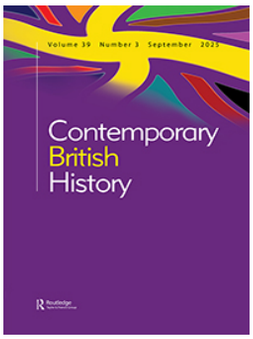

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‘Sacrificed on the altar of progress and science’: early cases of disputed disease among British nuclear test veterans

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ABSTRACT

This article traces the experiences of nine servicemen who served on Christmas Island during Britain’s atmospheric nuclear weapons testing programme. It considers the complex medico-legal challenges faced by the men or their surviving family members in pursuing compensation for their suffering, and details the use of counter-expertise provided by anti-nuclear scientists to prove radiation-induced disease in court cases against the government. In newspaper articles, journalists positioned veterans’ suffering as part of a broader narrative: the risk that nuclear testing posed to public health. Their stories therefore allow us to consider the lived experience of the Cold War for those whose interaction with nuclear weapons was not abstract but very real. This article thus engages with a recent trend in British and Cold War history of amplifying forgotten voices, and forces us to rethink the supposed limited impact that the Cold War had upon British society.

KEYWORDS

Nuclear testing; veterans; radiation; exposure

Introduction

In July 1958, as Britain prepared to undertake its third series of thermonuclear weapons tests at Christmas Island, Mabel Knight of the Royal British Legion expressed her outrage over the death of William Brian Morris, a serviceman who had recently returned from the island. ‘It is a terrifying thought for mothers’, she told the *Western Mail*, ‘if their purpose in life is to bring sons into the world only for them to be guinea pigs to be sacrificed on the altar of progress and science’.[1] Knight’s words represent one of the earliest articulations of a case that would, decades later, underpin a grass-roots campaign by the veterans of Britain’s nuclear testing programme and their families: that the Ministry of Defense (MoD) had failed to safeguard the well-being of servicemen present at the country’s nuclear tests.

Britain conducted a total of 21 atmospheric nuclear weapons tests at sites in Australia and on Christmas and Malden Islands in the Pacific between 1952 and 1958. These tests established the country’s status as a nuclear power, and were heralded as scientific and military successes by the British government. An estimated 21,000 servicemen were present for the tests, and in the years since

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thousands of these veterans have engaged in political campaigns to achieve compensation for their perceived exposure to radiation during the testing series. Despite continued government assurances that servicemen were not exposed to dangerous levels of radiation, veterans have claimed that their time spent at test sites has resulted in an increased risk of various diseases, including cancer, and an increased incidence of birth defects among their children.[2] Successive statistical analyses of veteran mortality and disease conducted by the National Radiological Protection Board (NRPB) have bolstered the government's claims that veterans' health has not been impacted by their presence at the tests, although—notably for this article—the studies did find that servicemen had an increased risk of developing leukaemia in the immediate post-testing years compared to a control group of non-testing servicemen.

In light of veterans' claims, scholars such as Catherine Trundle and Dieter Michel have documented veterans' legal embroilments with the British government. Such studies have overwhelmingly focused only on those health concerns which emerged after the establishment of the British Nuclear Test Veterans Association (BNTVA)—an organisation which would go on to draw considerable public, political and legal interest to the test veteran cause—in the early 1980s, reflecting a misconception that concerns about the health effects of Britain's nuclear testing programme on servicemen only emerged some 20 years after the cessation of atmospheric nuclear testing.[3] Indeed, in their analysis of the NPRB's studies into the mortality and disease incidences of nuclear test veterans, published in the *Journal of Radiological Protection* in 2022, Gerry M Kendall and Mark P Little state that 'the first suggestions of ill health in test participants were in 1970'.[4] Similarly, in a recent House of Commons discussion on nuclear test veterans, Rebecca Long Bailey stated that veterans first raised health concerns in 1983.[5] Both of these claims are incorrect; in fact, servicemen and their families expressed concerns about the impact of testing on their health as early as 1958, while Britain's hydrogen bomb testing operation, Grapple, was still in progress. These early cases reveal the origins of a dispute between the British government and nuclear test veterans which continues to this day, highlighting the complex relationship that exists between veterans and the state. Examining these cases offers an alternative insight into the birth of anti-nuclear politics, revealing how the British press reported and commented upon veterans' cases and linked these to public concerns about atmospheric nuclear testing in the early Cold War.

In order to make these interventions into Cold War history, this article documents the experiences of nine servicemen involved in the first cases of disputed disease between 1958 and 1967. Three of these men—William Brian Morris, Brian Power, and Samuel Duggan—died from leukaemia, and David Franklin died from Aplastic Anaemia. Ismail Griffiths and Donald Scott were afflicted by skin conditions. One serviceman, William Brown, suffered a mental breakdown after witnessing the Grapple 2 detonation and died by suicide in 1964. Derek Redman died while on Christmas Island, diagnosed with acute onset diabetes, but his quick burial at sea foreclosed the possibility of a post-mortem. Brian Marks died from an unspecified organic disease 2 years after returning from Christmas Island. In each of these nine cases, the servicemen or their surviving family members believed that the nuclear tests were the cause of their illnesses, and many attempted to gain recognition and compensation for their suffering through military pensions.

In analysing these cases, this article considers the complex medico-legal challenges faced by servicemen and their surviving family members and details their use of scientific and medical research to prove radiation-induced disease during this early period. It also explores the reasons why the experiences of these early veterans have been forgottenand neglected in recent scholarship on British nuclear testing, and reveals another form of nuclear anxiety in the post-war era. Indeed, although all nine veterans' stories were reported contemporarily in the press, they appeared for the most part in regional and local papers, and gained little traction in the national press. Although a few links were made between some of the cases, the stories were decentralised and dispersed across large geographical areas. When cases were picked up by national papers or larger organisations such as the CND, this coverage positioned veterans as part of a broader narrative: that of the risk that nuclear testing posed to the general public and global health. As Adrian Bingley has argued, in their attempts to cover stories relating to nuclear weapons, newspaper reporters 'sought ways of making it more concrete and specific'.[6] The plight of Britain's test veterans was therefore an obvious and useful narrative device for journalists.

The CND's campaigns focussed on broader nuclear anxieties and their overarching political aim of disarmament. The Royal British Legion supported veterans and their families in pensions disputes, but did not have the expertise or organisation to bring political and public interest, as the BNTVA would two and a half decades later. Test veterans' suffering and pensions claims in this period thus did not gain the traction needed to cement their position within the history of test veteran activism. It is only as a result of access to digitised newspaper archives and recently declassified National Archives material that this article has been able to trace the stories of these nine men and bring their suffering back onto the historical record. We can therefore view nuclear test veteran history as a 'forgotten' history, despite the centrality of the bomb to post-war British politics and culture. Following the example of recent nuclear scholarship in redressing the top-down focus on high politics and eminent individuals, this article instead shines a light upon the ordinary men whose lives became intwined with Britain's nuclear ambitions. By exploring the experiences of these early nuclear test veterans through newspaper articles, this article not only reveals a powerful archive of social history but also engages with a broader trend in British and Cold War history towards rediscovering and amplifying voices which have otherwise gone unheard.[7] As Matthew Grant has argued in his study of voluntary civil defence, there was not a single, universal experience of the Cold War.[8] It is unsurprising, therefore, that the study of its impact upon British society has overwhelmingly focussed upon broader changes in politics, mass media, and culture, without considering the lived experiences of those for whom the dangers of nuclear weapons were not abstract but very real. By examining these cases and considering the way that they were contemporarily reported to the wider public, therefore, this article forces us to rethink the impact of the Cold War on British society more broadly.

Nuclear anxiety

On 14 January 1958, an article appeared in the *Daily Herald* which stated that 'the man who was present when the atom split had developed a split mind'.[9] The man in question

was 23-year-old William 'Bill' Brown, an Able Seaman in the Royal Navy, who had been onboard *HMS Warrior* at the time of the Grapple 2 detonation at Malden Island on 31 May 1957. A few days after the test, Brown was court-martialled for assault, and upon returning home to Sunderland later that year was arrested for breaking windows in a telephone box and local shop. While held on remand at Durham Prison, he assaulted a warder, and shortly thereafter was diagnosed with schizophrenia. Doctors claimed that Brown had 'had a mental breakdown while serving afloat in the Navy', but did not directly link this breakdown to his participation in Operation Grapple. Instead, the prison's senior medical officer wrote that the breakdown had happened while serving 'under tropical conditions', placing the focus on the climate in which he served rather than the nuclear tests he witnessed.[10] Notably, however, Brown's father George asserted that his condition was directly caused by the Grapple 2 test. George Brown challenged the medical officer's diagnosis, telling press outside court in Sunderland that he believed 'the cause of this tragedy' was 'the shock Bill got when the H-bomb went off at Christmas Island'. He stated that the experience had 'given Bill's nerves a bad shaking-up' and claimed '[a]fter the explosion a queer change came over him. He became sullen and secretive'.[11] The *Newcastle Journal* reported that Brown had hallucinations about 'having cancer and unnatural feelings', indicating that the cause of his anxiety was the potential health consequences of his service.[12]

Following his court hearing, Brown was transferred to a psychiatric hospital. In later press interviews, Brown did not comment on his time within this unnamed institution; however, common treatments for schizophrenia at this time include insulin shock therapy, leucotomy, and electroconvulsive therapy.[13] After his release, Brown was awarded a £2. 2s. 6d. a week disability pension from the Navy. The average gross weekly earnings for a man working a full-time manual job in 1959 was £13. 4s., and while serving as an Able Seaman Brown would have earned at least 17s. per day in addition to accommodation and full board.[14] '"I've tramped England looking for a job",' 24-year-old Brown told the *Sunday Mirror* in May 1959, '"but when people ask for references and I have to tell them I was dismissed from the Navy nobody wants me".' This short article, in which Brown states that the Grapple 2 test made him 'a changed man', described him as 'fighting to clear his name'. In response to the article, the Admiralty promised to re-examine the dismissal case, but there are no records of this occurring. In December 1964, 30-year-old Brown gassed himself in his lodgings.[15] The *Newcastle Evening Chronicle* reported that since leaving the Navy, Brown had separated from his wife and spent the last few years 'wander[ing] about from place to place', suggesting that he did not have a steady job or home. His landlord described him as 'moody and depressed' with 'violent' tendencies when he had been drinking. The coroner recorded Brown's death as 'suicide while of a disturbed mind', but made no specific link to his time on Christmas Island.[16] For those most closely connected to the case, however, it seemed clearer than Bill Brown's troubles were directly caused by his service during Operation Grapple, and particularly the events surrounding the detonation of the Grapple 2 device, Purple Granite. That Brown and his father spoke publicly about the effect on Brown's mental health at this time demonstrates their understanding of the situation, and suggests a wider appreciation of the unique nature of the bomb.

To understand the significance of these cases and their place within the history of atmospheric nuclear testing, it is important to explore the history of global fallout fears. At

the time of Brown's breakdown, public concerns about the impact of radioactive fallout from nuclear tests were already high. The events of the United States' disastrous 1954 Castle Bravo shot had shown the world the dangers of atmospheric nuclear testing and served as the turning point in the public's perception of and reception to nuclear testing. Expected to be an 'experimental very high-yield device', BRAVO, the first shot of Operation Castle, a US hydrogen bomb testing programme in the Marshall Islands, was 250% more explosive than anticipated, detonating with a yield of 15 million tonnes of TNT.[17] The fallout cloud spread across 100 miles and radioactive debris rained down across the Pacific Ocean, exposing a Japanese fishing crew to high levels of radiation. In Britain, the *Shields Daily News* reported on 'white 'death ashes' carried back to Japan on the fishing vessel 'Fukuryu Maru'', while the *Liverpool Echo* wrote that '[o]ne badly injured member of the crew is in hospital as a serious case of atomic disease'.[18] When this crewmember, Aikichi Kuboyama, died in September 1954, the British media immediately reported the story. The *Daily Mirror* named Kuboyama 'the first man killed by an H-bomb', under the dramatic headline 'The H-Bomb Makes its First Kill'.[19] Later that year, in December, mathematician and philosopher Bertrand Russell made a grave speech on BBC radio in which he questioned whether humanity was 'so destitute of wisdom, so incapable of impartial love, so blind even to the simplest dictates of self-preservation' that they would cause 'the extermination of all life on our planet?'[20] This dialogue bled down to the British public as a result of continued media coverage. Indeed, reports on conferences discussing radiation hazards remained in the mainstream media throughout 1954 and into 1955. In August 1955, for example, the *Birmingham Daily Post* reported on a press conference in Denmark where geneticist Professor Tage Kemp warned that 'any increase in radiation would cause an increase in the mutation rate, and genetic changes in man and animals'.[21]

By 1958, when Bill Brown returned from Christmas Island; therefore, the British public was aware of the risks associated with nuclear fallout. Brown and his family had lived through continued concern around the consequences of atmospheric nuclear testing, and their anxiety was in part a result of this press coverage. As Jonathan Hogg has argued, representations within the public press during the post-war era captured broader popular assumptions, anxieties and attitudes towards nuclear technology, particularly negative ones.[22] National and local press interest in Brown's death thus reveals a general awareness of servicemen's experiences during Operation Grapple, which played into contemporary fears about the widespread consequences of continued atmospheric nuclear testing.[23] The nature of reporting on Brown's death also reveals how discourse on nuclear testing was presented to the public, and suggests that the press presented broader concerns about the Cold War and nuclear testing within reports of an individual who had a visceral connection with the bomb. For Brown, the bomb and the Cold War were neither imaginary nor obscure but very real.

Something to hide

Significantly, Bill Brown's anxiety about the health consequences of his service were not unique. In May 1958, a few months after Brown's admittance into a psychiatric hospital in Durham, the *Daily Herald* ran another story concerning a second Christmas island serviceman. Derek Redman, a Lance-Corporal in the Royal Engineers, had died while stationed at

the testing site, prompting his mother, Ellen, to call for an investigation. Redman's death was recorded by the Army as the result of a diabetic coma and he was buried at sea within 4 hours. Just as George Brown had stated that his son had been in good health before witnessing the Grapple 2 test, Ellen Redman stressed that Derek had been 'perfectly fit' when he left England. She expressed her concern that 'there was some sort of accident or the H-bomb tests affected him' and questioned his burial, asking 'why did they bury him so quickly and at sea?'. She continued: 'Its looks like they had something to hide. I am sure we haven't been told everything'.[24]

Redman was the first British nuclear test serviceman whose death was publicly questioned in the House of Commons. In early June, his parents appealed to William Teeling, Member of Parliament (MP) for Brighton Pavilion, to push the case forward in the House of Commons. In response to Teeling's question, Under Secretary of State for War Julian Amery told the House that Redman had died of 'sudden onset' diabetes, cases of which 'while comparatively rare' were not 'unknown'. He emphasised that Redman's work on Christmas Island 'was not directly connected with the nuclear test explosions' and reassured the House that there was 'no medical connection whatsoever between this soldier's death and the nuclear test explosions'.[25]

Redman's parents remained unconvinced. Like Bill Brown's father, their conviction that their son's illness was related to his service reveals a knowledge of the effects of radiation exposure. As Jodi Burkett has argued, public concern in Britain about the health consequences of continued atmospheric nuclear testing was increasing throughout the late 1950s, including fears of the proliferation of cases of leukaemia.[26] Two weeks before the *Daily Herald* reported the death of Derek Redman, for example, the *Sunday Mirror* published an article by British physicist Professor Cecil Powell, who wrote that 'nuclear test explosions already conducted will lead to the deaths of 100,000 persons from leukaemia'.[27] Without their son's body, however, there was no possibility of a post-mortem. Teeling tabled two further questions in the House of Commons, but they were not answered, and on 19 June the *West Sussex Gazette* reported that the 'disturbing circumstances' surrounding Redman's death had been explained by Amery's statement, seemingly drawing a line under the investigation.[28] No further articles covered Redman's death, nor are there any additional recorded questions in the House of Commons. Redman's parents were left to mourn their son, still 'not satisfied with the War Office account'.[29] For the British public, fears expressed within press coverage of Redman's death centred around their own safety from the consequences of nuclear testing. Viewed in the context of other articles published at the time, such as the warnings from Cecil Powell, coverage of Redman's death reflected a broader trend in reporting of the widespread risks of nuclear testing. We can therefore see how the experiences of these servicemen were framed by the press as part of this broader and continuing series on nuclear testing.

Two days before the last article on Redman's death was published, the *Daily Telegraph* reported the death of another Operation Grapple serviceman, 20-year-old Royal Engineer William Brian Morris. Morris had died from leukaemia which his parents—and the Royal British Legion—claimed was a 'direct result of taking part in the atom bomb test'.[30] The *Guardian* reported that Morris had felt the effects of the flash and had described experiencing a 'general warmth of the body' during the detonation of Grapple X on 8 November 1957.[31] Shortly after his death, Morris's family applied for a military pension,

which was immediately rejected. The Royal British Legion agreed to support the family through an appeals process, and requested a post-mortem to confirm the cause of death. The Legion stated that they were pursuing the case on two points. First, to 'establish a basic claim for a pension' which could in future be applied to all servicemen who contracted leukaemia 'in this way', and secondly to obtain a military pension for Morris's parents, though this money, they admitted, was 'small' and consisted only of a military pension from the time of Morris's discharge to the date of his death. The Legion and Morris's family fought primarily for 'a principle', suggesting that they expected further cases to arise as a result of servicemen's involvement in Britain's nuclear testing programme.[32]

The details of Morris's illness are recorded in his Army Medical History and reveal a rapid health decline followed by hospitalisation and death. In January 1958, Morris was admitted to the RAF hospital on Christmas Island after complaining of a 'rash under chin with swollen glands [. . .] sore throat and abdominal discomfort'.[33] Blood tests taken at the hospital revealed an abnormally high white blood cell count and Morris was immediately repatriated back to Britain via the United States. Although steroid treatment provided some relief from his symptoms, within 6 months of returning home his condition deteriorated, and on 13 June 1958 he died in Morriston Hospital, Swansea, near his family home.

William Morris's death was the first that could be investigated through a post-mortem, and press coverage of the inquest focussed heavily on the details of evidence presented by his family, supported by the Royal British Legion, and the British government. Two pathologists—Dr Owen Glyn Williams, from Swansea Hospital, and Dr H C M Walton, representing the Royal British Legion—examined the case and prepared reports for the coroner. The medical submission on behalf of Morris's family was led by Colonel George Sidney Norman Hughes, a senior officer of the Army Medical Reserve, while General Practitioners Dr G A Anderson and Dr T H Anderson also presented evidence. Colonel Hughes had been the first British officer to arrive in Hiroshima, Japan, following the United States' use of an atomic bomb against the city in August 1945. While there, Hughes commanded the 92nd Combined General Hospital, oversaw the reconstruction of the Japanese Naval Hospital at Kure, and witnessed the treatment of many bomb victims. This, the British Legion stated, had allowed Hughes to 'make a close study of the effects of radiation on human beings'. Speaking to the press, Hughes explained his interest in the case:

> The cause of leukaemia is entirely unknown with the exception of radiation in human beings. Radiation is the only certain hazard. When you [. . .] recall that the onetime employee of this country, Dr Fuchs, said no one could live through an atomic cloud – and the Air Force doctors have proved him wrong – you can understand that Service doctors and ex-Service doctors consider a matter of this sort should be investigated to the very last degree.[34]

This statement not only highlights Morris's family's anxiety—that their son's disease was caused by exposure to radiation—but also once again speaks to broader concerns about exposure to atomic fallout, and the need to investigate the health effects of this exposure. Hughes also drew a distinction between the views of the British government, who asserted during the inquest that Morris's death was entirely unrelated to his service, and his own view and that of the British Legion and Morris's family, highlighting the

keen disparity in medical opinion on such matters. In contrast to Hughes' statements, Swansea pathologist Dr Owen Williams stated that there was 'no connection' between Morris's time on Christmas Island and his leukaemia, and Lieutenant-Colonel Robert Maxwell Johnston, also of the Royal Army Medical Corps, stated that Morris's case would represent the shortest latency period for radiation-induced leukaemia on record. He added that he was unaware of any case of leukaemia similar to the type suffered by Morris being recorded as attributable to radiation exposure.[35] After considering the evidence presented by witnesses, including a statement from Morris's commanding officer who told the inquest that 'as far as I know, none of my men handled radio-active material', the jury returned a verdict of death by natural causes.[36] Despite this, Morris's family and the Royal British Legion asserted their continued determination to 'fight on' with an appeal to the Pension's Tribunal, intending to continue gathering evidence to support their case in advance of the hearing.[37]

Guinea pigs?

In the aftermath of the inquest into Morris's death, the Legion reported that they had received nine letters from across the country about the case, highlighting its presence in the British press and the impact that this had upon the public. 'Most [letters] were from mothers who are anxious about their sons', W. F. Francis of the Swansea branch told the *Western Mail*.[38] This highlights a key factor in considering the position of the men involved in these cases. Those sent to Christmas Island were primarily national servicemen, conscripted into the Army, Navy and Royal Air Force in their late teens and early twenties. Of the nine cases examined in this article, the average age is 24. The statement made by Mabel Knight from the women's section of the Royal British Legion, referenced in the title and first section of this article, also shows how this shaped discussions of Morris's case and subsequent ones.[39] These are young men whose families were left grieving a child, and the press coverage and Knight's statement demonstrates this. This is also reflective of a general trend to focus upon the risk atmospheric nuclear testing posed to children in particular, partly as a result of children's vulnerability to radioactive isotopes settling in growing bones, but also as a result of the cultural and political context of the post-war baby boom, as Jeffrey Sanders has explored.[40]

Framing Morris and other servicemen primarily as sons, Knight foregrounds mothers, which is reflective of the role taken by the mothers of William Morris, Derek Redman, and Brian Marks in the political and legal disputes that followed their sons' deaths. In the cases of Brian Power and Samuel Duggan, it was their wives who bear this responsibility. In both cases, this is indicative of women's position within the history of disabled veterans' movements as carers and, in the case of test veterans, activists.[41]

Knight's comment also represents one of the earliest uses of the term 'guinea pig' in reference to British nuclear test veterans. It is a phrase and belief that has since become commonly used and held by British nuclear test veterans within their public activism. Recently, nuclear test veteran descendants Alan Owen and Susan Musslewhite set up a new organisation aimed at increasing public knowledge of the nuclear tests and their legacy. The organisation, which was established in 2020, is called LABRATS, which stands of Legacy of the Atomic Bomb, Recognition for Atomic Test Survivors, explicitly suggesting that survivors were used as test subjects. In Knight's statement, therefore, we can see

the earliest threads of veteran activism which have directly shaped its modern incarnations.

Over the second half of 1958, more cases of veteran suffering were revealed by the press, and articles began to link the cases to each other. In July, the *Birmingham Daily Post* wrote about serviceman Donald Scott, who had developed an 'organic disease' following his service on Christmas Island. Scott made his opinion about the cause of his suffering clear, stating, '"I feel that the tests must bear some relationship with my illness"'.[42] The article stated that William Morris 'was known' to Scott on Christmas Island, and it is clear that Morris's death had an impact on Scott. 'I suffer severe depressions', Scott explained to reporters.[43] Later, in July, the paper also reported on Birmingham-born national serviceman Ismaili Griffiths, who, in the months following his time on Christmas Island, developed a skin disease. The article stated that there were 'two other cases' of servicemen suffering ill health following service on Christmas Island, and named Morris and Scott.[44] The creation here of an interconnected web of servicemen with shared experiences gave individual claims more validity and boosted political and public interest in the stories. It also speaks to a growing animosity between servicemen and the government, and a moment of particular anxiety among the British public in the second half of 1958 as a result of media reports that rainfall in Wales was highly concentrated with Strontium-90.[45] When Birmingham MP Denis Howell, who had been dealing with Griffiths' compensation claim, was made aware of the suffering of other veterans, he attempted to launch an inquiry into the accusations, seeking 'further information of how many of these National Servicemen were injured, and in what circumstances'.[46] In mid-July, Howell met with Charles Orr-Ewing, the Under-Secretary of Air. Few details of the discussion between the two men are available, but the *Birmingham Daily Post* reported that Howell was provided with 'full information' on health checks carried out on servicemen and civilians on Christmas Island and left the meeting 'reasonably satisfied' that radiation was not the cause of Griffiths', Morris's, or Redman's illnesses.[47]

The public and press remained unconvinced, however. Four separate articles about nuclear test veterans appeared in British newspapers over the course of July, and at the end of the month the War Office was forced to issue a public statement decrying recent claims that servicemen had been used as guinea pigs as 'absolutely fantastic [. . .] without any foundation in fact'.[48] In response, the British Legion accused the government of cowardice and suggested they were 'hiding behind the confusion of medical opinion'.[49] These early disputes between test veterans and the War Office offer an alternative insight into the birth of anti-nuclear politics at this time, intersecting with the emergence of the Campaign for Nuclear Disarmament (CND) as an activist group in the same period. Although anxiety surrounding the effects of fallout were largely seen by the CND—and the British public—as 'a concern for other parts of the world', testing servicemen's suffering brought these anxieties home.[50]

The CND's Ealing branch picked up the story of 29-year-old Christmas Island serviceman David Franklin, whose death in 1958 from aplastic anaemia led to an official inquest. The branch's press officer, Sheila Holford, commented that '[t]he inquest [. . .] reveals once again the ignorance of both the medical and scientific experts regarding the effects of radiation'.[51] Holford here highlights the complexities of radiation-induced illness and identifies this issue as a key cause of the eroding trust between testing servicemen and the government. She also links the failure of scientists on each side to concur on the

health hazards of radiation with a broader anxiety about the ultimate health consequences of continued nuclear testing. Indeed, contradicting medical opinion played a prominent role in investigations. Immediately following the Lieutenant's death, the Admiralty issued a statement, which read:

> From all information available there are no grounds for considering the fact that Lieut D. C. Franklin was serving in the Christmas Island area last year had any bearing whatsoever on the causation of the illness from which he died.[52]

This statement came just 2 days after Franklin's death and it is unclear what investigations the Admiralty had made into his illness within this 48-hour period. An official from Haslar hospital told the press that the hospital 'had been told to say nothing about the matter', and naval authorities recorded the death as a result of natural causes.[53] It was only when the Coroner for South-East Hampshire, R. N. Sherwell, called for an inquest into the lieutenant's death—after reading reports on the matter and receiving telephone calls from the press—that the Navy sent blood and bone samples to the AERE at Harwell to be analysed.[54] As with William Morris's bone analysis, the results showed that the amount of strontium 90 present in Franklin's bone marrow was 0.05 units, at the lower end of the normal range, but the inquest jury returned an open verdict, indicating that it could not rule out radiation exposure as a cause of death. The representative for Franklin's family, J. F. Glanville, referred to William Morris's case, and asked Surgeon Captain John Holford of Haslar Naval hospital whether it was 'just a coincidence' that the two men had both died of blood diseases following service at Christmas Island. Holford stated that it was 'not unreasonable to expect someone to die of [leukaemia] in the ordinary course of things', but admitted that external and internal radiation was known to cause aplastic anaemia, once again illustrating the inherent complexity of assigning causation to potential radiation-induced diseases, and the anxiety that this was apt to cause among service personnel and their families.[55]

This interest continued as the year ended, spurred on by involvement from the Royal British Legion, whose Swansea branch representative, W. Francis, made a general statement on 5 November in which he called for the government to admit liability 'for disablement or death of military personnel serving in an atom-bomb [sic] testing area'.[56] Francis referenced the deaths of David Franklin and William Morris, whose pension hearing was upcoming. Notably, Francis stated that if Britain's atmospheric nuclear testing programme continued, the British Legion would 'want to know if the Government will be prepared to accept liability in respect of the civilian population as well'.[57] This statement came in light of media reports of dangerously high concentrations of strontium-90 on Welsh farmland due to its heavy rainfall, a claim which was later refuted by the government and the AERE.[58] Francis thus suggested a link between the health of nuclear test veterans and more widespread public fallout hazards; indeed, public concern about nuclear fallout increased during the late 1950s due to the continuation of atmospheric nuclear testing.[59]

Reporting on Franklin's death and inquest was relatively widespread, and articles appeared in local and national newspapers, including the *Hampshire Telegraph*, the *Daily Mirror*, and the *Belfast Telegraph*.[60] Clearly, the inquests into the deaths of nuclear testing servicemen played into wider concerns about global nuclear fallout among the public in the late 1950s and 1960s, and it is unsurprising that the CND and the press

capitalised on these fears, and on servicemen's disputes with the government to further their own anti-testing cause. But this interest also speaks of the way that these cases have since been forgotten. Their entwinement with broader concerns about the health effects of nuclear fallout meant that nuclear test veterans' reporting was dependent upon these broader debates, and as these concerns waned following the cessation of British atmospheric nuclear testing, so too did the memory of these early test veterans. Francis's statement in November 1958 was indicative of the high-point of public interest in both the fallout debate and nuclear testing servicemen at this time. Indeed, between June and November of 1958, 37 articles about nuclear testing servicemen appeared in the British press, the highest of any period.[61]

The testing moratorium

Following this relative high, however, interest and reporting on servicemen declined hugely. With the introduction of a testing moratorium at the end of October 1958, Britain, the United States, and the Soviet Union temporarily ceased their respective atmospheric nuclear testing programmes. Undoubtedly, this impacted press interest in such stories and no articles were published on nuclear testing servicemen for the first 3 months of 1959, with only five published over the course of the entire year. The silence was also partly a result of a lack of events to report on: William Morris's hearing was postponed from October until December 1959 as experts studied 'radiation reports from all over the world' on behalf of the Legion, then again postponed for a further year.[62] No other servicemen or families came forward with concerns about radiation-induced illness during this time and, as a result, the licking flames of a building scandal that emerged in the second half of 1958 had died down considerably by the end of the following year.

The lack of interest over this period is exemplified by the case of Brian Marks, whose death from an unspecified illness at the end of 1960 following service on Christmas Island prompted his mother, Rachel Marks, to write to the War Minister asking for an investigation into his death. Marks explained that her son had witnessed hydrogen bomb detonations, and that although he had been 'in a so-called safety zone some miles away', he had described seeing 'a 10-ton generator [. . .] blown upside down and three-inch tent poles [. . .] snapped in two'. Marks' father, Sidney, added that the hospital where his son had died had refused to tell the couple 'anything' about his death.[63] Despite the clear similarities between the case and those of other servicemen who had died over the previous 2 years, interest in Marks' story was limited to a single article published in *The Daily Herald* in January 1961. No investigation was ever launched into his death and no link was made between his death and the similar deaths of other servicemen.

The testing moratorium lasted for almost 3 years, until late 1961, when the Soviet Union and the United States both resumed atmospheric nuclear testing after a breakdown in relations following the Berlin crisis. Renewed press interest in nuclear matters followed, and at the end of the year, when William Morris's family attended a Pension Appeal Tribunal, there was considerable regional and national interest in the case. The final hearing in William Morris's Pension Tribunal case, which took place in December 1961, involved 'a sharp conflict in the medical evidence'.[64] On behalf of the Morrises, opinions were provided by Dr A F S Sladden, Dr Antionette Pirie and Dr G F Taylor, while the Ministry of

Pensions' position was supported by Professor B W Windeyer, three members of the Ministry's Medical Services Division, and Dr C W A Emery.[65] The Ministry presented a letter written by the War Office in September 1959 which stated that air sampling and monitoring had been continuous at Christmas Island since April 1957, and that during that time 'no fall-out has been recorded'.[66] Professor Windeyer further argued that the time between Morris's supposed exposure in November 1957 and his diagnosis with leukaemia 2 months later was far shorter than any latency periods recorded among the victims of the Hiroshima and Nagasaki bombings.[67] Finally, in defending their position, the Ministry had Morris's right femur analysed at the Atomic Energy Research Establishment (AERE) at Harwell. It found 0.15 strontium units in the bone substance, which, they argued, was well within a normal range.[68]

Drs Taylor, Pirie and Sladden, representing the British Legion and Morris's family, argued that it was not possible to rule out radiation exposure from the Christmas Island nuclear tests as the cause of Morris's leukaemia.[69] In light of this, Sladden argued, 'a decision in favour of the claimant would be justifiable'.[70] Pirie, who was an impassioned supporter of CND in this period and became an expert on fallout risks, editing a book, *Fallout*, which brought together nine scientists to discuss the dangers of continued atmospheric nuclear testing, agreed with this judgement.[71] 'It seems to me', she wrote, 'impossible to be completely satisfied that the Nuclear Explosions on Christmas Island, whether before or after the arrival there of the deceased are causally unrelated to his death'.[72] Peter Ripman, counsel for the serviceman's family, presented evidence gathered by the British Legion which rebutted Windeyer's claims the latency period was too short; Ripman stated that as the atomic test Morris had witnessed at Christmas Island was in the megaton range, data collected from Hiroshima and Nagasaki were insufficient in comparison to the case. Furthermore, Ripman continued, statistics taken from Nagasaki and Hiroshima in the aftermath of the bombings 'could not possibly be reliable', due to the 'chaos' which followed the August attacks. Additionally, investigation by medical and scientific experts had revealed that there was in fact no basis in the argument that 7–8 weeks was too small a period for Morris to have developed leukaemia from radiation exposure.[73] Ripman finished his statement by commenting that 'views which could have been held in 1956–59 may be quite untenable to-day [sic]', highlighting the rapidly evolving nature of radiation science and health physics at this time.[74]

Despite these testimonies, the tribunal ultimately upheld the Ministry's previous pension denial, concluding that it had, beyond all reasonable doubt, established that:

> Sapper Morris was not exposed either to prompt radiation in the form of gamma rays or neutrons, or to radiation fallout, as a result of his service on Christmas Island, in excess of that which he would have received during the same period as a civilian in Britain.[75]

In attempting to win their case, the Morrises approached and worked with outside organisations, such as the Royal British Legion, and individual scientists and medical professionals. Within the evidence presented to the inquest, we therefore see the mobilisation of expert opinion by Morris's family which in many ways anticipated the growth of counter-expertise and its use by anti-nuclear movements. That the British government also collaborated and drew upon the knowledge of scientists and doctors to counter the Morrises' position highlights the inherent complexities associated with establishing

causation in radiation-induced illnesses. As Bruno Strasser has argued, in many cases anti-nuclear activism often became a personal contest between scientists and the state, and was frequently centred not just around opposing the nuclear industry, but also about opposing the state more broadly.[76] Indeed, in positioning the state as responsible for the death of William Morris, his family drew upon counter-expertise—in this case anti-nuclear scientists such as Antoinette Pirie—in order to fight a legal case against the government.

After the closure of William Morris's pension tribunal in December 1961, 2 years passed before nuclear test veterans were reported on again. In May 1963, as negotiations between Britain, the United States, and the Soviet Union for a treaty banning atmospheric nuclear testing reached a climax, a group of Labour MPs called for medical checks on all men present at Christmas Island during the nuclear tests. This was in response to the death of 29-year-old ex-serviceman Brian Power, who, like William Morris and David Franklin, had served on Christmas Island and subsequently died from leukaemia. Bernard Wilkinson, the investigating Coroner, stated at the time that he was unable to record a verdict of death from natural causes and instead listed the cause of death as 'leukaemia with insufficient evidence to establish the cause'.[77]

In light of the news, Labour MP Marcus Lipton expressed his 'surprise' that 'everyone on the island has not had regular medical checks'. Denis Howell, MP for Small Heath, Birmingham, who had raised concerns in the House of Commons over the treatment of ex-serviceman Ismail Griffiths in 1958, stated in response to Power's death that the answer he had received then was, in fact, not 'very encouraging' – directly contradicting his previous statements on the matter—and that he would 'reopen the thing and put a question down' to call for 'a much more intensive medical inquiry'.[78] There is no record of such a question being put to the House of Commons at this time, either by Howell or another MP. With the signing of the Limited Test Ban Treaty in August of 1963, press and public interest in matters of nuclear testing again waned, and the government was able to avoid an official inquiry. The simmering scandal once again subsided, and it was not until 1967 that Brian Power's widow, Gun Ingalill Power, was able to appeal for a widow's pension.

The case followed the precedent set by William Morris's tribunal, with Power's family represented by counsel appointed by the British Legion. Evidence was heard from a variety of authorities, including pathologists and medical specialists. The Ministry of Pensions called upon Noah Pearce, the head of the Medical Research Council's radiation measurement and instrumentation unit, as a witness. Pearce told the tribunal that the nuclear test Brian Power had witnessed in June 1957 produced 'no local fallout', and therefore the Sergeant was not exposed to any significant radiation which could have led to his death. On the opposing side, Dr Antoinette Pirie again submitted written evidence, in which she stated that it was 'probable' there was a connection between Power's service on Christmas Island and his later death from leukaemia.[79] Pirie, who was still at this time a 'passionate supporter' of the CND, wrote that the incidence of blood diseases in four Christmas Island servicemen was 'beyond the statistical expectation', once again illustrating the use of counter-expertise among anti-nuclear campaigners.[80] Pirie went on to reference the death of 29-year-old Samuel Duggan, who had also served Christmas Island before dying of leukaemia in 1964. His widow, Patricia Duggan, had contacted her MP, Prime Minister Harold Wilson, asking for an inquiry into Samuel's illness and death. Wilson promised to investigate, and asked the Army to conduct an inquiry.

A spokesman for the Army Department of the Ministry of Defence confirmed that Wilson had 'asked the Ministry to conduct an inquiry into Mr Duggans' [sic] death' but stated that the Ministry did not 'know how long the inquiry will take' or 'its form'.[81] There is no record of any such inquiry taking place. Anne Taylor, reporting for *The Observer*, commented at this time that the MoD did not have any other recorded cases of leukaemia 'connected' with Christmas Island, although the Minister of Defence for the Royal Navy, Christopher Mayhew, admitted that three Christmas Island servicemen had contracted leukaemia since 1957.[82] Taylor also stated that the MoD's supervision of servicemen ended upon their discharge, confirming that Denis Howell's calls for a comprehensive medical inquiry in 1963 had not been heeded.

Nuclear age victims

Just like those before her, Gun Ingalill Power's appeal failed, and she was not granted a widow's pension in the aftermath of her husband's death. The outcome of the trial was not reported in the press until a November 1969 article in the *Sunday Times*, however, highlighting the waning interest in such stories and their continued tie to broader nuclear anxiety. Indeed, the 1969 article, entitled 'No help for nuclear age victims', focussed not on nuclear test veterans but on the story of maintenance fitter Donald McDonald, who claimed to have been exposed to radioactive plutonium while working at an UK Atomic Energy Agency (UKAEA) reactor at Dounreay in Caithness in 1962. Press coverage of McDonald's illness is indicative of a broader move away from concerns about atmospheric nuclear testing—after the passage of the Partial Nuclear Test Ban Treaty in 1963 – towards anxiety surrounding civil uses of nuclear energy. As Jonathan Hogg has argued, therefore, in this period reporting around issues of nuclear weapons fell, but matters relating to nuclear power remained popular topics of discussion within the press and public sphere.

Donald McDonald was diagnosed with acute lymphoblastic leukaemia in September 1968, which he argued was caused by radiation exposure received in his job at the Dounreay reactor. The UKAEA rejected his claims for compensation, and the article reported on McDonald's 'tooth and nail' fight for 'some charity [from the UKAEA]'.[83] Comparing McDonald's experience to that of Bernard Clarke, another maintenance fitter who died of leukaemia after exposure at the Windscale Atomic Plant, and whose unnamed widow was awarded £4,500 in compensation from the UKAEA, the article also briefly addressed so-called 'less lucky' Brian Power:

> At [Power's] inquest, the coroner refused to record death from natural causes. There was no doubt, he said, what had caused the disease. Yet the widow was unable to obtain a pension on the grounds that her husband's death had been a result of army service.[84]

The precise date of the pension tribunal's decision not to grant Gun Ingallil a widow's pension is unclear; therefore, but the certainty that it was rejected once again illustrates the government's steadfast resolve to fight against claims from nuclear test veterans and their families in the late 1960s despite the use of counter-expertise to support these cases. The absence of the tribunal's outcome within the British press at the time illustrates the lack of interest among the press and public in this period. This suggests the beginning of a movement in the public consciousness away from concerns about atmospheric nuclear testing, which had stopped in 1963, and towards concerns about the safety of nuclear

energy, which, as many environmental historians have noted, emerged in the 1970s.[85] The articles on Clarke's case also highlight differences between the UKAEA's treatment of its workers and the British government's treatment of nuclear test veterans, with servicemen emerging as second-class citizens in comparison to UKAEA workers.

Clarke first became ill with myeloid leukaemia in 1956. He had worked at the atomic pile at Windscale for 3 years between February 1953 until February 1956, and after his diagnosis he began High Court action against the UKAEA, claiming that his disease was caused by radiation exposure. Clarke was still awaiting a hearing date when he died in December 1960.[86] An inquest into his death in January of 1961 returned an open verdict —the same verdict returned for David Franklin. As at Franklin's inquest, the pathologist was unable to determine the precise cause of Clarke's leukaemia, and, as occurred with both Franklin and serviceman William Morris, bone samples from Clarke's femur were tested for deposit of radioactive material. Nothing out of the ordinary was found. The open verdict spurred Clarke's family to continue their claim against the UKAEA. In November 1961, a High Court Master gave Clarke's unnamed widow permission to continue action, and the hearing began shortly thereafter in the Queen's Bench Division.[87] Despite initially fighting against the Clarke family, in March 1962 the UKAEA agreed to pay a £4,000 out-of-court settlement to Mrs Clarke. This payment did not represent an acceptance of liability on the part of the Agency, who continued to deny that Clarke's leukaemia was a result of his work at Windscale. What it did represent, however, was an appreciation by the UKAEA that the difficulty in proving the cause of Clarke's death could cause considerable mental and emotional distress for Clarke's family. Following the case, Clarke's medical advisers stated that:

> The complexity of the medical issues involved is such that the burden of legal proof on either side would be very heavy. The Atomic Energy Authority, therefore, without making any admission of liability, suggested that it might be in the interests of both parties to see if it were possible to settle the matter.[88]

The burden of legal proof for the cases involving nuclear testing servicemen in this period would have been equally heavy, yet the Ministry of Pensions and the government did not offer settlements for these men or their families. Notably, where workers like Bernard Clarke could take direct legal action against the UKAEA, nuclear testing servicemen were prevented from making claims against the government by Section 10 of the 1947 Crown Proceedings Act, and were therefore limited to claiming military pensions.[89] Where pensions were refused, nuclear test veterans and their families had to appeal in pension tribunals. Within these tribunals, as in other facets of UK law, the burden of proof fell upon the appellant to prove that their disability or injury was a result of military service.[90] While MPs were still debating the Pensions Appeal Tribunal Bill in the House of Commons in 1943, there was a recognition of the potential consequences of the onus of proof laying with the appellant, and opposition to it. That year, Reginald Manningham-Buller, MP for Daventry, commented that:

> The State has access to doctors everywhere. But how is the widow of a man who died while serving in the Middle East to call evidence as to what was the cause of the death of her husband in that country? How is she to produce evidence to show that his death was attributable to his service? The onus is the wrong way round, and I hope the Minister will consider making an alteration.[91]

Manningham-Buller's statement made some 25 years before the families of servicemen like William Morris would face the Pensions Tribunal process, captures the difficulties that have faced these individuals, while also highlighting the importance of outside authorities such as scientists and medical professionals to the test veteran cause. As a result of early denial and refusal to investigate or give compensation to test veterans who became ill during the 1950s and 1960s, the Ministry of Pensions, unlike the UKAEA, were unwilling to settle out of court. The Crown, and by extension the government, had protection from direct legal action by test veterans and their families through Section 10 of the Crown Proceedings Act, although it is worth noting here that even after its repeal in 1987 as a result of action by the BNTVA, test veterans have struggled to obtain compensation for perceived radiation-induced illness, as the repeal was not made retrospective.

Conclusion

Operation Grapple was the largest British military operation since D-Day, and its legacy continues to shape the lives of veterans and their descendants. The British government has continually denied that any servicemen were exposed to dangerous levels of radiation, and successive health studies by the NRPB have, the government claims, supported this view. However, examining this data closely reveals that in the immediate post-testing years, nuclear test veterans did experience higher rates of leukaemia than a comparative control group.[92] The authors of the study have suggested that this is a result of an anomaly within the control group, an argument which has been criticised by other scientists and researchers, including Dr Richard Lawson, who claims this approach 'calls into question the whole point of having a control group'.[93] The cases explored in this article occurred some two decades before the emergence of dedicated organisations founded to support nuclear test veterans and almost three decades before any independent research into veterans' health outcomes. That they were reported on contemporarily speaks to broader concerns about the impact of atmospheric nuclear testing on public health present in the press during the early Cold War. In this way, these nine case studies reveal an ongoing anxiety about atmospheric nuclear testing which allows us to rethink the impact of the Cold War—which is often portrayed as something that remained abstract and imaginary to ordinary citizens—on British society.

Indeed, the stories of these nine men and their suffering reveal early incidences of disputed radiation-induced illness among Britain's nuclear test veterans. Their battles for compensation and the reporting of this within local—and occasionally national—newspapers therefore highlights an era of nuclear anxiety as atmospheric nuclear tests raised global levels of Strontium 90 and other radionuclides. For the British public, as well as anti-nuclear campaigners, the experiences of these men brought this nuclear anxiety home in a very visceral way. Despite this, however, the growing scandal that began to build around these men in this period failed to turn into genuine political or legal action. It was only with the establishment of the BNTVA in 1983 that the plight of nuclear test veterans became nationally acknowledged in its own right, rather than as part of these broader nuclear fears.

Since 1983, the British nuclear test veteran community has undertaken continued political and legal action against the British government. Their efforts led to the repeal of Section 10 of the Crown Proceedings Act and the creation of a community of nuclear

test veterans who have found solidarity and support within the organisation. In the late 1950s into the 1960s, such a network did not exist due to the relative rarity of radiation-induced illness among servicemen and the dispersed nature of the few cases that did occur.

It is likely that the dispute between the government, scientists, and Britain's nuclear test veterans will continue for many years to come, with the continued use of scientific data and statistical analyses of the health of veterans and their descendants. In light of this, then, this article has revealed some of the individual and personal stories at the heart of such data. In doing so, it has proposed an alternative insight into nuclear anxiety in the post-war era and has offered us new ways of considering the impact of the Cold War on British society through the study of individual experience.

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