob his pronouncements on Maralinga of credibility. The feature conveys an impatient tone that Titterton undoubtedly felt at having the plutonium issue dredged up after all these years. Claiming that the media coverage since Toohey’s story had broken had been “near to hysterical”⁸³, Titterton denied that there was any danger in the buried plutonium and said that someone could carry it around in their pocket and no harm would befall them. There is some limited truth in this, given the nature of radiological hazards (see Chapter Six for the discussion on stochastic and deterministic effects of exposure to plutonium), though he did not explain how dangerous inhalation or ingestion of even a tiny amount of this material was. He was perhaps on even shakier ground when claiming that terrorists would have no use for half a kilogram of plutonium, since all plutonium is potentially useful to terrorist bomb-makers and the airport waste was particularly useful for this purpose (see below, and also Chapter Six). He suggested that plutonium was valuable material and the British would hardly leave buried a quantity of the substance that might be worth

⁸¹ Author unknown, “Nuclear waste could be stolen, Govt told”, *Sydney Morning Herald*, 5 October 1978, p. 1.

⁸² Author unknown, “The usual four guard the plutonium”, *Sydney Morning Herald*, 7 October 1978, p. 1.

⁸³ Professor Sir Ernest Titterton, “The Maralinga Scare”, *Sydney Morning Herald*, 7 October 1978, p. 10.

tens of thousands of dollars if it were in any sort of usable form⁸⁴. He also made claims, later shown to be wrong, that the 1967 clean-up, Brumby, had taken care of all problems such as leftover plutonium, so there was really nothing to worry about.

“Putting aside politics and emotional grandstanding, it is clear...that the public need have no worries about terrorist activity...”⁸⁵

In the same issue, political correspondent Peter Bowers provided an in-depth examination of the mystery of the buried plutonium. Bowers quoted ALP deputy leader Tom Uren calling for Jim Killen’s resignation in light of the recent revelations about the Maralinga plutonium contamination. Uren was quoted as referring to statements by William Penney, by this time Lord Penney, that suggested that Killen had misled Parliament by initially denying what was left behind at Maralinga:

“Lord Penney revealed that small-scale nuclear tests, which he described as ‘little mock explosions,’ were conducted apparently long after full-scale bomb testing ceased. The experiments have remained a highly classified secret for the past 17 or 18 years.”⁸⁶

The *Sydney Morning Herald* coverage continued in concert with Brian Toohey’s Maralinga series in the *Australian Financial Review*. On 10 October the *Sydney Morning Herald* reported that Britain had been formally asked to remove the plutonium and return it to the UK. The speed with which this request had been made appears to have been due to the pressure the media was exerting:

“Officials said yesterday that the Government had been forced to act quickly after publication last week of details of a Cabinet submission, in which Mr Killen warned that the nuclear waste from British atomic bomb tests could be stolen by terrorists.”⁸⁷

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ Peter Bowers, “Maralinga’s plutonium mystery becomes even deeper: Who left nuclear lump at the site?”, *Sydney Morning Herald*, 7 October 1978, p. 4.

⁸⁷ Andrew Kruger, “Britain asked to take atomic waste”, *Sydney Morning Herald*, 10 October 1978, p. 1.

Attached to the main story was a supplementary piece that demonstrated the continuing official British stance on this issue that would remain in place until the McClelland Royal Commission:

“A spokesman for the United Kingdom Atomic Energy Authority said today that, although his department had no record of what was left at Maralinga...it was unlikely that any plutonium was involved...The spokesman said that some time ago his department had checked carefully another report of atomic waste being sent from Britain to Australia and had made a complete denial. There was no record of any atomic waste ever being sent to Australia, he said.”⁸⁸

This was the same official line run back in 1976 when the Adelaide papers had featured the Maralinga plutonium. By the next day (11 October 1978), as journalistic pressure mounted, the *Sydney Morning Herald* was reporting that the British were planning to send a team of experts to Maralinga to investigate the remaining plutonium – while indicating that Britain had no intention of accepting responsibility for repatriating it.

“After six days of controversy the British and Australian Governments acted decisively yesterday to damp down concern over the plutonium...Referring to the warning in the Cabinet document that the buried plutonium could fall into the hands of terrorists, [British High Commissioner] Sir Donald [Tebbit] said: ‘Even the train robbers⁸⁹ would have trouble coping with this situation. They might do better with a toy pistol’.”⁹⁰

This story ran part of a British statement that gave more detail about the much-discussed “discrete mass”, which had dominated media coverage of Maralinga since 5 October. A statement issued by Tebbit sought to explain that it was not simply a lump of plutonium that could be dug out of the ground:

“...this material originated in six separate minor experiments each of which involved explosively shattering a small disc of plutonium into

⁸⁸ “Plutonium ‘unlikely’”, sidebar to Andrew Kruger, “Britain asked to take atomic waste”, *Sydney Morning Herald*, 10 October 1978, p. 1.

⁸⁹ This probably alludes to the notorious “Great Train Robbery” carried out in England in 1963, the largest robbery (by value) in British history.

www.news.bbc.co.uk/onthisday/hi/dates/stories/august/8/news1td_2714000/2714055.stm

⁹⁰ Peter Bowers, “British team to check atom dump”, *Sydney Morning Herald*, 11 October 1978, p. 1.

numerous fragments which were collected into a steel container filled with common salt. No nuclear explosion was involved.”⁹¹

The experimental series that produced the discrete, recoverable plutonium at the airport was the Tims minor trials. The waste was weapons grade, dominated by ²³⁹Pu but with ²⁴⁰Pu and a very small amount of ²⁴¹Pu⁹². The presence at the Taranaki site of the even greater quantities of ²³⁹Pu, though in a non-recoverable form, was yet to be disclosed.

A few days after Titterton appeared in the media to comment on the controversy, another original Maralinga participant emerged. A story on 11 October in the *Sydney Morning Herald* quoted former Minister for Supply Howard Beale, then in retirement. He vehemently dismissed as ridiculous any claims that plutonium buried at Maralinga could be a terrorist target. He reserved a portion of his scorn for the source of the story:

“What right has an official in the government to play God and leak documents of this nature. I think it was immoral and quite wrong to let this document loose.”⁹³

Beale was further quoted as telling reporters that they had a particular responsibility to assess the national interest content of any material they received before publishing⁹⁴. He also remarked, in a way that perhaps reflected his own approach to these matters during the time that he was directly involved, on the procedures that should have been in place in Cabinet to prevent such a leak:

“An issue as sensitive as the Maralinga one should have been handled by the smallest number of people possible.”⁹⁵

By 13 October 1978, politicians from both the government and the opposition were either claiming that they were ignorant of what was at Maralinga or that others had misled them – or that someone from the other side had misled

⁹¹ *Ibid.*

⁹² Geoff Williams, ARPANSA, pers. corres., 27 July 2010.

⁹³ Howard Beale quoted in author unknown, “Plutonium scare ‘ridiculous’”, *Sydney Morning Herald*, 11 October 1978, p. 2.

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

Parliament. The Leader of the Opposition Bill Hayden claimed that Vic Garland had misled Parliament in 1972⁹⁶, while former Labor Defence Minister Lance Barnard said that he had been misled by his own department about Maralinga in 1973. The former Labor Minister for Environment and Conservation Moss Cass said that he could not remember being told about plutonium buried at Maralinga⁹⁷, a claim undermined by a letter of his dated 3 December 1974 in which he refers to “long lived and highly radioactive wastes contained in the Airfield Cemetery”⁹⁸, which seems to be a reference to the “discrete mass” later removed by the British. The Prime Minister Malcolm Fraser countered by saying that the previous government had as much information available as the current one⁹⁹. While this claim was certainly true, it did not reflect much credit on the efforts of his own Ministers who had also apparently ignored the Pearce Report.

Reacting to media reports about Maralinga and resulting concerns from his state constituency, the then Premier of South Australia Don Dunstan wrote to Prime Minister Fraser asking for a full enquiry into contamination at Maralinga. The letter was tabled in evidence to the Senate Estimates committee on 17 October 1978. It contained the following statement:

“On a matter of such fundamental significance to public health and safety as the proper disposal of plutonium and other high level radio active wastes, it is essential that the fullest information on security and other precautions be assembled.”¹⁰⁰

As the story reverberated around Canberra, Prime Minister Fraser asked for briefings. A briefing note of 13 October 1978 by a senior adviser in the Resources Branch, G F Cadogan-Cowper, set out the recent history of the issue in

⁹⁶ Andrew Kruger, “Full story not told on waste – Hayden”, *Sydney Morning Herald*, 13 October 1978, p. 13.

⁹⁷ *Ibid.*

⁹⁸ Letter from Moss Cass, Minister for the Environment and Conservation, to Lance Barnard, Minister for Defence, 3 December 1974, National Archives of Australia Series No. A6456, Item R065/080. It is certainly true that this letter does not specifically mention plutonium, although it does mention contamination not just at the airfield cemetery but also at Taranaki. It calls for a survey to better understand how radioactive wastes have been stored at Maralinga and how the wastes have been dispersed and taken up by the “biosystem”.

⁹⁹ *Ibid.*

¹⁰⁰ Extract from evidence to Senate Estimates Committee E, 17 October 1978, National Archives of Australia Series No. A6456, Item R188/041.

Parliament, since Vic Garland's contribution in 1972, and recommended how the Prime Minister should handle the growing controversy.

"We note that reference to the plutonium...is made in the 'Pearce' report which was available at the relevant time in 1972. It appears that Mr Garland did not receive adequate advice."¹⁰¹

Cadogan-Cowper cited this as a possible cause for concern for the present government:

"The discrepancies could now be fastened upon by the Opposition. We note that in an article on page 7 of today's Financial Review Mr Toohey has stated that Mr Garland 'was given incomplete information which caused him to mislead Parliament in 1972 about just what was at Maralinga'. Should you be questioned on the dumping of wastes it may be necessary to note that the advice Mr Garland received was apparently incomplete..."¹⁰²

In what looks in retrospect very questionable advice, given the long half-life of the Maralinga plutonium, Fraser was told:

"Emphasis could be laid on the short half life of the fission products and that because of their short half life the quantity has decreased rapidly over the 20 years since the tests."¹⁰³

Considered analysis a few days later by journalist Peter Bowers from the *Sydney Morning Herald* took stock of the frenetic activity since the Toohey story had broken:

"We have learned more about what is buried at Maralinga in the past week than in the past 20 years. And there is much more yet to be learned about the Maralinga caper."¹⁰⁴

In this he was certainly correct as the era of journalistic revelations about Maralinga was now well underway. He then summed up his view of what the events of that week had been about:

¹⁰¹ G F Cadogan-Cowper, senior adviser Resources Branch, briefing paper for Prime Minister Malcolm Fraser, 13 October 1978, National Archives of Australia Series No. A6456, Item R065/080.

¹⁰² *Ibid.*

¹⁰³ *Ibid.*

¹⁰⁴ Peter Bowers, "The real mystery of Maralinga", *Sydney Morning Herald*, 16 October 1978, p. 7.

“The real issue is why the presence of plutonium had been kept so long not only from the Australian people but, apparently, from the Australian Government. The real danger – the ever present danger – is that governments and their bureaucracies are secretive and tell the public only what they think the public should know. The Australian public would still be ignorant of what was buried by the British at Maralinga 20 years ago [were] it not for the fact that a Cabinet document was leaked to a reporter.”¹⁰⁵

The recipient of the leak, Brian Toohey, had set in motion years of media scrutiny of the legacy of Maralinga. Toohey maintained an interest in the Maralinga story for some time after this high profile conflict with the Defence Minister and his department, well into the term of the Bob Hawke Labor government that came to power in 1983. Toohey had moved to *The National Times* in 1982¹⁰⁶, where he continued to specialise in national interest political and defence reporting. Several months before the McClelland Royal Commission into the British nuclear tests began but with the issue now well-established in the media, Toohey wrote a feature titled “Plutonium on the wind: The terrible legacy of Maralinga”¹⁰⁷. This was a detailed summing up of the Vixen B issue, with full weight given to the relevant science, in a way that had not been done before in the media but which foreshadowed the high quality investigative science journalism of Ian Anderson. One of the points of difference between the 1950s and 1960s media coverage and the later coverage was the ease with which later journalists dealt with the scientific and technological aspects of the story. Toohey was not a specialist science reporter, but recognised the importance of obtaining at least a rudimentary understanding of the science to ensure that he could ask the right questions and that the resulting story could stand up to the scrutiny of radiation science experts. Toohey maintains that “attaining my amateur understanding of the science behind weapons [was] not all that hard”¹⁰⁸, claiming that he has had over the years more struggles with aspects of biological than physical sciences¹⁰⁹ as part of the effort he puts into preparing investigative stories. His 1984 *National Times* story is based on another leak – Toohey was able to obtain the full, uncensored Pearce

¹⁰⁵ *Ibid.*

¹⁰⁶ Toohey and Wilkinson, *op. cit.*, back page.

¹⁰⁷ Brian Toohey, “Plutonium on the wind: The terrible legacy of Maralinga”, *The National Times*, 4-10 May 1984, pp. 3-5

¹⁰⁸ Brian Toohey, pers. corres., *op. cit.*

¹⁰⁹ *Ibid.*

report, which at that time was still classified and only available in truncated (or “sanitised” as Toohey called it¹¹⁰) form in the public arena. He is unable to reveal his source, other than to say that:

“...the backdrop was a concern that a proper clean-up occur.”¹¹¹

Toohey’s *National Times* feature is an early, detailed examination of the Vixen B trials and contains much information that had, until then, never appeared publicly. The story had much more to say about the nature of Vixen B than his earlier stories in the *Australian Financial Review*.

“The experiments were usually described as point safety tests, despite the obvious irony in the use of the word ‘safety’ for operations that left plutonium scattered across the countryside.”¹¹²

An examination of the exact risk posed by the plutonium at Maralinga forms a large portion of the story, with an account of the levels of radiation on site, analysed in comparison with the levels of radiation considered hazardous to human health. A table run alongside the story shows data from Taranaki soil samples. The feature is written in a calm, neutral tone, making even more damning its indictment of the plutonium legacy:

“It would seem that what the British and Australian authorities described as minor experiments in fact involved the cavalier dispersal of plutonium and have created a far greater health hazard at Maralinga than the full-scale atomic tests.”¹¹³

This story stands alongside Ian Anderson’s later revelatory feature in *New Scientist* (see Chapter Three) as true investigative science journalism designed to explicate not just the relevant science but the context for the science, to ensure that the public was able to fully understand an issue of national importance and to apply pressure to politicians for a full account of their actions. It is unlike any story written at the time of the tests and shows clear progress towards a deeper level of understanding of the issues than was prevalent at the time of the British

¹¹⁰ *Ibid.*

¹¹¹ *Ibid.*

¹¹² Toohey, *The National Times*, *op. cit.*, p. 4.

¹¹³ *Ibid.*, p. 5.

tests. Many years later, Brian Toohey reflected on the sharp differences between reporting in the two eras:

“Media coverage of military and foreign policy issues back then [during the time of the British tests] was rarely critical. Senior journalists earned a reputation for informed analysis by repeating what senior officials and ministers told them. It would never have occurred to these journalists to jeopardise their comfortable life by ferreting around to discover that the plutonium tests were underway, or that the British wanted to withhold information from ministers.”¹¹⁴

This statement is borne out by the relative quality of journalism evident from the two eras; the latter era reporting is more detailed, scientifically accurate and less reliant on official sources. Apart from Brian Toohey’s insightful and revelatory six-year investigative coverage of the Maralinga issue, a number of other journalists and outlets had picked up this issue and were contributing quality reporting. Most mainstream news media began reporting the Maralinga story after Toohey’s 1978 series of stories in the *Australian Financial Review*. All Australian metropolitan papers now began devoting space to Maralinga and the new angles kept emerging. One political casualty of the tumult had already become apparent. On 10 November 1978 *The Australian* reported that Jim Killen had lost his role in the nuclear issue when Federal Cabinet removed responsibility for Maralinga from his Defence portfolio and moved it to the Minister for National Development, Kevin Newman¹¹⁵.

“This follows a row which highly embarrassed the government over the deposits of plutonium at the toxic waste site at Maralinga in South Australia.”¹¹⁶

The removal of Killen did not, however, slow the story down. *The Australian* kept up pressure on the Federal Government with a page one story featuring the huge banner headline “‘Take it back’ requests ignored: British snub on plutonium plea”¹¹⁷. This story highlighted the old problem that dated back to the

¹¹⁴ Brian Toohey, pers. corres., *op. cit.*

¹¹⁵ Malcolm Colless, “Govt acts over N-waste safety: Killen loses nuclear role”, *The Australian*, 10 November 1978, p. 1.

¹¹⁶ *Ibid.*

¹¹⁷ Malcolm Colless, “‘Take it back’ requests ignored: British snub on plutonium plea”, *The Australian*, 16 November 1978, p. 1.

time of the tests themselves – that the British were slow to answer an Australian request.

“The Government realises that it must take some action over the ‘recoverable’ plutonium because of its obligations under international nuclear safeguard agreements which have a strong bearing on the future development of Australian uranium industry. It is understood that that government decision that the plutonium should be removed has received a sympathetic response from bureaucrats in England but this has not been matched by the response of the politicians.”¹¹⁸

This story prompted more activity in Federal Parliament. The Labor Senator Gareth Evans drafted a question to the leader of the opposition in the Senate, Senator John Carrick, a rough draft of which, with short-hand forms of expression, remains on the official Maralinga file:

“Is it true as reported in this morning’s Australian that the British govt has snubbed Ausn requests to remove waste plutonium buried at Maralinga...in that it has failed to respond to Ausn requests to this effect by the required deadline of 7 November...? If this is so, and if the British govt continues to remain unbeguiled by the subtleties of Ausn diplomacy, what other plans does the Ausn Govt have in mind for the safeguarding of this material?”¹¹⁹

Senator Carrick prepared a reply claiming he hadn’t read the story and had no knowledge of any breakdown in discussions between the Australian and British governments¹²⁰. This mild reply belied the activity behind the scenes as this story threatened to continue growing. The Department of Foreign Affairs sent a cablegram to its London officials alerting them to *The Australian* story and summarising its substance¹²¹. This followed up a cablegram five days earlier, just before the latest story in *The Australian*, in which the growing crisis is spelled out:

“Ministers remain under considerable pressure on this issue from press and parliamentary questioning...In addition to questions without notice, some fourteen questions on Maralinga and the visit of the British technical team

¹¹⁸ *Ibid.*

¹¹⁹ Draft question by Senator Gareth Evans for the Senate, 16 November 1978, National Archives of Australia Series No. A6456, item R188/014.

¹²⁰ Draft reply by Senator John Carrick to Senator Evan’s question, 16 November 1978, National Archives of Australia Series No. A6456, item R188/014.

¹²¹ Outward cablegram Department of Foreign Affairs Canberra to London, 19 November 1978, National Archives of Australia Series No. A6456, item R188/014.

are on notice to be answered. There is also press speculation that we have to rely on Britain on the alleged ground that AAEC [Australian Atomic Energy Commission] is not capable of dealing with the problem.”¹²²

New angles emerged when two reporters on the *Adelaide Advertiser* began a high profile campaign for justice for the nuclear veterans, resulting in a series of themed stories run for a week in April 1980. The stories by the reporters, David English and Peter De Ionno, appeared with a logo depicting a mushroom cloud and the label *The Advertiser Extra: Maralinga*. This kind of treatment is typical of the continuing big story phenomenon, where multiple angles can be accommodated under an overarching theme¹²³. The stories, which presented case studies backing the calls for compensation for service personnel said to be harmed by their service during the major trials at Maralinga, were reinforced by an editorial on 17 April 1980:

“The testing of British atomic weapons at Maralinga...ended many years ago, but the consequences linger on. There was a brief flurry in 1978 when it was revealed that potentially radioactive waste material, since removed to the UK, had been left at the test site. Now there is further, and more serious, concern at the disclosure of the possible effects of radiation contamination of people exposed to the fall-out from those tests.”¹²⁴

While sidestepping the far greater danger of ongoing plutonium contamination at the site, these stories began putting names and faces to the statistics of service personnel who were at Maralinga, giving them three dimensions in the public arena for the first time. For example, there was a case study of Irish immigrant James Barry, who had died of cancer in 1966 at the age of 50 after working as a builder at the test site. His photo appeared under the heading “A victim of Maralinga?”, alongside a picture of his widow¹²⁵. The story claimed that about 20 ex-service personnel had died of cancer or had contracted it, including Mr Barry. His widow, Mary Jane Barry, was quoted as saying:

¹²² Outward cablegram Department of Foreign Affairs Canberra to London, 14 November 1978, National Archives of Australia Series No. A6456, item R188/014.

¹²³ For example, a contemporary equivalent might be the “war of terror” theme employed repeatedly in the media since September 2001.

¹²⁴ Author unknown, “After Maralinga”, editorial in the *Adelaide Advertiser*, 17 April 1980, p. 5.

¹²⁵ David English and Peter De Ionno, “New claims of A-test link with cancer”, *The Advertiser*, 17 April 1980, p. 1.

“He wasn’t supposed to tell me anything, because of the [Official] Secrets Act and all, but he told me bits and pieces. He said that things were very lax up there; they didn’t take enough precautions.”¹²⁶

The Adelaide *Advertiser* series gave a brief glimpse of the media coverage of the tests at the time, as part of the feature on 17 April 1980. Given that the series was concerned with the exposure of service personnel to radioactive risk, not surprisingly the account of media reports from the earlier era emphasised the safety assurances that were a constant characteristic of both the information supplied by the British and Australian governments and the press coverage that appeared. For example, the British journalist Chapman Pincher, a prolific reporter of the British tests (see Chapter Four), was quoted in relation to the first Buffalo shot in 1956 at Maralinga in his London *Daily Mirror* piece:

“There is a strong feeling that safety precautions are unnecessarily stringent to avoid political repercussions...Even a harmless amount of radioactivity drifting over Adelaide 600 miles from Maralinga would touch off a new socialist outcry for banning atomic tests in Australia.”¹²⁷

The Advertiser series gave a forum to prominent aggrieved ex-Maralinga hands such as its 1976 information source Avon Hudson, in more detail than ever before. In one article, Hudson makes claims about the possible breaching of international agreements:

“Mr Hudson believes that nuclear bomb tests were conducted by the British on the range after the bomb-tests. Atomic weapons tests after 1958 would have been in breach of an informal moratorium on bomb experiments made between the UK, US and USSR in 1958. Officially the tests are described as ‘trigger tests’ and much of the plutonium contamination at Maralinga is thought to have come from these tests between 1956 and 1963.”¹²⁸

In this article, the Maralinga veteran Rick Johnstone is also mentioned. Johnstone was one of the first to receive a Commonwealth pension as a result of being unable to work because of symptoms he said were due to his six months of service

¹²⁶ *Ibid.*

¹²⁷ Chapman Pincher, quoted in “Views from the past”, sidebar story attached to David English and Peter De Ionno, “Fall-out blankets a sleeping city”, *The Advertiser*, 17 April 1980, p. 10.

¹²⁸ David English and Peter De Ionno, “SA atom tests: was cost too high?”, *The Advertiser*, 18 April 1980, p. 9.

at Maralinga during the 1956 Buffalo series¹²⁹. He later went on to be the first person awarded damages through court action over the tests. He was finally successful in his court case in 1988, winning \$679,500 in compensation¹³⁰.

In April 1984, the now-defunct Australian magazine *New Journalist* ran a critique of the journalism of the test era. This feature, by Lindy Woodward and titled "Buffalo Bill and the Maralingers", was scathing of the role of journalists during the atomic tests.

"Journalists had, as now, an important role in deciphering those pronouncements [on the safety of atomic technology], but when 'the experts' declared that the tests were totally safe and crucial to peace, the Australian media took them at their word...It was a national suspension of disbelief, indulged in and encouraged by the media."¹³¹

Although the British journalist Chapman Pincher had been seen as a troublemaker and "scoop journalist" by the Australian and UK governments at the time of the atomic tests (see Chapter Four), this later account challenges that assessment.

"Chapman Pincher, the science writer from the London *Daily Express*, was the *Advertiser's* own 'expert' on the tests, but his reports were short on scientific analysis, and big on British enthusiasm for what was going on in the Australian desert."¹³²

Woodward demonstrated in her article how much the media had changed between the 1950s and when she was writing by contrasting the coverage then and now of the Adelaide *Advertiser*:

"In September 1956 [at the time of the Buffalo series] the *Advertiser* ran just one sentence of opposition to the tests in its news columns....Twenty-six years later, in April 1980, the *Advertiser* led the media's re-examination of Maralinga with thorough research into the tests and their

¹²⁹ *Ibid.*

¹³⁰ Anabel Dean "First win for Maralinga victim and hope for others", *Sydney Morning Herald*, 23 December 1988, p. 3. This story reported on Johnstone's 11-year campaign to obtain compensation. Johnstone became a potent symbol of Australian nuclear veterans. However, his success in the courts did not open the floodgates as had been thought, and few others have been successful in their court cases.

¹³¹ Lindy Woodward, "Buffalo Bill and the Maralingers", *New Journalist*, No. 43, April 1984, p. 18.

¹³² *Ibid.*

aftermath and interviews with British and Australian nuclear veterans, with their stories of negligence and ignorance and calls for an inquiry.”¹³³

Very few lines of opposition appeared in any press reports at the time, as shown in Chapter Four. The contrasts with the later era were becoming increasingly clear.

By May 1984 and with a Royal Commission soon to begin (it began taking evidence in August 1984), media interest in Maralinga had never been higher. Brian Toohey’s masterful *National Times* feature on the legacy of Vixen B came out early in the month (see above). The *Advertiser* series a few years earlier had put the names and stories of the veterans on the table. Another *Advertiser* story on 3 May 1980 had revealed the story of Jim “Yami” Lester, the Aboriginal boy who claimed to have lost his eyesight because of Totem 1 in October 1953 at Emu Field¹³⁴. The Australian metropolitan media had Maralinga on its regular story rotation, largely because there were so many angles in it worth pursuing and clearly many unanswered questions and problems remaining. Politically, there was only one option at this point – a thorough examination of the entire British nuclear test program in Australia, without restriction and secrecy.

A new Federal Government came to office on 5 March 1983 under the leadership of the ALP’s Bob Hawke¹³⁵. For the first 18 months of this government, the minister responsible for dealing with the Maralinga aftermath was Senator Peter Walsh. Walsh, who later became Finance Minister, was initially Minister for Mines and Energy and in that capacity was responsible for establishing the Royal Commission into the British nuclear tests¹³⁶. He had apparently originally been opposed to setting up such an expensive inquiry¹³⁷, but was eventually forced into

¹³³ *Ibid.*, p. 24.

¹³⁴ Robert Ball, “A ‘devil spirit’ that didn’t go”, *The Advertiser*, 3 May 1980, p. 1.

¹³⁵ Anne Summers, *Gamble for Power: How Bob Hawke beat Malcolm Fraser. The 1983 Federal Election*, Thomas Nelson Australia, Melbourne, 1983, p. 171.

¹³⁶ Peter Walsh, *Confessions of a Failed Finance Minister*, Random House Australia, Milsons Point, 1995, p. 95.

¹³⁷ According to radiation scientist Peter Burns, “[Peter Walsh] said the Royal Commission was just a lawyer’s picnic, a waste of time and money”. Peter Burns, interview with Elizabeth Tynan, ARPANSA, Melbourne, 15 April 2004. This is confirmed by Peter Walsh himself, who stated in his autobiography: “[The McClelland Royal Commission] did teach me a lesson about Royal Commissions which few other politicians have learned – the *only* beneficiaries are lawyers.” Walsh, *op. cit.*, p. 96.

it as the weight of evidence of a continuing problem at Maralinga became too heavy and the political risk of not dealing with it too great. With little of the urbane charm of a Howard Beale or a Jim Killen, the widely disliked dour “dry” economic rationalist Walsh¹³⁸ came to understand that this issue could become a major political problem for the new government if not dealt with expeditiously. During 1984, he became a prolific issuer of media releases on the British nuclear tests, until a reshuffle late in the year saw him head off to what was to become a legendary stint in Finance. His old portfolio was taken on by Gareth Evans¹³⁹.

In addition to releasing media information, Walsh also wanted usable information, and lots of it, on this topic. The issue had been festering on the national political and media agenda since at least 1978 and Walsh wanted to know exactly what he was dealing with. He was particularly mindful of the growing media campaign and was disparaging of what he called media “beat-ups”:

“Periodically since the tests were conducted in the 1950s and 1960, sections of the Australian press have beaten up wild allegations...”¹⁴⁰

Nevertheless, as minister responsible he was forced to act as the issue became increasingly prominent in the Australian media. He did agree that there was a case to answer:

“What the British Government did at Maralinga was irresponsible to say the least. The Australian Government, which eagerly invited the British to do it, was even more culpable.”¹⁴¹

Walsh commissioned several significant reports, including the Kerr report into the risks to the Australian population from atmospheric fallout during the tests. In a media release issued by Walsh in May 1984, he announced the appointment of Charles Kerr, Professor of Preventive and Social Medicine at the University of

¹³⁸ Peter Walsh was nicknamed “Sid Vicious” by former Australian Labor Party Prime Minister Paul Keating, a fact that Walsh recounted in the end-paper of his autobiography.

¹³⁹ Walsh, *op. cit.*, p. 127.

¹⁴⁰ *Ibid.*, p. 94.

¹⁴¹ *Ibid.*

Sydney, to head the review¹⁴². While this was not a public inquiry, Kerr did have powers to call expert witnesses as well as examine all published scientific literature and other data relevant to the tests¹⁴³. In the end, the report produced by Kerr forcefully criticised the most comprehensive account of the British nuclear tests to that point, the AIRAC-9 (Australian Ionising Radiation Advisory Council) report of 1983, a demolition job endorsed by the McClelland Royal Commission a little later¹⁴⁴.

During 1984 Walsh spoke in Federal Parliament about Maralinga, addressing what was by then a prominent and long-standing media story. In one lengthy statement to Parliament on 4 May 1984, in the week that Brian Toohey's *National Times* story based on the still-secret Pearce report and filling in scientific detail about the Vixen B trials, Walsh confirmed that he was seeking to release the entire Pearce report to the public¹⁴⁵. The edited version had been public since May 1979 but that version did not contain detailed information on the nature of the tests or the exact location of the buried radioactive waste¹⁴⁶. In his Parliamentary statement, Walsh said:

“While there is understandable concern on the part of the public about the various claims and allegations regarding Maralinga in the last few days this has not been helped by overreaction and misreporting by some sections of the media and by continuing suggestions of secrecy on the part of the Australian and British Governments...[L]et me assure the Senate and the Australian people that this Government has no interest or intention of keeping facts relating to the nuclear tests in Australia secret.”¹⁴⁷

In his statement, Walsh also urged anyone with “information believed to be of relevance”¹⁴⁸ to contact him and his Department. In June, Walsh again addressed

¹⁴² Media release issued by the Minister for Resources and Energy, Senator Peter Walsh, 15 May 1984, reproduced in *Australian Foreign Affairs Record*, Vol. 55, No. 5, May 1984, p. 547.

¹⁴³ *Ibid.*

¹⁴⁴ Royal Commission Report Conclusions and Recommendations, *op. cit.*, p. 29. AIRAC-9 was branded as having a “predetermined attitude” to the consequences of the tests, to the extent that relevant evidence was either ignored or not sought. Specifically, the Royal Commission found that “AIRAC 9 is not an adequate scientific account of the testing program.”

¹⁴⁵ Statement to Parliament by the Minister for Resources and Energy, Senator Peter Walsh, 4 May 1984, reproduced in *Australian Foreign Affairs Record*, Vol. 55, No. 5, May 1984, p. 486.

¹⁴⁶ *Ibid.*

¹⁴⁷ *Ibid.*, pp.486-487.

¹⁴⁸ *Ibid.*, p. 487.

Parliament after he had received the chronology of the British nuclear tests that he had commissioned from the physicist and consultant to Walsh's department, John Symonds¹⁴⁹. Symonds would later prepare an exhaustive account of the British tests¹⁵⁰. In this Parliamentary statement, Walsh referred to the minor trials:

"It is clear that it is these trials, and particularly the Vixen B series, which involved the use of plutonium, that produced the major source of radiological contamination which remains of concern at Maralinga today. One would assume that the Australian governments of the day were aware of the nature of these tests. However, Australian documents examined to date do not enable us to determine this."¹⁵¹

The last two sentences of this quote hint at the revelations to come at the Royal Commission, when Jim McClelland began the process of making public how little the Australian government knew at the time. This process was only completed with Ian Anderson's *New Scientist* story in 1993. Walsh announced the establishment of the Royal Commission into the British tests on 5 July 1984. In his media release, Walsh indicated that the inquiry had been charged in particular with examining:

"...measures that were taken for protection of persons against the harmful effects of ionising radiation and the dispersal of radioactive substances and toxic materials as judged against standards applicable at the time and with reference to standards of today."¹⁵²

Some of Walsh's reticence for a Royal Commission¹⁵³ comes through in his media statement:

"Five plaintiffs have made claims against the Australian Government in the courts in relation to the alleged effects of the nuclear tests on their

¹⁴⁹ Cf J L Symonds, "British Atomic Tests in Australia Chronology of Events: 1950-1968, National Archives of Australia, Series No. A6456/3, Item R023/003.

¹⁵⁰ Cf J L Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985.

¹⁵¹ Statement to Parliament by the Minister for Resources and Energy, Senator Peter Walsh, 7 June 1984, reproduced in *Australian Foreign Affairs Record*, Vol. 55, No. 5, May 1984, p. 636.

¹⁵² Media release issued by the Minister for Resources and Energy, Senator Peter Walsh, 5 July 1984, reproduced in *Australian Foreign Affairs Record*, Vol. 55, No. 5, May 1984, p. 732.

¹⁵³ By the time he wrote his autobiography, Peter Walsh had major regrets about the establishment of the McClelland Royal Commission. He said: "[The McClelland Royal Commission] was the most unambiguous mistake I made in Government. As is usual with Royal Commissions, the terms of reference were stretched, the budget blew out and the reporting date extended... Lots of us approved when Jim McClelland tipped buckets on Menzies, but this did not justify the \$3.5 million it cost the taxpayers." Walsh, *op. cit.*, pp. 95-96.

health and I indicated recently that this had caused concern as to whether any public judicial inquiry might give rise to contempt of court considerations.”¹⁵⁴

He said that he had sought clarification from senior legal council on this matter and had been assured that there was no legal impediment to proceeding, although some evidence gathering by the Royal Commission would have to take place in closed session.

Before the Royal Commission began, politicians and the media travelled to the test site. On 24 May 1984 a RAAF flight left Adelaide carrying Senator Walsh and the South Australian Labor premier John Bannon, along with scientists from the Australian Radiation Laboratory, bound for Maralinga¹⁵⁵. Some places on the plane were allocated to media. Among the media representatives was the British journalist Sue Lloyd-Roberts, who later went on to co-write with Denys Blakemore a book on Maralinga (*Fields of Thunder: Testing Britain's Bomb*). The party was shown around the abandoned site, with its barbed wire, radiation warning symbols and concrete pyramids meant to seal in the radioactivity.

“More ominously, teams from the Australian Radiation Laboratory guiding the ministerial team showed the presence of radioactive material on the surface of the range with their constantly clicking geiger counters.”¹⁵⁶

The trip appears to have been largely an occasion of pre-Royal Commission symbolism, designed to distance the ALP from the tests over 20 years earlier and set the stage for the official enquiry about to begin. One part of that involved putting some distance between the current Federal and State governments and their earlier counterparts.

“The representatives of the Federal and South Australian Governments were there jointly to express their regret that the atomic test series had ever been allowed to take place in Australia and to pledge their support for all

¹⁵⁴ *Ibid.*

¹⁵⁵ Denys Blakeway and Sue Lloyd-Roberts, *Fields of Thunder: Testing Britain's Bomb*, George Allen & Unwin, London, 1985, p. 206.

¹⁵⁶ *Ibid.*, p. 207.

investigations into the possible harm done to servicemen, Aborigines and the environment.”¹⁵⁷

The Australian sent reporter John Stanton on the trip. Stanton quoted Walsh and Bannon, and also Keith Lokan, director of the Australian Radiation Laboratory, as they surveyed the contaminated areas and wielded (in the case of Lokan) Geiger counters. The radiation chief, while pointing to the dangers of plutonium as a source of lung cancer, apparently wished to allay any fears of immediate dangers to the visiting party or to longer-term visitors to the area:

“[Lokan] said there was no evidence the ploughed plutonium was being further spread by wind erosion. But the pollutant could be present in dust, although this would generally have to be breathed for long periods before it would pose a health risk.”¹⁵⁸

Although the *Sydney Morning Herald* did not cover this visit to Maralinga, it did carry a story at around the same time revealing some of the concealed facts about the problematic second Mosaic test at Monte Bello in 1956 (for more detail on the controversy around Mosaic, see Chapter Five). This story, written by London-based Steve Connor of *New Scientist* magazine, reveals that the Mosaic G2 device had three times greater yield than the Australian officials had been led to believe. Although Connor puts the yield at 60 kilotons, later evidence revealed that it was actually as much as 98 kilotons and in fact was a triggering device for a hydrogen bomb¹⁵⁹.

“The explosion was the ‘dirtiest’ of the 12 tests that the British carried out in Australia, and atmospheric conditions at the time of the test exacerbated the hazards...From this one explosion more gamma radiation was recorded than for all of the four explosions that formed the Buffalo series of tests that took place [at Maralinga] in the same year.”¹⁶⁰

A little later, while giving evidence to the Royal Commission in 1985, Penney was reported as saying:

¹⁵⁷ *Ibid.*, p. 206.

¹⁵⁸ John Stanton, “Plutonium dumps a risk ‘for thousands of years’”, *The Australian*, 25 May 1984, p. 2.

¹⁵⁹ Milliken, *op. cit.*, p. 193, and Robert Standish Norris, “Questions on the British H-Bomb”, Natural Resources Defense Council, 22 June 1992, p. 3.

¹⁶⁰ Steve Connor, “WA atom blast was far bigger, UK says”, *Sydney Morning Herald*, 26 May 1984, p. 3.

“The press announcements which we made about yields [in connection with Operation Mosaic] were not very revealing.”¹⁶¹

The McClelland Royal Commission was officially opened in Sydney on 22 August 1984, followed by a further formal opening in Adelaide on 11 September 1984¹⁶². Oral evidence was taken in Sydney, Brisbane, Melbourne, Adelaide, London and Perth, as well as remote locations at Marla Bore, Wallatinna and Maralinga (South Australia) and Karratha (Western Australia)¹⁶³. After 116 sitting days, all in open session, the final sitting was held on 26 July 1985, although a later sitting was needed in September that year to hear final submissions¹⁶⁴. The Royal Commission took oral evidence from 311 witnesses, including 48 Aboriginal people, 18 Australian scientists or technicians and 241 Australian service personnel¹⁶⁵.

During the months that the Royal Commission was taking evidence, the British nuclear tests maintained a high profile throughout the mainstream media, with many publications assigning reporters to attend the hearings. One stand-out science-based feature was written by Paul Malone and Howard Conkey for *The Canberra Times*. This article, as well as highlighting the serious illness of a serviceman involved in preparations for Operation Antler and examining aspects of the Vixen B trials, also carried a quote from Ernest Titterton. The reporters had approached him to ask what was known about the plutonium contamination risks at the time of the experiments. In his typically cantankerous manner, he told them that as a result of the 12 Vixen B tests:

“...wouldn’t you expect plutonium around the place? Of course there is plutonium around the place, it is always there, it was always expected.”¹⁶⁶

¹⁶¹ Sue Morgan, “Britain’s star witness sheds little light”, *Sydney Morning Herald*, 2 February 1985, p. 12.

¹⁶² Royal Commission Report Vol. 1, *op. cit.*, p. 5.

¹⁶³ *Ibid.*

¹⁶⁴ *Ibid.*

¹⁶⁵ *Ibid.*, p. 6.

¹⁶⁶ Paul Malone and Howard Conkey, “Confusion on contamination: radiation too high at Maralinga site”, *The Canberra Times*, 30 September 1984, p. 12.

Titterton's further comment was paraphrased by the reporters, that it had not been possible to go around and pick up every fragment of plutonium, some of which was not sufficiently radioactive to be reported¹⁶⁷.

Titterton provided a focus for media attention during the time of the Royal Commission and for some time after, in large part because of his colourful testimony combined with the strong criticism he received from James McClelland. A front page story in the *Sydney Morning Herald*, run the day after the Royal Commission report was table in the Senate and titled "Titterton was 'a British plant'", reported McClelland's view that Titterton was loyal only to the AWRE and had been prepared to keep information from the Australian authorities:

"Of Sir Ernest's appointment [as head of the Atomic Weapons Test Safety Committee], the [royal] commission said: 'It is inconceivable, especially in the light of Titterton's cavalier treatment of the truth throughout his testimony...that he did not know that he had been planted on [Robert] Menzies.'"¹⁶⁸

This item about Titterton was set alongside the paper's lead story that reported then British Prime Minister Margaret Thatcher's reluctance to provide money for a clean-up at the Maralinga range¹⁶⁹, funding that was only provided in 1993 after Ian Anderson's *New Scientist* expose of the true extent of contamination (see Chapter Three). These front page stories led into a full page of related stories in this edition of the *Sydney Morning Herald*, under the heading "The A-Bomb Report". The stories in this section, and many others in the later era, were informed by the science of the tests and also show a much clearer understanding of the politics of the British tests than any stories of the time. They were not dictated or guided by politicians or other authorities and their sources were leaked information as well as independent corroboration from participants in the tests or scientists rather than official statements. A clear change had taken place in how the events at Maralinga were approached by journalists and media organisations.

¹⁶⁷ *Ibid.*

¹⁶⁸ Sue Morgan, "Titterton was 'a British plant'", *Sydney Morning Herald*, 6 December 1985, p. 1.

¹⁶⁹ Sue Morgan and Andrew Casey, "Atomic tests report urges compensation and multi-million-dollar clean-up: Thatcher set to tough it out", *Sydney Morning Herald*, 6 December 1985, p. 1.

The breakthrough investigative reporting undertaken by Brian Toohey, based on leaked secret information, set a new standard for how the tests would be reported in the future with a distinct fourth estate approach to keeping democratic government accountable. The landmark *New Scientist* story by Ian Anderson in June 1993 perhaps provides the starkest contrast of all with the stories by the 1950s and 1960s media. By June 1993 Australia had a strong and growing workforce of science media specialists, a development in which Anderson had played a role. Also, science literacy was more clearly part of the range of knowledge cultivated by other kinds of reporters, including investigative journalists such as Brian Toohey. As a direct result, this thesis contends, Australian reporting was better equipped than it had been during the time of the British nuclear tests to understand the full range of implications of many political decisions. This has resulted in more sophisticated reporting capable of being labelled “fourth estate”; the kind of journalism that contributes to democracy. The following conclusion will draw together the lessons of the Maralinga Vixen B minor trials case study in particular and the wider contemporary journalistic response to the program of British nuclear tests in Australia to summarise the differences in the media approach to the issue between the two eras, suggest the implications of these findings and set out recommendations for further enquiry.

Chapter Eight

Conclusion: Science, the media and democracy

Bomb experiments were designed at the 'centre' by British scientists requiring remote country which they could devastate in search of results relevant to Britain's Cold War political imperatives. Meanwhile, at the 'periphery', the Australian public and indeed the Australian scientific community remained marginalised, with decisions made on their behalf by British politicians and scientific teams, aided by a most compliant Prime Minister.

Paul Brown, "British Nuclear Testing in Australia: Performing the Maralinga Experiment Through Verbatim Theatre", 2006

...recent exposures of the damage wrought by unaccountable powers on the environment and on social fabrics and of the inability of our political systems to defend us underline the need for professionals who scrutinise, evaluate and hold to account. Only journalists can perform these functions...

Stephen McIlwaine and An Nguyen, "Science, journalism, democracy and technology", 2005

We have to work towards methods of reporting news which will provide a cumulative store of knowledge against which the significance of new events can be interpreted without sacrificing the interests of the reader or making him feel that he must be a nuclear scientist to read a newspaper.

Professor Ernest Titterton, *Facing the Atomic Future*, 1956

The Maralinga case study has been presented in this thesis to elucidate a particularly striking example of what can happen when media do not possess a science-based frame of reference and therefore cannot report government activities comprehensively. This study suggests that the media have a responsibility to be equal to the task of dealing with complex scientific and technological issues that governments may be seeking to keep hidden because of their overall fourth estate responsibility to ensure government accountability. While it is certainly true that Maralinga was an example of extreme governmental secrecy, the same kind of secrecy could at any time be enacted by an unaccountable government. To operate as a fourth estate watchdog in a parliamentary democracy such as Australia, media must have the means to break through excess official secrecy.

The secrecy put in place at the Maralinga test range, shored up by the imposition of information controls such as D-notices that deliberately fostered media self-censorship, enabled experiments of unprecedented risk to be conducted without public consent and their aftermath to be left unaddressed for many years. In the empty spaces of the desert test range, experiments on the destructive capacities of atoms proceeded without complete safeguards, including the safeguards afforded by public scrutiny and accountability. A central question arising from these

events is: why were the Australian media unable to take on this big scientific and technological story at the time it was happening but were competent to do so a generation later? The answer can be seen in the contrasts in media behaviour between the two eras. In the first era the secrecy sought by the test authorities was made possible to a certain extent by compliant and ill-informed media. I contend that journalists and editors at the time had few resources at their disposal, particularly in terms of scientific literacy or an appreciation of the importance of science to national affairs, to pursue this story. Greater understanding of the scientific and technological issues, based upon independent analysis, would have alerted the media to the story still underway at Maralinga. However, the media did not possess this greater understanding and were notably compliant and ill-informed. As a direct result, they did not report the story.

The media were compliant and ill-informed in part because the pressures that had been mounting in Western media since the dawn of the nuclear age to develop better capacities for dealing with scientific stories had not yet been felt in Australia. In effect, the Australian media continued to operate in their pre-WWII mode in which scientific issues were not central to their various agendas and when they did report scientific matters it was with a “respectful” approach that precluded deeper probing. This way of reporting was already starting to change in other Western countries. The respectful coverage of scientific issues that had characterised media coverage before the atomic age gave way to a more critical approach by the media that delved deeper. However, Australian media took longer to follow this trend. The slowness of Australian media to begin more concerted and critical science reporting is evident in the Maralinga case study and probably points to broader reporting deficiencies at the time. In the later era, as this study shows, the media had clearly responded to the broad pressures to build greater science reporting capacity and nurtured a wider range of skills that helped make possible the uncovering of the Maralinga secrets.

My argument for the contrast in the forms of reporting between the two eras is based on the nature of the media output. These observations provide answers to the first research question posed in the Prologue of this thesis: what were

differences in media coverage of the British nuclear test program, and particularly the Vixen B minor trials, between the two eras? To summarise the features of media output from the first era: the stories published in the Australian media at the time of the British nuclear tests, and particularly in the early years of the tests, were often deferential to Great Britain, overtly patriotic, uncritical of atomic weaponry or actively in favour of such weaponry, focused almost exclusively on storylines provided by officially cleared information and lacking scientific detail or analysis. Any safety concerns raised in these stories were almost always immediately allayed by statements from test personnel and from the Australian government, often through senior spokespeople such as William Penney and Howard Beale. Many of these assurances were shown later, by the McClelland Royal Commission, to be unfounded. While some contemporary stories were critical of delays to scheduled tests, raised questions about the safety of Indigenous people in the area or the cost-effectiveness of the Maralinga facility, or were apparently motivated by ideological opposition to the Federal Government, the general thrust of most stories and editorials was supportive of the test series and the nuclear ambitions that underpinned the tests. The high profile scientists involved, such as William Penney and Ernest Titterton, were not subjected to scrutiny. The most important difference of all was that the 12 scientific experiments that made up the Vixen B series received no coverage of any kind during the three years that the series was underway. This left a large gap in public understanding of the true nature and legacy of the Maralinga nuclear test program and a dangerous interruption to the flow of public interest information.

However, the stories of the later era were characterised by productive scepticism towards the governments involved in the testing, a far higher level of scientific detail and insight, a diversity of sources, specific information about Vixen B and its context and a willingness to confront the government with evidence of untruth and cover-up. Hindsight seems to lend an air of inevitability both to the secrecy and cover-up of the test era and the overcoming of secrecy in the later era. I believe that it would be wrong to conclude, however, that greater freedom of government information existed later and so naturally the media took advantage of this. In fact, the same information controls were still in operation in the later

era and the federal government in 1978 was no more keen later to reveal the truth of what went on at Maralinga than the contemporary government had been. There had been changes to the way Australian government operated, certainly, but the Maralinga saga was at that stage not affected by those changes since it had been kept hidden and its legacy neglected. The markedly different ways the British tests were covered by journalists in the two eras can be explained largely by the approach of the media rather than by changes to the operation of government. This suggests far broader implications for the media than just those involved with Maralinga. In particular, a key implication arising from this case study is that scientific literacy among media practitioners must be present if a fully effective media watchdog role is to be fulfilled. When Australian journalists became more scientifically literate, they did their job better. The overriding implication, therefore, is that more scientifically literate media practitioners are better equipped to ensure that governments are held to account for events such as those at Maralinga.

This implication has far-reaching ramifications for modern media. Strong science-literate media best serve the goals of democratic society, bringing to light science-based activities and events and interpreting their significance for audiences that do not possess technical knowledge and vocabulary. These needs became more pressing with the advent of the nuclear age, which spurred on the development of science-savvy media throughout the developed world. Therefore, this case study confirms the need for science-literate media practitioners. The extension from this, and the first recommendation of this thesis, is that journalists must develop a level of scientific understanding that will enable them to cover science-based issues with knowledge and insight. These skills should not be confined to specialist science journalists but should apply to all journalists – and indeed senior editorial management – who are dealing with the reporting of issues of national importance and who must be able to discern all aspects of a major story and ensure that they are alert to its implications. Failure to do this will inevitably lead to gaps in media understanding of important issues, which then carries through to gaps in public understanding. Therefore this thesis is a plea for a high level of media scientific literacy and an object lesson in its absence. The

role of science continues to grow in most societies, and inevitably the complexity of scientific knowledge and research grows too. The increasing specialisation of science makes for corresponding difficulty in conveying scientific meanings and complexities. There is more need now than ever before for scientific literacy in the public sphere, and particularly among those in the media who interpret the implications of science for the general public. The Maralinga case study shows what is at stake if this issue is not heeded.

Important future research questions arise from this consideration of media scientific literacy. Principal among these is the need for enquiries into whether media in nations with parliamentary democracies are consciously pursuing scientific literacy as a goal. This question requires extensive exploration and analysis. Supplementary questions include whether media organisations and practitioners currently identify scientific literacy as an important part of the range of skills they need to hold governments to account and whether these skills receive adequate prominence in the education of journalists. Insufficient research attention has been given to the deeper meanings of the presence or absence of scientific literacy in the media sphere and its implications for the conduct of democracy in Western nations such as Australia. I have pursued the Maralinga case study because I am vitally interested in how the media and the scientific enterprise interact and what those interactions may mean for the broader community. The case study has indicated to me that failing to ensure an adequate level of scientific literacy in the media can lead to some areas of public interest information being closed off, thus diminishing democracy. Extending the enquiries pursued by this thesis would involve investigating the current role of scientific literacy in informing media activity. My final and overall recommendation, therefore, is that researchers should seek to delve further into the profound relationship between science, the media and democracy in its many manifestations.

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Major Trials

Operation Hatteras

Monte Belic Island, Western Australia
1 October 1952

Operation Triton

Sea Floor, South Australia
Triton 1: 15 October 1953
Triton 2: 21 October 1953

Operation Morgan

Monte Belic Island, Western Australia
Morgan 1: 16 May 1956
Morgan 2: 19 June 1956

Minor Trials

Killing

September-October 1953, Ena Island
May-June 1954, Maralinga
March 1956, Maralinga (Naya)
March-July 1957, Maralinga (Naya)
March-July 1958, Maralinga (Naya)
May 1961, Maralinga (Naya)

Fire

July 1955, Maralinga
March-July 1957, Maralinga
(Kali/Naya)
Sept-Nov 1957, Maralinga (Kali)
April-June 1958, Maralinga (Kali)
Sept-Nov 1958, Maralinga (Kali)
May-Nov 1959, Maralinga (Kali)
April-October 1960, Maralinga (Kali)
August 1961, Maralinga (Naya/Kali)
March-April 1963, Maralinga (Kali)

Operation Tumbler

Maralinga, New South Wales
Tumbler 1: 14-15 Sept 1954
Tumbler 2: Maralinga, 14-15 Sept 1954
Tumbler 3: 14-15 Sept 1954
Tumbler 4: 14-15 Sept 1954

Operation Ashby

Maralinga, New South Wales
Ashby 1: 14-15 Sept 1954
Ashby 2: 14-15 Sept 1954
Ashby 3: 14-15 Sept 1954

Sea

April-June 1952, Sea off Ena
Sept-Nov 1952, Maralinga (Naya)
March-July 1956, Maralinga (Naya)
Sept 1960, Maralinga (Naya and Ena)

Viper A

June-August 1959, Maralinga (Wawa)
May-August 1960, Maralinga (Wawa)
March-April 1961, Maralinga (Wawa)

Viper B

Sept-Oct 1959, Maralinga (Tarzaki)
April-May 1961, Maralinga (Tarzaki)
March-April 1963, Maralinga (Tarzaki)

Information adopted from the Report of the Royal Commission into the British Nuclear Tests in Australia, Vol. 1, Appendix G Chronology, pp. vii-1 to vii-10.

Appendix A

List of major and minor British atomic tests held in Australia.

Major trials

Operation Hurricane

Monte Bello Islands, Western Australia
3 October 1952

Operation Totem

Emu Field, South Australia
Totem 1: 15 October 1953
Totem 2: 27 October 1953

Operation Mosaic

Monte Bello Islands, Western Australia
Mosaic G1: 16 May 1956
Mosaic G2: 19 June 1956

Minor Trials

Kittens

September-October 1953, Emu Field
May-June 1955, Maralinga
March 1956, Maralinga (Naya)
March-July 1957, Maralinga (Naya)
March-July 1959, Maralinga (Naya)
May 1961, Maralinga (Naya)

Tims

July 1955, Maralinga
March-July 1957, Maralinga
(Kuli/Naya)
Sept-Nov 1957, Maralinga (Kuli)
April-June 1958, Maralinga (Kuli)
Sept-Nov 1958, Maralinga (Kuli)
May-Nov 1959, Maralinga (Kuli)
April-October 1960, Maralinga (Kuli)
August 1961, Maralinga (Naya/Kuli)
March-April 1963, Maralinga (Kuli)

Operation Buffalo

Maralinga, South Australia
Buffalo 1 (One Tree): 27 Sept 1956
Buffalo 2 (Marcoo): 4 October 1956
Buffalo 3 (Kite): 11 October 1956
Buffalo 4 (Breakaway): 22 October 1956

Operation Antler

Maralinga, South Australia
Antler 1 (Tadje): 14 Sept 1957
Antler 2 (Biak): 25 September 1957
Antler 3 (Taranaki): 9 October 1957

Rats

April-June 1958, Maralinga (Naya)
Sept-Nov 1958, Maralinga (Naya)
March-July 1959, Maralinga (Dobo)
Sept 1960, Maralinga (Naya and Dobo)

Vixen A

June-August 1959, Maralinga (Wewak)
May-August 1960, Maralinga (Wewak)
March-April 1961, Maralinga (Wewak)

Vixen B

Sept-Oct 1960, Maralinga (Taranaki)
April-May 1961, Maralinga (Taranaki)
March-April 1963, Maralinga (Taranaki)

Information adapted from the Report of the Royal Commission into the British Nuclear Tests in Australia, Vol. 1, Appendix G Chronology, pp. vii-1 to vii-10.

Appendix B

Glossary

Alpha particles

Positively charged particles containing two protons and two neutrons that are emitted by certain radioisotopes, particularly those with a high atomic number.

Alpha radiation

Radiation caused by alpha particles. Alpha radiation has very little penetrating power but may present a serious hazard if alpha particles are inhaled or ingested.

Atom

The smallest particle of an element that retains the characteristics of that element. It is made up of a nucleus and a cloud of surrounding electrons.

Atomic number

The number and position of an element in the periodic table, equating to the number of protons in the nucleus.

Becquerel

The international standard unit of radioactivity, defined as one radioactive disintegration per second.

Deterministic effect

Dose-dependent radioactive effect on a biological entity such as a human body. One kind of deterministic effect is radiation sickness, an often-fatal effect of exposure to a large dose of radioactivity.

D-notice

A secret Government request to senior media representatives not to publish certain specified details about defence- or security-related activities. The D-notice system began in the UK in 1912 and was adopted in Australia in 1952. D-notices were decided by the Defence, Press and Broadcasting Committee administered by the Department of Defence and made up of senior government and media representatives.

Dose

The amount of energy delivered to a mass of material by ionising radiation passing through it.

Dose equivalent

Different kinds of radiation, such as gamma or alpha, have different biological effects. This means that for the same absorbed dose, alpha radiation will for example produce more effects than the same dose of gamma radiation. The dose equivalent is equal to the absorbed dose times a quality factor, which is a measure of the biological effectiveness of the radiation. The dose equivalent is measured in sieverts (see below).

Dosimeter

A device, instrument or system used to measure or evaluate a dose of radiation. Two types of personal dosimeter were used at Maralinga by personnel entering radiation areas during the tests: quartz fibre electrometers and film badges (see below).

Fallout

The descent to the Earth's surface of particles contaminated with radioactivity, following the dispersion of radioactive material into the atmosphere by nuclear explosion. The term is applied both to the process and, in a collective sense, to the particulate matter.

Feather beds

Large metal frameworks used to hold the simulated warheads before detonation in the Vixen B safety trials held at the Taranaki firing pads at Maralinga.

Film badge

A plastic holder containing a piece of film similar to a dental x-ray film and worn by personnel at a nuclear test. Radiation passes through the paper and exposes the film. After a nuclear test, the film was developed and the degree of darkening apparent was a measure of the radiation dose received. The film holder usually contained metal filters to enable discrimination between different types of radiation.

Fission

The process in which the nucleus of a heavy element such as uranium or plutonium splits into two nuclei of lighter elements, accompanied by the release of substantial amounts of energy. This process is at the heart of an atomic bomb like those used in the "major trials" in Australia.

Forward area

The restricted zone within which the major bomb trials and minor radiological experiments took place at the British nuclear tests sites.

Fusion

The process in which the nuclei of light elements such as hydrogen, deuterium or tritium combine to form the nucleus of a heavier element, accompanied by the release of substantial amounts of energy. This process is at the heart of thermonuclear weapons (also known as "hydrogen bombs"), which were tested by the British in the Pacific but not on Australian territory.

Gamma radiation

Penetrating electromagnetic radiation emitted from the nucleus of radioactive elements. This form of radiation is most readily measured by monitoring equipment such as film badges and dosimeters.

Half-life

The time in which the activity of a radioactive species will decline to half its initial value by radioactive decay. For example, in the case of ^{239}Pu which has a half-life of 24,000 years: it takes 24,000 years for half of its radioactivity to decay, then another 24,000 years for half of the radiation remaining to decay, and so on. The half-life of a radioactive species is a characteristic property of that species.

Health physics

The science of human health and radiation exposure – a branch of medical science devoted to radiation safety.

Ionising radiation

Radiation that integrates with matter to add or to remove electrons from the atoms

of the material absorbing it, producing electrically charged (positive or negative) atoms called ions.

Isotopes

Forms of the same element whose nuclei contain different numbers of neutrons and therefore have different mass numbers. Isotopes of an element have nearly identical chemical properties but differ in their nuclear properties. For instance, some isotopes of an element, but not others, may be radioactive.

Major trials

Atomic tests conducted at Monte Bello Islands, Emu Field and Maralinga in Australia that involved detonating a complete atomic bomb, resulting in a "mushroom cloud".

Minor trials

Hundreds of tests conducted at Emu Field and Maralinga in Australia that involved examining how radioactive materials and atomic weaponry would behave under various conditions such as fire or conventional explosion.

Neutron

A nuclear particle with no electric charge (neutral) and a mass approximately equal to or slightly greater than that of a proton. Neutrons are present in all atoms except those of the lightest isotope of hydrogen. Neutrons are produced in large numbers in nuclear explosions.

Nuclide

Species of atoms having a specified number of protons and neutrons in their nuclei. Radionuclides are the radioactive forms of nuclides. They are often expressed as, for example, ^{239}Pu , which shows in numerical form the number of neutrons and hence the form of isotope.

Operation Brumby

A clean-up operation, more extensive than Operation Hercules (see below), mounted by the AWRE at the Maralinga test range between April and July of 1967. In this operation, fences and warning signs were removed as part of an endeavour to eliminate any indication that nuclear tests had taken place. Some parts of the test range were graded and ploughed, and two new waste burial pits were created, making a total of 21. All the burial pits at Taranaki were capped with reinforced concrete.

Operation Hercules

A clean-up operation mounted by the AWRE at the Maralinga test range between August and November 1964. During Hercules, some of the contents of the minor trial waste pits at Taranaki were exhumed and placed into new pits, making a total of 19 waste burial sites.

Operation RADSUR

A detailed radiological survey of both the Maralinga and Emu field atomic test sites carried out by AWRE, October-November 1966.

Plutonium (Pu)

A dense, silvery radioactive element that does not occur naturally but is made in a reactor by bombarding uranium with neutrons. It was first produced in 1941.

Plutonium has 13 known isotopes, of which ^{239}Pu has the longest half-life (24,400 years). ^{239}Pu is a fissile material that can be used as the core of a nuclear weapon.

Quartz fibre electrometer

Dosimeters worn in the pocket like pens and which are read by looking through a lens to observe the position of a quartz fibre against a scale.

Radioactivity

The property of certain radionuclides of spontaneously emitting particles and/or X-ray or gamma ray radiation, or of undergoing spontaneous fission. The rate of decay is specific to a given species of radionuclide and cannot be changed by known physical or chemical processes.

Radionuclide

A radioactive nuclide. See Nuclide, above.

Sievert

The unit of biological absorption of ionising radiation, expressed as “dose equivalent” (see above). A millisievert is one-thousandths of a sievert. NB at the time of the British nuclear tests in Australia the standard measurement of dose equivalence was the rem.

Stochastic effect

An effect such as malignant or hereditary disease for which the probability of an effect occurring, rather than its severity, is regarded as a function of dose without threshold. For example, a radiation dose to the whole body will give to the recipient an increased chance of developing a cancer, but it is not possible to determine who, if any, out of a group of people exposed will get cancer.

Thermonuclear weapon

A nuclear device that relies on raising the temperature of a mixture of deuterium and tritium nuclei to above 10 million degrees Celsius, at which point nuclear fusion reactions occur. This type of weapon is also known as a hydrogen bomb.

Warhead

The explosive head of a bomb.

Yield

The amount of energy generated by a nuclear explosion, usually expressed in kilotons (for fission devices) or megatons (for fusion devices). A kiloton is equivalent to 1,000 tons of TNT and a megaton is equivalent to one million tons of TNT.

Glossary definitions adapted from a variety of sources, in particular the Report of the Royal Commission into British Nuclear Tests in Australia, Vol. 2, pp. II-1 to II-9, J L Symonds A History of British Atomic Tests in Australia pp. 585-593 and the Australian Government Department of Education, Science and Training website www.radioactivewaste.gov.au/Glossary.htm, accessed 6 May 2008.

Appendix C

Acronyms

AAEC	Australian Atomic Energy Commission
AAP	Australian Associated Press
AERE	Atomic Energy Research Establishment, Harwell UK
AIRAC	Australian Ionising Radiation Advisory Council
ANSTO	Australian Nuclear Science and Technology Organisation
ANU	Australian National University
ARL	Australian Radiation Laboratory
ARPANSA	Australian Radiation Protection and Nuclear Safety Authority
ASIO	Australian Security Intelligence Organisation
ASIS	Australian Secret Intelligence Service
ASO	Australian Safeguards Office
AWRE	Atomic Weapons Research Establishment, Aldermaston UK
AWTC	Atomic Weapons Test Committee, Australia
AWTSC	Atomic Weapons Test Safety Committee, Australia
BOM	Board of Management, Maralinga
CRO	Commonwealth Relations Office
CSIR	Council for Scientific and Industrial Research
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWRE	Director of the Atomic Weapons Research Establishment
DPIE	Australian Department of Primary Industries and Energy
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
ISV	<i>in situ</i> vitrification
JIC	Joint Intelligence Committee
LRWE	Long Range Weapons Establishment, Salisbury South Australia
MARTAC	Maralinga Rehabilitation Technical Advisory Committee
MEP	Maralinga Experimental Programme
NPT	Non-Proliferation Treaty
NRPB	National Radiological Protection Board (UK)

RAAF	Royal Australian Air Force
RADSUR	Radiological Survey carried out at Maralinga in 1966
TAG	Technical Assessment Group
UAP	United Australian Press
UPA	United Press Associations
UK	United Kingdom
UKAEA	United Kingdom Atomic Energy Authority
UKMOD	United Kingdom Ministry of Defence
UKMOSS(A)	United Kingdom Ministry of Supply Staff Australia
USDOE	United States Department of Energy
X200	Emu Field site surveyors' code
X300	Maralinga site surveyors' code