

**Atoms for Annan: The Chapelcross Works Nuclear  
Station, Technopolitics, and British Nuclear Culture  
in the Dumfriesshire region of Scotland between  
1955-1979**

by  
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# Approval

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## **Abstract**

This thesis examines the history of the Chapelcross Works nuclear station and the local, regional, and national politics around the plant from 1955 to 1979. It looks outward from the plant's history to view the convergence of technopolitics and nuclear culture in Scotland during the Cold War. The thesis argues that the problem of autonomy from versus integration within the British Nuclear State often shaped how Scottish institutions, civil society groups, and individuals dealt with Chapelcross station and crafted strategies around their differing agendas. It also shows how some people in Dumfriesshire challenged official UK nuclear policy and official narratives.

**Keywords:** Scotland; technopolitics; nuclear culture; Cold War; nuclear policy; anti—nuclear activism

*For my parents, wife and sons*

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## List of Acronyms

AWE	Atomic Weapons Establishment
AERE	Atomic Energy Research Establishment
BNFL	British Nuclear Fuel Limited
CDC	Civil Defence Corps
CND	Campaign for Nuclear Disarmament
DG	Dumfries and Galloway
DHS	Department of Health for Scotland
SCND	Scottish Campaign for Nuclear Disarmament
SO	Scottish Office
UK	United Kingdom
UKAEA	United Kingdom Atomic Energy Authority

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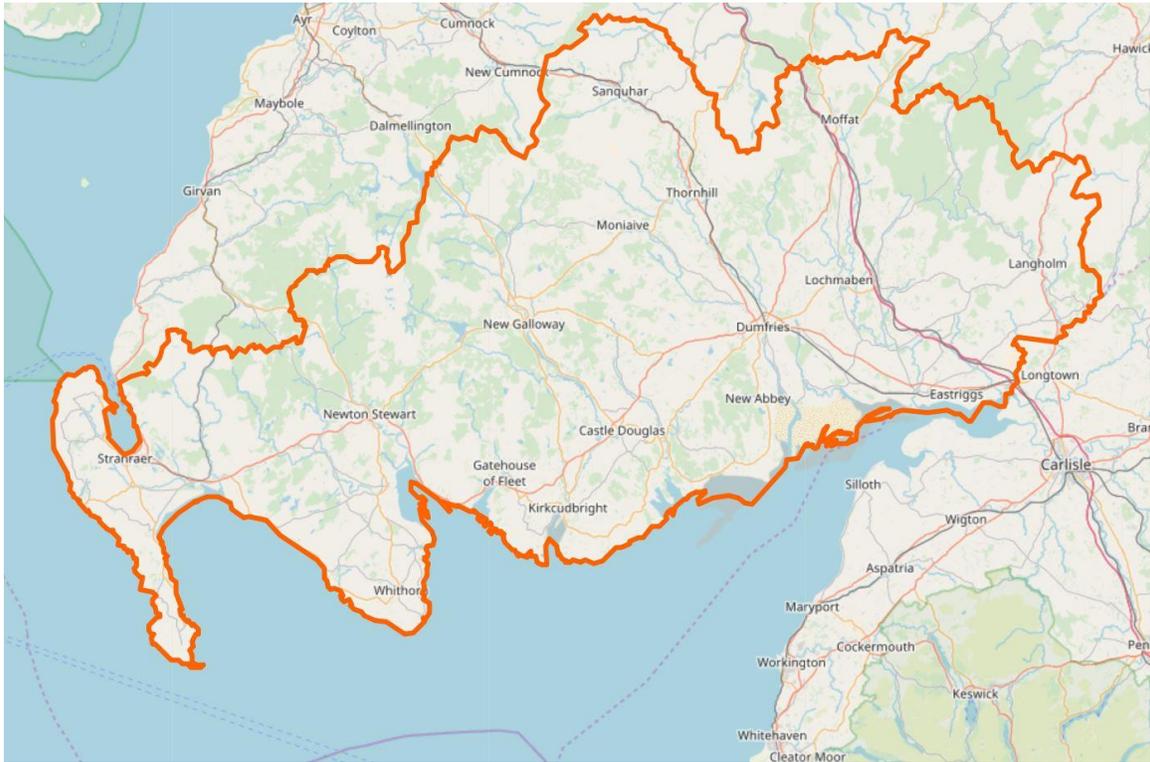
## Chronology of Events

<u>Year</u>	<u>Event</u>
1954	Formation of the United Kingdom Atomic Energy Authority (UKAEA).
1955	Construction of Chapelcross begins with each of the four thermal nuclear reactors (Magnox design) built in succession.
1959	The Chapelcross Works was officially opened on by the Lord Lieutenant of Dumfriesshire, Sir John Crabbe.
1967	A fuel element in Reactor Two over-heated and caused an internal radioactive contamination. The reactor was immediately shut down and cleaned.
1971	British Nuclear Fuels Limited (BNFL) took ownership of the site and Chapelcross continued production throughout the 1970s.
1979	Chapelcross Production Plant publicly acknowledged the manufacturing and distribution of tritium for the UKs nuclear deterrent programme.

## Introductory Images



**Figure 1.1** Dumfries and Galloway, Scotland, UK  
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**Figure 1.2 Dumfries and Galloway, Scotland, UK.**  
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**Figure 1.3 Ex-Chapelcross Nuclear Power Station, Creca, Dumfries and Galloway, Scotland, UK**

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# Chapter 1.

## Introduction

On May 2, 1959, thousands of people from throughout the South of Scotland and Northern England attended the grand opening ceremony for the Chapelcross Works nuclear station located in the small Hamlet of Creca, three miles northeast of Annan.<sup>1</sup> The unveiling of the state of the art dual purpose station and its four accompanying 300 ft. cooling towers was greeted with much enthusiasm and excitement by those in attendance. For the first time since work began on the heavily guarded station three and half years prior, the public was permitted inside to catch a glimpse at how a nuclear station of this kind worked. Amongst those privileged to attend the ceremony were members of the Scottish Office, delegates from the regional and county branches of government of Dumfriesshire, and high-ranking personnel from within the United Kingdom Atomic Energy Authority (UKAEA). The overarching consensus as reported in the national and regional press was that the opening of the Chapelcross Works nuclear station was a huge win for the people of Scotland – and, more specifically, the people of Dumfriesshire – as the presence of the station would bring with it a renewed vitality and sense of purpose for the region. With the end of WWII, the region’s munitions factories and training facilities were shut down and abandoned amidst politicians’ plans and promises for the reconstruction and modernization of the region. The arrival of the four, 300 ft. ‘sentinels of the Solway’<sup>2</sup> earmarked an optimistic beginning to a new era of collaboration between Scottish entities and the United Kingdom (UK) – a collaboration in which nuclear technology, and thereby Chapelcross, formed its core.

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<sup>1</sup> “Opening of Scotland’s First Nuclear Station: An Historic Occasion,” *The Annandale Observer*, May 9, 1959.

<sup>2</sup> This expression was first brought to my awareness in an article in the BBC by Mark Roberts titled “The Toppling of a Solway Icon,” *BBC News*, May 25, 2007. In the article Roberts states that these ‘Sentinels of the Solway’ had stood guard for nearly 50 years, almost double their expected life span, cooling the waters used by the power station. See [http://www.bbc.co.uk/cumbria/content/articles/2007/05/22/chapelcross\\_video\\_feature.shtml](http://www.bbc.co.uk/cumbria/content/articles/2007/05/22/chapelcross_video_feature.shtml) last accessed May 24, 2018.

While the opening day celebrations at Chapelcross promised an optimistic start to this era of collaboration, during the years 1955-1979 the relationship between Scottish officials and the UKAEA was in a state of flux as both sides pursued various policy initiatives at critical junctions in the history of the British nuclear programme. Specifically, the construction and early operation of the Chapelcross Works nuclear station occurred concomitantly with two critical moments in British nuclear history: the development and testing of thermonuclear weapons and the rise within the UK of nuclear fear and anti-nuclear activism. Between 1952-1963, the UK nuclear programme completed twelve major nuclear tests, along with various minor trials, demonstrating to the world that the UK had developed both atomic and thermonuclear weapons and was thus a major nuclear player on the world stage.<sup>3</sup> At the same time, increasing public anxiety over the nuclear arms race and improved knowledge with respect to global contamination led to new public debates of these issues. As historian Jonathan Hogg argues, the unprecedented and sustained arms race and a largely pro-nuclear political climate exemplified by the rise of nuclear civil defence led to the emergence of a mass anti-nuclear protest movement in Britain that influenced left-wing politics for years to come.<sup>4</sup>

Moreover, the construction and early operation of the Chapelcross Works nuclear station occurred during a time in which Scotland's relationship to the UK was changing amidst post-war reconstruction planning. The Second World War initiated a revolution in management. The need to maximise industrial production and to control and regulate all aspects of society and the economy elevated the importance of the position of 'the expert.' For Scottish institutions and these experts, this meant an evolution in responsibilities and management, especially within the Scottish Office and its various departments. Between 1955-1979, Scottish institutions, politicians, and scientific experts, encountered strife and tension with respect to the UKAEA's management of Chapelcross and its potential impacts on regional health and safety. Within this timeframe, the UKAEA often exerted primacy on most matters related to regional health and safety with the station thereby generating a broad spectrum of responses from

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<sup>3</sup> Lorna Arnold and Mark Smith, *Britain, Australia and the Bomb: The Nuclear Tests and their Aftermath* (London: Palgrave Macmillan, 2006), 6.

<sup>4</sup> Jonathan Hogg, *British Nuclear Culture: Official and Unofficial Narratives in the Long 20<sup>th</sup> Century* (London: Bloomsbury Academic Press, 2016), 102.

Scottish people. The question is then, how did these Scottish politicians and experts confront and act upon matters related to regional health and safety versus subordination within the British Nuclear State?

This thesis will focus on the arrival and development of the Chapelcross Works nuclear station between the years 1955-1979 during which time the Scottish Office, scientific personnel, Dumfriesshire County Councilors, and anti-nuclear activists found themselves in a paradoxical position of both collaboration and conflict with Westminster and the British Nuclear State. I argue that from the moment the Chapelcross Works nuclear station opened in 1959, these Scottish institutions, groups, and people pursued independent policies and technopolitical strategies aimed at securing both autonomy from and integration within the British Nuclear State. For select members of the Scottish Office and regional and county councils, the pursuit of integration meant the acceptance of the broader agenda of the British Nuclear State as set out by members of the UK Parliament and officials of the UKAEA and later British Nuclear Fuels Limited (BNFL). Autonomy was equally important as select Scottish officials, local councils, and organizations pursued efforts to develop and enforce policies and procedures designed to safeguard certain environmental health and safety concerns of importance to their region and community.

Using archival material in the form of state records, drafts of official policies, private correspondence and letters, and newspaper articles, this thesis identifies the Chapelcross Works nuclear station as a site in which technopolitics and British nuclear culture converged and played a significant role in the evolution of collaboration between the UKAEA and Scottish institutions and the personnel within them. These sources provide a glimpse into the Scottish experience in relation to the introduction of nuclear technology in a regional Scottish community which has, up until this point, been largely under-explored. Focusing on state records, private correspondence, and media sources provides a holistic presentation of the responses generated by the presence of the Chapelcross Works nuclear station in the Dumfriesshire region – responses which have been neglected in the history of nuclear technology in the UK. It reveals that the experiences of Scottish government officials and station managers at Chapelcross were distinct from others within departments of the UK government and UKAEA as these individuals were some of the first to debate, consider, and renegotiate the broader implications of using nuclear technology for both military and commercial purposes in the

South-West of Scotland. It argues that the creation of Chapelcross resulted in the further development of policies devolved to Scottish officials – specifically, policies aimed at safeguarding Scottish autonomy over regional health and safety matters, such as the disposal of radioactive effluent into Scottish waterways and the district emergency management planning. By examining the actions of those individuals connected to Chapelcross, it reveals that choices and actions of Scottish officials were not passive reflections of a broader British nuclear culture or technopolitical strategy, but rather, concrete steps taken by active participants in the creation, and evolution, of that culture and of those strategies. At times, strategies implemented by Scottish officials were moderately successful in achieving the objective of autonomy and integration; however, despite efforts by certain members of the Scottish Office and County Councils between 1955-1979, the status-quo prevailed – that is, Westminster and the UKAEA would maintain primacy over all nuclear related matters in Scotland. This stance taken by individuals within the Scottish Office or County Councils with regards to Chapelcross became a catalyst for the re-emergence of Scottish cultures of nuclear resistance in the late 1970s, albeit in a manner subordinate to the prevailing culture of consensus which dominated the thinking and strategies of institutional leadership of this time.

## 1.1. Technopolitics and British Nuclear Culture

This thesis speaks to the ongoing set of complex relationships that existed between personnel within the UKAEA and Scottish branches of government between 1955-1979. Underlying much of this analysis is the concept of technopolitics - a concept that captures the hybrid forms of power embedded in technological artifacts, systems, and practices. Gabrielle Hecht was one of the first to utilize and link this concept of technopolitics to the development of nuclear technology in France, using the term to describe “the strategic practice of designing or using technology to enact political goals.”<sup>5</sup> Such practices, she argues, were not simply politics by another name; “they produced systems whose design features mattered fundamentally to their success and shaped the ways in which those systems acted upon the world.”<sup>6</sup> Similarly, in his work

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<sup>5</sup> Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity After WWII* (Cambridge, Massachusetts: MIT Press: 1998), 8. See also, Gabrielle Hecht, ed., *Entangled Geographies: Empire and Techno-Politics in the Global Cold War* (Cambridge, Massachusetts: MIT Press, 2011).

<sup>6</sup> Hecht, *Entangled Geographies: Empire and Techno-politics in the Global Cold War*, 5.

on the Rule of Experts in Egypt, Timothy Mitchell argues that in the twentieth century the politics of national development and economic growth was “a politics of techno-science, which claimed to bring the expertise of modern engineering, technology, and social science to improve the defects of nature, to transform agriculture, to repair the ills of society, and to fix the economy.”<sup>7</sup> Central to both Hecht’s and Mitchell’s application of the concept is the idea that experts utilized specific strategies, structures, and silences to transform themselves, and other appointed experts, into official spokespersons for specific political goals.

The creation of the Chapelcross Works nuclear station in 1959 drew both Scottish and UKAEA officials into their own technopolitical agendas. As historians of the British nuclear programme such as Lorna Arnold, Margaret Gowing, and Peter Hennessy argue, the driving impetus behind the UKAEA strategies was the common belief that possessing hydrogen weapons would help Britain maintain its status as a ‘great power’, a status it felt was under threat in the years of decolonization after the Second World War.<sup>8</sup> Among the first generation of reactors and stations created under the purview of the UKAEA was the dual-purpose Magnox reactor which was designed to provide both weapons grade plutonium for military applications as well as power for the National energy grid.<sup>9</sup> The Magnox reactor was the quintessential symbol of the British nuclear programme during these years as it displayed British capabilities in this domain and solidified the British reputation as a world leader in the field of nuclear science. Between 1953-1971, ten stations within various regions of the UK used the Magnox design. Of these ten stations, two were built in Scotland. Chapelcross was the first and second was Hunterston A.

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<sup>7</sup> Timothy Mitchell, *The Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002), 16.

<sup>8</sup> Peter Hennessy, “Chapter 2: The Importance of Being Nuclear: The Bomb and the Fear of Escalation,” *The Secret State: Whitehall and the Cold War* (Michigan: University of Michigan Press, 2003), 48.

<sup>9</sup> Magnox is a type of nuclear power/production reactor that was designed to run on natural uranium with graphite as the moderator and carbon dioxide gas as the heat exchange coolant. It belongs to the wider class of gas cooled reactors. The name magnox comes from the magnesium-aluminium alloy used to clad the fuel rods inside the reactor. The name refers specifically to the British design but is sometimes used generically to refer to any similar reactor. See Walter C. Patterson, *Going Critical: An Unofficial History of British Nuclear Power*, (London: Paladin, 1985).

The technopolitical question of this thesis is twofold: first, how did the introduction of the Chapelcross station change Scotland's relationship to the British state; and second, how did this relate to the question of UK agencies exerting control over Scottish society in the post-war period? As historian Richard Finlay suggests, the experience of war had convinced scientific experts and bureaucrats that all problems could be solved: all that was required was expertise and political will.<sup>10</sup> Given that the UK government was going to take more control of the UK's resources and use them for the benefit of all citizens, it followed that Scottish institutions would need to expand their organizational apparatus. An extension of UK government power called for an increase in the number of civil servants to implement and oversee policy. As Finlay argues, in the case of Scotland, the move towards greater state intervention as a post-war strategy coincided with an expansion of the powers of the Scottish Office during the war.<sup>11</sup> The Scottish Office was formed in 1885 as an entity of the United Kingdom Government and existed as such from 1885 until 1999, exercising a wide range of government functions in relation to Scotland under the control of the Secretary of State for Scotland. In essence, the Scottish Office developed a binary function. It administered its own departments wherever possible according to its own agenda, but often it had to act first and foremost as a lobbyist for Scottish interests in British policy initiatives which came from other government departments that would have a major impact on its territorial domain.

The opening of the Chapelcross Works nuclear station marked the period of time in which Scottish officials pursued an independent Scottish technopolitical agenda – an agenda aimed at safeguarding Scottish autonomy within domains such as regional health and safety. As noted by Scottish historian Christopher Harvie, government action in post-WWII Scotland became critical at the national and local level, “joining the old dialectic between autonomy and integration.”<sup>12</sup> As he explains, in the aftermath of WWII, the decline or takeover of traditional Scottish industries led to Scottish initiatives designed to attract or substitute new industries, or the granting of new powers to St. Andrews House in Edinburgh. He argues, “conscious or unconscious, these responses changed Scottish politics from being determined by economic performance, institutional

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<sup>10</sup> Richard Finlay, *Modern Scotland: 1914-2000* (London: Profile Books, 2004), 200.

<sup>11</sup> Finlay, *Modern Scotland*, 208.

<sup>12</sup> Christopher Harvie, “Leaders to No Sure Land: Unionist Scotland, 1945-1979,” *Scotland and Nationalism: Scottish Society and Politics 1707-1994* (Abingdon: Routledge Press, 1994), 116.

conservatism and intellectual abstention, to a dependence on personalities and political initiatives.”<sup>13</sup> In the case of the nuclear industry and the arrival of Chapelcross in Dumfriesshire, this is unequivocally true as Scottish officials attempted to attract key nuclear developments to Scotland which, in turn, fell under the purview and initiatives of the SO. This move made by Scottish officials also reaffirms Mitchell’s and Hecht’s claims with respect to the “unpredictable power effects of technical assemblages – that is, the unintentional effects of the (re)distribution of agency that they enacted.”<sup>14</sup> As Hecht suggests, while the material qualities of technopolitical systems shape the texture and the effects of their power, “technologies can also exceed or escape the intentions of the system designers.”<sup>15</sup> Hecht argues that the allure of technopolitical strategies is the displacement of power onto technical things, a displacement that designers and politicians sometimes hope to make permanent; however, she argues that the “very material properties of technopolitical assemblages – the way they reshape landscapes, for example, or their capacity to give or take life – sometimes offered other actors an unforeseen purchase on power by providing them unexpected means to act.”<sup>16</sup> Within the years 1955-1979, this thesis argues that the Chapelcross Works nuclear station offered Scottish politicians, experts, and anti-nuclear activists an unforeseen purchase on power by providing a site through which they enacted and displayed actions of agency and autonomy by means of policy development and enforcement of those policies.

The second concept underlying much of this analysis is the concept of British nuclear culture. In the American context, Paul Boyer’s, *By the Bomb’s Early Light*, was one of the first to offer an account of the cultural history of the nuclear age, arguing that between 1945-1951 contemporary American observers understood that a profoundly unsettling new cultural factor had been introduced; the bomb had transformed not only military strategy and international relations but the fundamental ground of culture and consciousness.<sup>17</sup> By introducing the term “nuclear consciousness,” Boyer uncovers

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<sup>13</sup> Christopher Harvie, “Leaders to No Sure Land,” 116.

<sup>14</sup> Mitchell, *The Rule of Experts: Egypt, Techno-Politics, Modernity*, 17.

<sup>15</sup> Hecht, *Entangled Geographies: Empire and Techno-politics in the Global Cold War*, 5.

<sup>16</sup> Hecht, *Entangled Geographies: Empire and Techno-politics in the Global Cold War*, 5.

<sup>17</sup> Paul Boyer, *By the Bomb’s Early Light: American Thought and Culture at the Dawn of the Atomic Age* (Chapel Hill: University of North Carolina Press, 1985), 2.

some of the earliest versions of themes that still dominate nuclear discourse today: the visions of the atomic devastation, the earnest efforts to rouse people to resist such a fate, the voices seeking to soothe or deflect these fears and the insistence that security lay in greater technical expertise and in more and bigger weaponry.<sup>18</sup> Similarly, in his work on the history of nuclear fear, Spencer Weart argues that these depictions of “radioactive monsters, utopian atom-powered cities, weird ray devices, and many other images have crept into the way everyone thinks about nuclear weapons and power plants.”<sup>19</sup> These images, he suggests, when connecting with major social and psychological forces, have “exerted a strange and powerful pressure on our history and have had larger consequences than has commonly been thought.”<sup>20</sup> Margot Henriksen concurs, suggesting that given the conjunction in history between revolutionary technological change and revolutionary cultural change, it seems only reasonable to expect that an invention as revolutionary as the atomic bomb wrought an accompanying cultural revolution, particularly in the American culture that had created this new weapon and technology. As she reveals, the split of tension in American culture represented by the two-opposing postwar cultural visions – consensus and dissent - proved the prescience of *Time Magazine’s* view of this age as an era “in which all thoughts and things were split – and far from controlled.”<sup>21</sup> Central to these historians’ utilization of the concept is the idea that nuclear technology brought with it a concomitant evolution of a nuclear culture – one which had diverging, and often polarizing, perspectives about the nature of this new technology and its future.

More recently, the concept of nuclear culture has been a popular topic of discussion for historians of modern Britain.<sup>22</sup> Hogg and Laucht offer a summary of

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<sup>18</sup> Paul Boyer, *By the Bomb’s Early Light*, 3.

<sup>19</sup> Spencer Weart, *The Rise of Nuclear Fear* (Cambridge, Massachusetts: Harvard University Press, 2012), vi.

<sup>20</sup> Weart, *The Rise of Nuclear Fear*, vi.

<sup>21</sup> Margot Henriksen, *Dr. Strangelove’s America: Society and Culture in the Atomic Age* (Berkeley: University of California Press: 1997), 2.

<sup>22</sup> Contributions to the special issue on British nuclear culture in the *British Journal for the History of Science* by Jonathan Hogg, Richard Maguire, Christoph Laucht, Jeff Hughes, Daniel Cordle, Jodie Burkett, and Adrian Bingham not only contribute to the body of sources related to this topic, but contest and re-evaluate the term “nuclear culture” itself. See, Jonathan Hogg and Christoph Laucht, “Introduction: British Nuclear culture,” *The British Journal for History of Science*, 45, no.4 (December 2012.): 479-493; Richard Maguire, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb” *British Journal for the History of Science*, 45, no.4 (December 2012): 519-533; Jeff Hughes, “What is British nuclear culture? Understanding

different definitions of the concept, acknowledging Kirk Willis as one of the first to coin the phrase British nuclear culture, defining it as the “knowledge, imagery, and artefacts of applied nuclear physics.”<sup>23</sup> Hogg defines British nuclear culture as “the distinct corner of British culture characterized by the development of the nuclear state and the complex and varied ways in which people controlled, responded to, resisted, or represented the complex influence of nuclear science and technology, the official nuclear state, and the threat of nuclear war.”<sup>24</sup> Jeff Hughes offers a critique of current conceptions of ‘nuclear culture’ and argues that the term has little analytical coherence. He suggests that historians of ‘nuclear culture’ have tended to essentialize the nuclear to the detriment of historical analysis and that the wide variety of methodological approaches to ‘nuclear culture’ are simultaneously a strength and a more significant weakness in that they have little shared sense of the meaning of the term, its theoretical underpinnings, or its analytical purchase.<sup>25</sup>

As Hogg argues in his book, part of the problem with the concept of a uniquely British nuclear culture is that local peculiarities are normally overlooked within the national historical narrative, and a small number of sources can be improperly or partially historicized. In the same article, Hughes suggests that writing localized histories of the nuclear age is one way of capturing what nuclear culture can mean. Placing these existing theories in conversation with events and interactions at Chapelcross, this thesis expands upon the existing scholarship on British nuclear culture to include the Scottish regional experience which has not been fully explored. As Chapelcross was the first

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Uranium 235,” *The British Journal for History of Science*, 45, no. 4 (December 2012): 495-518; Christoph Laucht, “Atoms for the people: The Atomic Scientists’ Association, the British state and nuclear education in the Atom Train exhibition, 1947–1948,” *The British Journal for History of Science*, 45, no. 4, (December 2012): 591–608; Daniel Cordle, “Protect/Protest: British nuclear fiction of the 1980s,” *The British Journal for History of Science*, 45, no.4, (December 2012): 653–669; Jodie Burkett, “The Campaign for Nuclear Disarmament and changing attitudes towards the Earth in the nuclear age,” *The British Journal for History of Science*, 45, no. 4 (December 2012): 625–639; Adrian Bingham, “‘The monster’? The British popular press and nuclear culture, 1945–early 1960s,” *The British Journal for History of Science*, 45, no.4 (December 2012): 609–624.

<sup>23</sup> Kirk Willis, “The Origins of British Nuclear Culture, 19895-1939,” *Journal of British Studies*, 34, no.1 (1995): 60, quoted in, Hogg, *British Nuclear Culture: Official and Unofficial Nuclear Narratives in the Long Twentieth Century*, 21.

<sup>24</sup> Hogg, *British Nuclear Culture: Official and Unofficial Nuclear Narratives in the Long Twentieth Century*, 23.

<sup>25</sup> Jeff Hughes, “What is British nuclear culture? Understanding Uranium 235,” 496, quoted in Hogg, *British Nuclear Culture: Official and Unofficial Nuclear Narratives in the Long Twentieth Century*, 21.

dual-purpose nuclear station built in Scotland, this thesis argues that actions of Scottish individuals with respect to regional health and safety for the station were distinct and not expressions of a homogenous British nuclear culture. Rather, such actions were the direct result of unique regional history, tradition, and experiences.

The foregoing is not meant to suggest that there have not been studies on the Scottish nuclear experience. Important works by Christopher R. Hill, Alan P. Dobson and Charlie Whitham, and Brian P. Jamison all identify the Polaris missile installation as a significant site in which the changing nature of power relations and culture between British and Scottish officials occurred.<sup>26</sup> Dobson and Whitham go as far to argue that no other place in Scotland brought issues such as Scottish environmental sovereignty and national identity to the forefront of national discourse. Hill makes a similar argument, suggesting that the Scottish Campaign for Nuclear Disarmament and the organization's demonstrations at Polaris missile installations, contributed to 'the making of national identity' by providing a channel through which activists could nationalize and galvanize Scottish and Welsh Christianity, folklore and socialism.<sup>27</sup> Hill argues that it was through these types of populist movements that activists articulated and promoted Scotland and Wales as sovereign nations of peace that had an international outlook separate from that of the UK. Nonetheless, this exclusive focus on the military base and demonstrations in major cities such as Glasgow negates the multiplicity of Scottish regional responses to nuclear technology, especially in the realm of nuclear power stations. This thesis aims to correct this imbalance through the examination of Chapelcross while contributing to on-going scholarly debates regarding whether the anti-nuclear movement in Scotland advanced a left-of-center nationalism within Scotland.

In order to reveal the technopolitics and distinctive, local elements of nuclear culture at Chapelcross, this thesis develops three interrelated arguments: first, I argue

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<sup>26</sup> For a selection of literature on the Scottish nuclear experience see, Christopher R. Hill, "Nations of Peace: Nuclear Disarmament and the Making of National Identity in Scotland and Wales," *Twentieth Century British History*, 27, no.1 (2016): 169-192; Alan P. Dobson, Charlie Whitham "Project Lamachus: The Cold War comes to Scotland - The Holy Loch U.S. Nuclear Submarine Base and Its Impact on Scotland, 1959-1974", in Jeffery A. Engel, ed., *Local Consequences of a Global Cold War* (Washington DC: Woodrow Wilson Center Press, 2008.); Brian P. Jamison, "Will They Blow Us A' Tae Hell? Strategies and Obstacles for the Disarmament Movement in Scotland" *Scotland and the Cold War*, ed. Brian P. Jamison, (Glasgow: Cualann Press, 2003.)

<sup>27</sup> Christopher R. Hill, "Nations of Peace: Nuclear Disarmament and the Making of National Identity in Scotland and Wales," 170.

that the Scottish Office and its personnel developed policies for the disposal of radioactive effluent into Scottish waterways that became the industry standard; second I argue that regional and County Council officials who sat on the Local Liaison Committee for Chapelcross developed district emergency schemes to be used in the event of minor and major nuclear accidents; and third I argue that the SCND and anti-nuclear activists held protest demonstrations in Dumfriesshire that had distinct aspirations and outcomes from the meetings and demonstrations held within other parts of Scotland.

This thesis draws on sources which illustrate a change in Scottish politics and identifies Chapelcross Works nuclear station as a site in which Scottish institutions and the personnel within them acted upon questions related to Scottish regional health and safety. It relies primarily on archival material in the form of state records, drafts of official policies, private correspondence and letters, newspaper articles, and secondary literature. Most of the archival documents examined in this thesis are from Scottish archives, including the National Records of Scotland (NRS) in Edinburgh, and the Dumfries and Galloway archive located in the Ewart library in Dumfries. This thesis draws on hundreds of documents with reference to plans for construction, authorizations for the disposal of waste, external reviews and reports, private correspondence, articles from the national press, and meeting minutes between officials. In general, the documents from the NRS have a state institutional origin and describe the manner in which personnel from within the Scottish Office and County Councils shaped and enacted policy with respect to the Chapelcross station.

The Dumfries and Galloway Archive located in the Ewart library in Dumfries provides the regional source base and context for this thesis. The archive contains the full collection of the weekly regional newspapers, *The Dumfries and Galloway Standard* and *The Annandale Observer*. This thesis relies on these two media sources to capture the manner in which members of the public engaged in a debate of the policies regarding nuclear technology and more specifically Chapelcross. Similarly, the Annan Museum and Devil's Porridge Museum in Eastriggs contain panels composed for exhibits held for Chapelcross in the aftermath of its closure in 2005.

Chapelcross would remain open for little under 50 years. This thesis examines the first 20 years of its lifespan. On May 2, 1959, the station formally opened and as each reactor was completed, tested and brought online the power plant's commercial

status grew. By December 1960 it was at full capacity. It was by the early 1960s that Chapelcross' primary function became energy production, while weapons production became a secondary task. In 1967, Chapelcross suffered its only reported accident when a fuel element in reactor two over-heated and caused an internal radio-active contamination. The reactor was immediately shut down and cleaned. Further safeguards were added, and the reactor came back online in 1969. In 1971, British Nuclear Fuels Limited took ownership of the site, and Chapelcross continued production throughout the 1970s. The 1970s also saw the re-skinning of the cooling towers and the re-fuelling of Reactors Three and Four. By 1979, the Chapelcross Production Plant publicly acknowledged the manufacturing and distribution of tritium for the UK's nuclear deterrent programme. It was at this time in 1978 and 1979 that anti-nuclear demonstrations re-emerged.

Chapter One examines some of the early concerns held by select personnel from within the Scottish Office over policies designed for the disposal of radioactive effluent into Scottish waterways. I argue that through debates regarding the disposal in the years 1959-1968, personnel from within Scottish Office used the policy development for effluent disposal as an opportunity to carve out a degree of Scottish autonomy in this domain and create policies, procedures, and regulations that differed, and often challenged, the British stance on these issues set out by officials from Westminster. Specifically, the actions of Chief Chemical Inspector Dr. E.A.B. Birse, the Scottish appointed safety inspector for Chapelcross, illustrates this concept as his recommendations contained in his reports on the disposal of waste became the industry standard, in contrast to expertise of UKAEA personnel. Notwithstanding efforts by Dr. Birse and others regarding this policy, this chapter concludes that views from within the Scottish Office were not homogenous. By 1971, the Scottish Office policies came to resemble English initiatives rather than Scottish.

Chapter Two focuses on the actions of the regional councilors who served as members of the Local Liaison Committee for Chapelcross and their plans for the development of the District Emergency Scheme for Chapelcross. Placing this planning in conversation with the history of Civil Defence in Britain, this chapter argues that the Local Liaison Committee at Chapelcross was an essential part of the UK's Cold War infrastructure designed to reinforce, as Hogg argues, an "unquestioned faith in systems

of government and in thinking deemed necessary to preserve peace.”<sup>28</sup> From 1959-1967, the Local Liaison Committee operated under a modicum of autonomy. It was the primary means through which Regional and County Councillors in Dumfriesshire engaged with and became a part of the administrative machinery of the British Nuclear State. Furthermore, I argue that the events following an accident in a nuclear reactor at Chapelcross in 1967 contributed to a growing awareness in the community that the UKAEA never intended to relinquish any power to these local councils. Consequently, the Local Liaison Committee and the various drafts of the District Emergency Scheme did not realize objectives for which both the plans and the committee were created; this reinforced the dominant culture and strategies of those in Westminster.

Chapter Three shines light on the pockets of resistance in Dumfriesshire and shows that the anti-nuclear movement in Dumfriesshire in 1978 challenged the apparatus of the British Nuclear State ruled by Westminster and attempted to take control of the local nuclear narrative and construct alternative and “open visions” of the nuclear present and future for the region.<sup>29</sup> Other scholars argue that the culture of nuclear resistance was nationalized through a platform of peace and Scottish autonomy as the threat of nuclear technology was interpreted as a distinct threat to Scottish people and Scottish land. However, based on the available sources on the anti-nuclear movement’s presence and involvement in the Dumfries region and with Chapelcross, Chapter Three argues that the region was far from the apex of these nationalist anti-nuclear networks within Scotland and did not figure prominently in their activity in the 1960s. In line with Christopher R. Hill’s analysis of the Scottish Campaign for Nuclear Disarmament (SCND), this chapter continues a theoretical conversation over whether the issue of nuclear disarmament and the anti-nuclear movement within Scotland served as a catalyst in the leftwards and nationalist shift of Scottish political culture in this period. This chapter concludes that despite the resurgence of anti-nuclear activism in Dumfriesshire, and Scotland more broadly, wherein Scottish activists created a foundation upon which to challenge the policies of the British Nuclear State, the movement in Dumfriesshire was made ineffective by the contradictory stance taken by local activists in that they openly advocated against the weaponization of nuclear

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<sup>28</sup> Jonathan Hogg, “Cultures of Nuclear Resistance in 1980s Liverpool,” *Urban History*, 42, No.4, (November 15, 2015,) 588.

<sup>29</sup> Jonathan Hogg, “Cultures of Nuclear Resistance in 1980s Liverpool,” 585.

technology at Chapelcross but at the same time embraced the commercial applications the station provided and accepted monitoring of the station's performance in case of risk.

This thesis is not a study of the work process at the plant, worker activism or domestic life within the region. Instead, the thesis opts for a close focus on politics within institutions, on government policy, and on the role of Chapelcross in regional and national debates about nuclear power, weapons, and the environment. The responses and actions which transpired at the regional level of government and grassroots resistance movements are integral to understanding the theoretical underpinnings of technopolitics and British nuclear culture, and I have chosen to keep the focus there. The absence of the regional perspective within the existing literature on the Scottish nuclear experience has resulted in a narrative in which Scottish people are portrayed as victims of a centralized, imposing force in the form of a government based in London. This narrative has become so widely accepted by many within academia and the public alike that some make the arguments that anti-nuclear resistance is ingrained within the very fabric of Scottish national identity. The history of the Chapelcross station challenges this narrative and provides layers of understanding that are missing from important works which focus solely on the national and international perspective and the processes of centralization.

## Chapter 2.

### A Matter of Environmental Sovereignty

By 1955, the United Kingdom Atomic Energy Association (UKAEA) was well established in Britain and had embarked upon its stated goal of developing nuclear technology for the dual purpose of military and commercial applications. The Chapelcross Works nuclear station located in South-West Scotland was one of the first stations developed under the purview of the UKAEA. In 1955, when UKAEA officials confirmed that Annan in the Dumfriesshire region of Scotland would serve as host to Scotland's first dual purpose nuclear facility, the Scottish Office realigned its role, responsibilities and resources to address the potential issues that would emerge with the introduction of this technology. While responses to Chapelcross from within the Scottish Office were initially rooted in a desire to contribute to the development and success of the British Nuclear State, it was also informed by the desire to ensure that issues related to Scottish environmental sovereignty were treated with the appropriate priority. No other member from within the Scottish Office acted upon these issues with more diligence than Dr. E.A.B. Birse, Chief Chemical Inspector of the Department of Health for Scotland. As we shall see, he responded to the introduction of nuclear technology in the form of Chapelcross by developing specific policies designed to ensure Scottish autonomy with regards to the protection of Scottish people, land and waterways while simultaneously attempting to establish and maintain a role within the British Nuclear State.

Alan P. Dobson and Charlie Whitham in their examination of the Polaris missile installation argue that the Scottish Office was subservient to the nuclear agenda set by US and UK officials and held little to no autonomy with regards to the health and safety of the surrounding environments. However, the extent to which their analysis holds true for the arrival and development of nuclear stations located within Scotland has not been fully explored. This chapter investigates some of the early responses, tensions, and discrepancies over policies designed for the Chapelcross Works nuclear station as select Scottish officials from within the Scottish Office attempted to articulate their concerns and positions with respect to the station, particularly as it related to the health, safety, and security of those who worked and lived alongside the station. As Duncan

Tanner points out, the Scottish Office in the late 20<sup>th</sup> Century was instrumental to ensuring that separate Scottish institutions such as the Scottish Office persisted, and the Scottish Office pushed for treatment of Scotland as distinct from that of other countries in the UK like Wales or England.<sup>30</sup> Indeed, what makes the Scottish position distinct from others in the UK was the importance the Scottish Office placed on not only being involved with the nuclear state but with the intent to maintain the integrity and autonomy of the Scottish Office and Scottish institutions in policy development. There is, however, a challenge in attempting to understand the state in a Scottish context. There is no doubt that sovereignty and authority reside at the United Kingdom level, even in a post-devolution context. Suggestions of Scottish autonomy or semi-independence are cultural or political, rather than constitutional or legal. Based on an examination of policies designed for Chapelcross, correspondence between UKAEA and Scottish officials, and media discourse in the local press, this chapter argues that from 1955 to 1971 the desire on the part of select members of the Scottish Office to play a central role with regards to the Chapelcross Works nuclear station, specifically over matters related to Scottish environmental sovereignty, contributed to the creation of environmental standards and protocols for the British Nuclear State that garnered national and international recognition and acclaim. Notwithstanding these positive results, this chapter further demonstrates that after British Nuclear Fuel Limited (BNFL) took control over operations at Chapelcross 1971-1979, the expected autonomy on the part of members of the Scottish Office was short lived and failed to materialize as London continued to exert primacy over key nuclear matters within Scotland. Thus, as policies adopted by the Scottish Office for Chapelcross came to fulfil London initiatives rather than Scottish, the 1970s marked a period of transition within the Scottish Office which was noticeably distinct from its stance taken on matters related to environmental sovereignty in the 1950s and early 1960s.

Richard Maguire, in his article, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb,”<sup>31</sup> explains the importance of approaching the topic of nuclear cultures in government from a holistic perspective,

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<sup>30</sup> Duncan Tanner, “Introduction: Devolution, Identity and British Politics,” in Duncan Tanner Eds. *Debating Nationhood and Governance in Britain, 1885-1945* (Manchester: Manchester University Press, 2006), 8.

<sup>31</sup> Richard Maguire, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb,” *British Journal for the History of Science*, 45, No. 4 (December 2012), 519.

thereby encompassing the varying degrees of interrelationships that emerged in government with the advent and development of nuclear technology in the United Kingdom. Maguire argues that the complex relationships between the different individuals and departments involved in nuclear policy generated specific “intra-governmental nuclear cultures, shifting, interactive and often conflicting frameworks of understanding that impacted upon policy-making.”<sup>32</sup> Indeed, when examined under the auspices of intragovernmental nuclear culture, interactions which occurred between the Scottish Office and the UKAEA were very much akin to Maguire’s position: that decisions made by selected officials within the Scottish Office regarding Chapelcross were the products of “varied frameworks of understanding that drew upon individual experience, political and social tradition, and specific understandings of technology.”<sup>33</sup> While Maguire’s work informs the argument for this chapter, his discussion of the nuclear cultures in the era of the H-Bomb misses the opportunity to explore the historical relationship between London offices and other offices within the UK such as the Scottish Office. The arrival of nuclear technology in the form of Chapelcross in 1955, along with the concomitant evolution of the intragovernmental nuclear cultures within the Scottish Office and the UKAEA in the 20<sup>th</sup> Century, resulted in a wide range of responses and interactions between departments which needs to be investigated further.

This chapter begins by situating Chapelcross within the overall historical development of the relationship between the Scottish Office, the British Nuclear State, and the UKAEA. It examines some of the early responses to Chapelcross from members within the Scottish Office. The chapter then analyses a specific policy created by the Scottish Office which aimed to address and mitigate the concerns held by the government bodies in questions over the disposal of radioactive effluent and waste. In this section, the Authorization for the Disposal of Radioactive Waste, and the role of the Chief Chemical Inspector Dr. Birse of the Department of Health for Scotland, is considered. Ultimately, this latter section argues that as selected Scottish government officials voiced their concerns for the station, the overall implementation, effectiveness, and enforcement of this policy had a direct impact on the ways into which the Scottish

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<sup>32</sup>Maguire, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb,” 520.

<sup>33</sup> Maguire, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb,” 521.

Office came to understand the extent of their integration and autonomy within the British Nuclear State. However, before determining the extent of the role the Scottish Office had with regards to the management of the station, we must first consider the historical context into which Chapelcross entered, as well as the evolution of the intragovernmental nuclear cultures within the UKAEA and the Scottish Office from 1955 to 1971.

## 2.1. Early Responses: UKAEA, the Scottish Office, and Chapelcross

The UKAEA was established on 19 July 1954 when the Atomic Energy Authority Act 1954 received Royal Assent and gave it the authority “to produce, use and dispose of atomic energy and carry out research into any matters therewith.”<sup>34</sup> Prior to 1954, atomic research was undertaken by groups such as the Atomic Weapons Establishment (AWE) and the Atomic Energy Research Establishment (AERE). With the legislation passed in 1954, the UKAEA became the sole government entity responsible for the UK's entire nuclear program, both civil and defence, as well as the policing of all nuclear sites. The creation of the UKAEA came at a pivotal time for nuclear issues within British government, and it occurred in a moment, as historians Peter Hennessy and Richard Maguire agree, “when interlocking reappraisal about nuclear strategy were forced into officialdom.”<sup>35</sup> Moreover, Lorna Arnold and Margaret Gowing’s extensive research into the official networks of the British Nuclear State demonstrates how the UKAEA was integral to the British government’s plans for expanding not only the defence programme and producing more plutonium and highly enriched uranium but also for the development of nuclear power for electricity generation.<sup>36</sup> A central argument made by Arnold in her work is that most of, if not all, the UKAEA’s objectives were part of the British government’s acute desire to remain a world power in the age of nuclear weapons, a desire, she argues, that at times outstripped the scientific, technical, and organizational

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<sup>34</sup> "UKAEA's First 50 Years". Last modified 5 November 2004. *Nuclear Engineering International*. See <http://www.neimagazine.com/opinion/opinionukaea-s-first-50-years/> last accessed May 28, 2018.

<sup>35</sup> Maguire, “‘Never a Credible Weapon’: Nuclear Cultures in British government during the Era of the H-Bomb,” 522.

<sup>36</sup> Lorna Arnold, *Windscale 1957: Anatomy of a Nuclear Accident* (London: Palgrave MacMillan 2007), 4.

sources available for its fulfillment.<sup>37</sup> Such was the case in 1955 when the UKAEA further exhausted its resources to focus on the development of the British- designed, Magnox reactors<sup>38</sup> and future nuclear sites for operation such as Calder Hall and Chapelcross.

The creation of the Magnox reactors was a pivotal moment for the UKAEA as the reactor provided dual applications – the capacity to produce military grade plutonium for the Nation Defense Programme as well as electricity to the National Grid. It distinguished the British nuclear program from any other in the world – an important element for select members of British Parliament who were seeking ways to promote British superiority in this field. The Magnox reactors allowed British officials to portray the UK not only as an independent nuclear player but a leading player. In 1956, the first reactor went online and the Calder Hall nuclear station, located off the coast of Cumberland in North-West England, became the first station in the world to provide not only weapons grade plutonium for a National Defense programme but also electricity to a National Grid.<sup>39</sup> Modelled after the Calder Hall design, the Chapelcross Works Nuclear Station also used the Magnox reactors for its site when it underwent construction in 1955 with the express purpose of serving as a dual-purpose facility.

It was not by accident that Annan was selected to be the new home for the Chapelcross Works nuclear station. In 1939, just before the outbreak of World War Two, Dumfries and Galloway had been earmarked as a safe area by the Ministry of Defense.<sup>40</sup> Military installations, factories, hospitals, prisoner of war camps, and training facilities were set up across the region. More specifically, the RAF Annan was built on the farm of Chapelcross at Creca and the area was used as a training facility for pilots.

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<sup>37</sup> Arnold, *Windscale 1957*, 7. See also, Margaret Gowing and Lorna Arnold, *Independence and Deterrence Volume 1: Policy Making* (Palgrave MacMillan: London 1974), 3.

<sup>38</sup> Magnox is a type of nuclear power/production reactor that was designed to run on natural uranium with graphite as the moderator and carbon dioxide gas as the heat exchange coolant. The title, Magnox, comes from the magnesium-aluminium alloy used to clad the fuel rods inside the reactor. The first two stations (Calder Hall and Chapelcross) were originally owned by the UKAEA and primarily used in their early life to produce weapons-grade plutonium, with two fuel loads per year.

<sup>39</sup> For a brief look at the development and construction of Calder Hall see Walter C. Patterson, *Going Critical: An Unofficial History of British Nuclear Power* (Paladin:1985).

<sup>40</sup> This information is taken from panels in an exhibition held in the Annan Museum for Chapelcross. The panels were put together by Anne Ramsbottom, the museum curator at the time.

However, after May 1944 the base stopped being used for training and became a storage site until the end of the war. In the early 1950s the United Kingdom Atomic Energy Authority (UKAEA) began searching for a site that was within easy distance of the construction centers of Glasgow and Newcastle and had access to six million gallons of water every day. With the River Annan nearby, and the old RAF training site abandoned after WWII, the fields at Chapelcross fulfilled all the requirements with the added advantage of having plenty of usable buildings. By 1955, plans were developed for the construction of a 92-hectare combined military and civilian power station together with 200 new homes and a school. Moreover, with the erection of the four 300ft. cooling towers in 1959, these 'sentinels of the Solway,'<sup>41</sup> made it clear to anyone living within the area that the atom had officially arrived in Annan.

The dual-use technology of these British designed Magnox reactors had a significant impact on the manner in which nuclear technology was perceived inside, and outside of, the British Nuclear State. In 1955, when discussions began over the development of Chapelcross, the focus of discussion for Scottish authorities was not whether or not Chapelcross should be established in Dumfriesshire – indeed, there was a great deal of support from both national and local levels of government – nor whether the military applications of the station might be a source of alarm or panic for the residents of the area. Rather, the various entities of the Scottish Office and local authorities in the County of Dumfriesshire sought a greater role and autonomy over policies for the station, particularly as it related to the potential impact of the station on the Scottish environment and economy.

In 1928, the Scottish Board of Health, the Board of Agriculture for Scotland, and the Prison Commissioners for Scotland were abolished as semi-independent bodies and instead became departments and were moved to Edinburgh. By 1939, government structure in Scotland was reorganized into four departments: The Department of Agriculture for Scotland, the Scottish Education Department, the Department of Health for Scotland, and the Scottish Home Department. This template was subsequently used

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<sup>41</sup> Mark Roberts, "The Toppling of a Solway Icon," *BBC News*, May 25, 2007. Retrieved from [http://www.bbc.co.uk/cumbria/content/articles/2007/05/22/chapelcross\\_video\\_feature.shtml](http://www.bbc.co.uk/cumbria/content/articles/2007/05/22/chapelcross_video_feature.shtml) last accessed May 24, 2018.

as the basis for the expansion of government power in the post-war period to create the modern Scottish Office. Furthermore, Finlay argues that the reign of Thomas Johnston during the war had encouraged Scottish civil servants to defend, maintain, and expand their role against encroachments from British counterparts. This had the effect of promoting loyalty to “a distinctive Scottish Office identity.”<sup>42</sup> The arrangement was formally enshrined in the report of the Balfour Committee, which was convened in 1948 and reported in 1954. It stated that, as far as possible, those administrative functions that applied to Scotland should be dealt with by the Secretary of State and the Scottish Office. The Scottish Office was an arm of central government, but it developed in a distinct way because of a few peculiar features. Although delegated with the task of implementing policy, the Scottish Office would not simply become a replica of British administration. Rather, the Scottish Office developed along lines which reflected the relative importance of certain departments in relation to Scottish society. For example, education, housing, and agriculture played a bigger and more important role in the administration of Scotland than was the case for England and Wales because these areas were accorded a higher priority than in the UK. Whereas previously not all areas were covered by the Scottish Office, by 1954 it was effectively all-encompassing in the range of its responsibilities – including those responsibilities which pertained to Chapelcross.

An initiative such as Chapelcross presented a unique set of challenges and opportunities for the various departments within the Scottish Office. On the one hand, opportunities were related to economics and means through which the Scottish Office sought to showcase their capacity to contribute to the development of such a technology. On the other hand, challenges existed with respect to communication with Westminster, as well as to the potential health and safety concerns for the region. Fundamentally, responses from personnel within the Scottish Office in these early negotiation stages were positive with respect to the creation of Chapelcross in Annan. For example, in 1955, the Secretary of State for Scotland, Neil Macpherson, welcomed and accepted the project, albeit in a cautious manner. In a letter written to select officials for both the UKAEA and the Scottish Office, Macpherson indicated that due to the collapse of certain industries in Scotland, the Chapelcross station was a welcome addition to the economy; however, he also expressed some reservation about the

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<sup>42</sup> Finlay, *Modern Scotland*, 209.

burden such an initiative might have on regional and county authorities.<sup>43</sup> His position foreshadowed the position the Scottish Office adopted with respect to Chapelcross: the desire for integration and autonomy coupled with a degree of subservience to the broader British nuclear agenda.

Notwithstanding this broad acceptance, in the first few weeks of discussion other members of the Scottish Office expressed their concerns over the lack of attention placed on the issues they had raised with respect to the proposed station. For example, in July of 1955, a representative of the Department of Health for Scotland (DHS) wrote to a representative of the UKAEA explaining the Scottish Department's discontent with the proposed development of Chapelcross. As the author of the letter wrote:

members of the Department, particularly, Mr. Campbell, expressed considerable dissatisfaction about the lack of knowledge of the proposed project and considered that a full explanation of the Authority's plans, especially in regard to...effluent disposal and its possible effect on fishing, should be obtained first-hand from the Authority.<sup>44</sup>

Furthermore, later that month in 1955, Ministers of State for Scotland were advised by an urgent telegram from the DHS to inform them that a UKAEA representative confirmed for a journalist of the *London Times* the UKAEA decision to erect a thermal nuclear reactor station at Chapelcross, Annan.<sup>45</sup> Considering the DHS (and thereby the Scottish Office) was under the impression that negotiations with the UKAEA were ongoing over the proposed development of Chapelcross, the author of the telegram expressed to the Ministers of State the DHS's clear consternation with the announcement in the press. As the author of the telegram stated, what irked some members of the DHS about the announcement in the *London Times* was that: "we [the Department Health for Scotland] expected them [the United Kingdom Atomic Energy Authority] to tell us of their proposed decision before any public announcement was made."<sup>46</sup> However, what is significant about this exchange is the response given to the

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<sup>43</sup> Telegram from a representative for the Minister of State for Scotland to the Department of Health, *Untitled*, 16, 06 1955.

<sup>44</sup> Minutes of the Meeting Held in St. Andrew's House on 11<sup>th</sup> August 1955, To Discuss the United Kingdom Atomic Energy Authority's Proposed Developments at Chapelcross, Annan.

<sup>45</sup> Telegram from Department of Health for Scotland to Gauld Fielden House, "Thermal Reactor Station – Chapelcross, Annan" 15, 6, 1955.

<sup>46</sup> Telegram from a representative for the Minister of State for Scotland to the Department of Health for Scotland, *Untitled*, 16, 6 1955.

DHS by the Minister of State for Scotland who stated: “the main point – that of getting this development in Scotland – has been gained. We [the Scottish Office] can thus overlook any lack of courtesy on the part of the Authority.”<sup>47</sup> While the DHS and other departments of the Scottish Office clearly felt marginalized by the UKAEA in these first discussions, the Ministers of State for Scotland were more focused on securing the development of a nuclear station in Scotland based on strategic political and economic considerations. What this interaction reveals is that, despite the complex political and cultural dynamic that existed within and between the Scottish Office and Parliament officials in Whitehall, in its earliest stages there was an overarching desire to see the successful development of a nuclear station of this kind in Scotland even if it meant an infringement on key issues such as the autonomy and the integrity of the SO.

Despite the stated support from the Secretary of State and Departments within the Scottish Office, in 1957 concerns lingered with respect to potential safety issues in the aftermath of a fire at the Windscale nuclear facility located adjacent to Calder Hall. The Windscale fire of October 10th, 1957 remains the worst nuclear accident recorded in Britain's history. The fire burned for three days and there was a release of radioactive contamination that spread across the UK and Europe. While no one was evacuated from the surrounding area, there was concern that dairy products might be dangerously contaminated and thus milk from the nearby countryside was diluted and destroyed for about a month.<sup>48</sup> With an accident of this magnitude occurring at the nuclear site which served as the model for the expected design structure of Chapelcross, debates regarding policies specific to Chapelcross intensified as officials witnessed firsthand some of the risks associated with the military and commercial usages of nuclear technology. Furthermore, while fears and anxieties over the potential for radioactive contamination and nuclear fallout existed in government circles prior to 1957, the Windscale fire confirmed this reality and fueled fears long held by opponents of the nuclear programme regarding the viability of this technology.

In the aftermath of 1957, members of the Scottish Office expressed a clear concern with the proposed disposal of radioactive waste into the Solway Firth, a body of water which serves as part of a border between England and Scotland. Again, what is

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<sup>47</sup> Telegram from a representative for the Minister of State for Scotland, 16, 6 1955.

<sup>48</sup> Arnold, *Windscale 1957: Anatomy of a Nuclear Accident*, xxi.

significant about the stance taken by these officials was that there was no objection to the disposal of waste, but rather, members of the Scottish Office sought a greater role in the development of the policy for the disposal. The Scottish Office insisted the UKAEA adhere to, and address, specific Scottish concerns. For example, in 1957, when developing protocols and timelines associated with the disposal of radioactive waste into Scottish waterways, the Scottish Office demanded that the authorizations with respect to these types of initiatives be jointly renewed on an annual basis. In reply, Lord Binning of the UKAEA stated:

I notice that you have amended the last paragraph of the draft Authorization, so that it shall run for one year only. I hesitate to quote the practice of English Departments against the Scots, but you may like to be aware that in similar Authorizations for English stations, no time limit is included. It would be helpful, therefore, if you could let us know whether you would be prepared to agree to a similar provision or, if no, your reasons for insisting upon annual renewal.<sup>49</sup>

Boyd, for the Department of Health for Scotland, asserted the position of the Scottish Office in his reply to Lord Binning and stated:

We are advised by our legal people that there is no provision in the Act of 1954 which gives power to vary or revoke an authorization or to vary the conditions to which an authorisation is subject and if it was proposed to impose new conditions they have some difficulty in seeing how this could be done...This is, however, an old point, and that in all circumstances we think that we should stick to the present practice.<sup>50</sup>

Because of this and other prior exchanges over the matter, renewals were done on an annual basis, and the wishes of the Scottish Office prevailed.

Hence, while there was an anxiousness and desire on both sides to see Chapelcross created, what followed the Windscale accident of 1957 was the interaction between these offices as they attempted to articulate their concerns and their positions on the issues related to the health and safety of those that worked and lived alongside the station. As they came to understand their respective positions and views, one of the by-products was a policy designed to address and mitigate the concerns held by the

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<sup>49</sup> K.G. H. Binning of the UKAEA to A.W. Boyd of the Department of Health for Scotland, "Authorization for Disposal of Liquid Radioactive Waste from Chapelcross" November 24, 1958.

<sup>50</sup> K.G. H. Binning of the UKAEA to A.W. Boyd of the Department of Health for Scotland, "Authorization for Disposal of Liquid Radioactive Waste from Chapelcross" November 24, 1958.

Scottish Office, specifically as it related to the environmental and safety issues germane to the Chapelcross Works nuclear station and the surrounding area. Consequently, as the policy and procedures were implemented and monitored by the various authorities involved, the Scottish Office came to understand the extent of its limited autonomy and its role within the British Nuclear State. As we shall see, the policy developed with the aid of the Scottish Office, namely the Authorization of Radioactive Waste into Scottish Waterways, exemplified of the policies that emerged during this period. In turn these influenced the evolution of intragovernmental nuclear cultures within the Scottish Office.

## **2.2. The DHS, Chief Chemical Inspector Dr. E.A.B. Birse, and the Disposal of Radioactive Waste**

The disposal of radioactive waste into Scottish waterways was of paramount concern to the UKAEA, the Scottish Office, and the County authorities of Dumfriesshire. In April of 1957, I.M. Robertson of the Scottish Office wrote to the County Authorities of Dumfriesshire outlining the proposed authorization for the disposal of radioactive waste from Chapelcross. Of priority to members of the Scottish Office and the Town Councils was the desire to have an active role in the monitoring and enforcement of the policy. Consequently, what resulted from the various drafts and correspondences concerning the policy was a list of conditions intended to secure: a) that the best practicable means for reducing the discharges would be continuously used, with due regard being had to local conditions, and that the discharge would be regulated as to avoid danger to public health; b) that the discharge would not exceed certain limits which may be fixed from time to time by the Secretary of State of Scotland; and c) that radioactivity in the vicinity of the premises would be carefully and regularly monitored by the Authority and the results made available for inspection by a duly authorized officer of the Secretary of State.<sup>51</sup>

The debates regarding the disposal of radioactive waste in the years 1959-1968 were significant as personnel from within Scottish Office used the policy development for effluent disposal as an opportunity to highlight its capacity to contribute as both an autonomous yet integrated component of the much broader British Nuclear State. The

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<sup>51</sup> "Authorization for the Disposal of Radioactive Waste from Chapelcross Works", Atomic Energy Authority Act, 1954, in connection with the Authorization given by the Secretary of State for Scotland, 1958.

individual appointed by the Secretary of State for Scotland to undertake a lead role with respect to this policy was Chief Chemical Inspector Dr. E.A.B. Birse of the Department of Health for Scotland (DHS). During his tenure in this capacity, Dr. Birse took an active and prominent stance in the monitoring and enforcement of the guidelines and standards negotiated by the Scottish Office and the Secretary of State for Scotland. This resulted in regional and national recognition and acclaim not only for Birse but for his Department and the Scottish Office.

Following his appointment in 1958, Birse immediately engaged in correspondence and communication with the UKAEA and chief members of the Chapelcross staff. One of the first issues that resulted from his initial visit to the station in 1958 related to the expected amounts of discharge for both liquid and gaseous waste. In Birse's first report in 1958, he outlined concerns he had with respect to the views held by Mr. Howells, the General Manager of Chapelcross, whose main position was not to "belittle the importance of controlling the discharge in the interests of public safety" but "rather to treat its discharge as a scientific experiment to obtain data, at present lacking, on the effect of discharges of radioactivity into estuarial waters."<sup>52</sup> Birse stated that since the results of the authorization at Chapelcross are likely to be the precedent for future authorizations for the U.K. atomic energy power programme, he could not favour the suggestion of any changes or experimentation in the discharge activity.<sup>53</sup>

In response to Birse's first report, the Scottish Home Department endorsed his position and provided Birse with the necessary support and direction to maintain a firm line of defense. As stated in the letter to Birse from the Scottish Home Department "it is evident from these instances [referring to his conversation with Mr. Howells] we must carefully probe the defences if we are to discover just what is being done and what is likely to be done in the future."<sup>54</sup> The representative for the Scottish Home Department noted that it was "particularly difficult in the instance of Chapelcross to get the requisite information on which to formulate a view regarding any authorisation."<sup>55</sup> Furthermore,

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<sup>52</sup> Dr. Birse, "Report on Visit to Chapelcross Works," September 25, 1958.

<sup>53</sup> Dr. Birse, "Report on Visit to Chapelcross Works," September 25, 1958.

<sup>54</sup> K. Lucas of the Scottish Home Department to Dr. Birse, "A.E.A Works at Chapelcross," October 15, 1958.

<sup>55</sup> K. Lucas of the Scottish Home Department to Dr. Birse, "A.E.A Works at Chapelcross," October 15, 1958.

the Department expressed their gratitude to Birse for the information he secured, and they encouraged him to pursue his future work with the same vigour. Hence, from the very outset, Birse was seen by the Scottish Office as an integral element in the defense of Scottish land, waterways, and people via his stance on the authorization of radioactive waste in 1958.

That is not to say that Birse was deliberately obstructionist regarding his role and the overall monitoring of the results provided by the UKAEA. For example, in his second report of May 29, 1959, he stated that the Chapelcross Works nuclear station was one of the first in the United Kingdom where the environmental effect of generating electricity by atomic power could be assessed. Given the relatively new procedures and operations endured by the station staff, in his comments as to the overall operating practise of the UKAEA staff at Chapelcross he was impressed that “the early stages of operation are being carried out with great care and so far, environmental contamination had not been detected by the Chapelcross Works staff.”<sup>56</sup> However, in his third report of his visit to Chapelcross in December of 1959, Birse outlined his first indication of concern over the state of the pipeline used for the discharge of radioactive waste into the Solway Firth and stated that the design and construction of the pipe taking effluent from the UKAEA site at Chapelcross to the Solway was a growing source of concern. Birse stated that, in his view, he considered the pipeline more of “a sewer with manholes than an actual pressure pipe.”<sup>57</sup> He stated that if a burst or overspill occurred, the discharge would cascade down the embankment over the surrounding ground and would, no doubt, be a source of alarm and panic to the general public even if it could be shown that the discharge was harmless. In conclusion, Birse suggested that the Department should make the design and construction of the pipeline the subject of engineering consideration and formally intimate its intention to the UKAEA as a matter concerned with authorisation of effluent discharges.<sup>58</sup>

Taking the advice and recommendations of Birse, Sgd. A. MacLehose of the Scottish Office filed a formal request to Mr. Neary of the UKAEA in relation of the state of the pipeline. In a letter from MacLehose to Neary in February of 1960, MacLehose

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<sup>56</sup> Dr. E.A.B. Birse, “Report on Visit to Chapelcross Works,” December 7, 1959.

<sup>57</sup> Letter from Dr. E.A.B. Birse to Sgd. A. MacLehose, February 11, 1960.

<sup>58</sup> Letter from Dr. E.A.B. Birse to Sgd. A. MacLehose, February 11, 1960.

stated that he was directed by the Secretary of State to request the full replacement of the pipeline constructed for the discharge of liquid radioactive waste. He stated that in view of the Secretary of State's duty to ensure the safe disposal of radioactive waste, it was essential that the pipeline be examined by engineers appointed by the Secretary of State.<sup>59</sup> Because of this, and the actions of Birse, not only was the full pipeline replaced, but it reaffirmed Birse's and the Scottish Office's sense of relevance and value within the British Nuclear State. Moreover, this sense of relevance and value was rooted in the efforts of Birse and the Department to protect and defend local Scottish interests.

As a result of Birse's early efforts to monitor and enforce the authorization policies for Chapelcross, other Departments within the Scottish Office and the UKAEA sought his advice on matters related to their areas of responsibility which were similar in scope. For example, in February of 1960, Mr. Lucas from the Scottish Marine Laboratory of the Scottish Home Department wrote to Birse regarding an unusual build-up of Strontium-90 that had been detected in the discharges for Chapelcross during the month of September 1959 and sought the advice and counsel of Birse in relation to this matter. In another instance, in December 1960, A.W. Kenny, the Radiochemical Inspector for the Ministry of Housing and Local Government in Whitehall, consulted Birse regarding the authorizations for the Bradwell nuclear power station which was to be constructed early in the new year. In his letter to Birse, Kenny indicated that he viewed the experience of Birse and his work at Chapelcross to be of the utmost importance and thus of enormous benefit to his work with Bradwell.<sup>60</sup> In similar fashion, in meetings held by the UKAEA in February of 1961 regarding a paper on the "Proposed Revisions of Environmental Programmes at Authority Establishments," Birse was the sole representative from the Scottish Office. It was noted during the conference that as a result of the efforts of Birse, the environmental programme for Chapelcross would serve as the model for other nuclear power reactor sites.<sup>61</sup> Lastly, in February 1964, R.H. Burns, Chief Industrial Chemist for the UKAEA, personally requested the appearance of Birse during a visit to Chapelcross by a Russian delegation and members of the

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<sup>59</sup> Letter from Sgd. A. MacLehose to Mr. F.J. Neary of the UKAEA, February 18, 1960.

<sup>60</sup> Letter from A.W. Kenny of the Ministry of Housing and Local Government in Whitehall to Dr. E.A.B. Birse, December 22, 1960.

<sup>61</sup> Minutes from the Meeting to Discuss a Paper by Mr. R. J. Garner on "Proposed Revision of Environmental Monitoring Programmes at Authority Establishments," February 17, 1961.

UKAEA.<sup>62</sup> Although Birse was unable to attend the visit and meeting with the Russian delegates due to a conflicting commitment, Burns indicated to Birse that the UKAEA considered his presence important and noted that they would be pleased to see anybody Birse cared to nominate as his replacement, but stressed the fact that they felt that his long experience with Chapelcross authorizations was highly desirable.<sup>63</sup>

What is significant of the interactions between Birse and Lucas, Kenney, Burns and representatives for the UKAEA is that it clearly demonstrates that the work undertaken by Birse in the monitoring and enforcement of the authorization for disposal of radioactive waste at Chapelcross had earned him recognition as being an expert in this domain. Due to the authorizations monitored and enforced by Birse at Chapelcross, the station was viewed as the industry standard by the UKAEA and the British Nuclear State. This type of national recognition underscored the importance of the role played by Birse for the Scottish Office, but equally important, it further defined the evolving role the Scottish Office played within the hierarchy of the British Nuclear State.

Notwithstanding this role played by Birse and the Scottish Office between 1955-1971, the transition of responsibility for Chapelcross from the UKAEA to the BNFL signalled a change in the intragovernmental nuclear culture which existed between the Scottish Office and the newly-established BNFL. Following the Atomic Energy Authority Act 1971, the UKAEA was split into three sections, with only research activities remaining with the Authority. British Nuclear Fuels Ltd (BNFL) took over nuclear fuel and weapons material producing activities, namely the dual-purpose Calder Hall and Chapelcross military plutonium producing reactors. Day to day interaction and exchanges of reports and documentation between the Scottish Office and BNFL continued following this transfer of responsibility from UKAEA to BNFL. However, the role undertaken by Birse and the DHS was now fulfilled by Senior Inspector George Scott. An examination of correspondence between Scott and representatives for the BNFL indicated that Scott adopted the posture of full compliance with direction and orders provided by the BNFL and offered little in way of input with regards to Scottish sensibilities. This approach contrasted with that of Birse who was more proactive and

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<sup>62</sup> R.H Burns, Chief Industrial Chemist for the Atomic Energy Research Establishment to Dr. E.A.B. Birse, February 26, 1964.

<sup>63</sup> R.H Burns, Chief Industrial Chemist for the Atomic Energy Research Establishment to Dr. E.A.B. Birse, March 31, 1964.

aggressive in putting forth recommendations designed to promote and protect Scottish interests. Birse's departure from this position signified the beginning of a transition in the intragovernmental nuclear culture which had existed between the Scottish Office and the UKAEA/BNFL. Hence, this position taken by Scott, and thereby the Scottish Office post-1971, contributed to the making of an intragovernmental culture that placed less value on issues related to Scottish environmental sovereignty, and greater importance on consensus and integration within the British Nuclear State.

Based on the existing records and correspondence between members of the Scottish Office, the DHS and the UKAEA, the intragovernmental nuclear culture which existed within the Scottish Office was one in which select personnel within the Office sought to showcase its capacity to contribute to the development of the British Nuclear State, while also maintaining a degree of autonomy with regards to matters of environmental sovereignty. Between 1955-1971, the actions and involvement of the Scottish Office, in the form of the DHS and Birse, contributed to the creation of environmental standards and protocols, such as the disposal of radioactive effluent, which was adopted nationally by the UKAEA. When it came to discussions of the Scottish environment and the potential impact Chapelcross would have on the land, Scottish officials asserted their relevance and autonomy with respect to key issues. For Birse, it was the consistent monitoring and enforcement of the radioactive discharge into Scottish waterways which contributed to his, and the Scottish Office's sense of understanding their role within the British Nuclear State and served as the basis for the intragovernmental nuclear culture which existed within these two government entities at this time.

In line with Richard Maguire's theoretical framework, this chapter has also demonstrated that the complex relationships between the Scottish Office and the UKAEA (and later the BNFL) generated specific "*intra-governmental nuclear cultures*, shifting, interactive and often conflicting frameworks of understanding that impacted upon policy-making." Indeed, this culture established by Birse and DHS in the 1950s and 1960s was short lived as it shifted away from a culture embedded in the desire for greater Scottish autonomy to one of integration and consensus with the British Nuclear State. However, to consider the Scottish Office as the sole entity responsible or interested in the development of nuclear stations in Scotland ignores the role the County Councils of Dumfriesshire played in the creation and development of health and safety

policies for the Chapelcross station. As we shall see, the culture which existed within the County Councils, as well as policies developed by these Councils, was similar to that found in the Scottish Office, but distinct in its scope, purpose, and origins.

## Chapter 3.

### Defending Dumfriesshire

As evidenced in Chapter 1, the introduction of nuclear technology in the form of the Chapelcross nuclear station brought the Scottish Office firmly within the political apparatus of the British Nuclear State. However, the Scottish Office was not the sole government entity within Scotland that took an active interest in the development of the Chapelcross station. The County Councillors from the region of Dumfriesshire grappled with the nuclearization of the region in a manner distinct from that of the Scottish Office. The Local Government Act of 1947 reformed local government in Scotland and divided Scottish land into counties, counties of cities, large burghs and small burghs with county officials representing each region. Where members of the Scottish Office lived outside of the Dumfriesshire region and often undertook actions remotely, County officials lived and worked within these communities and had direct day-to-day interaction with the residents of the region as well as officials appointed to Chapelcross. The Local Liaison Committee for Chapelcross – a committee formed pursuant to the recommendations contained in the Fleck Report of 1957<sup>64</sup> - became the primary channel through which regional and county officials of Dumfriesshire confronted the introduction of nuclear technology within their community and actively planned contingencies to mitigate concerns of the local population.

Through an examination of the Chapelcross Local Liaison Committee meeting minutes, civil defense literature, and regional media discourse, this chapter demonstrates that from 1959 to 1967 the actions and perspectives generated within Local Liaison Committee meetings and exercises were, in part, rooted in concepts and methods developed within the UK Civil Defense Corps (CDC). It argues that much like the actions of the Civil Defense Corps, the Local Liaison Committee at Chapelcross was

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<sup>64</sup> A major fire at the Windscale nuclear plant in Cumberland resulted in a review of the accident in what is known as the Fleck Report of 1957. One of the recommendations contained in this report made it standard practice to have a local liaison committee in order to deal with the more parochial issues such as problems expected to arise with regard to local fisheries, waterways, agriculture, housing, and employment. See Dobson and Whitham, "Project Lamachus: The Cold War comes to Scotland - The Holy Loch U.S. Nuclear Submarine Base and Its Impact on Scotland, 1959-1974", 176.

an essential part of the UK's Cold War infrastructure designed to, as Hogg argues, reinforce an "unquestioned faith in systems of government."<sup>65</sup> From 1959-1967, the Local Liaison Committees operated under a degree of autonomy. It created the District Emergency Scheme as well as public exercises designed to test the region's emergency preparedness in the event of a nuclear accident. Nonetheless, the subsequent events of a meltdown at Chapelcross in 1967 revealed to both the community and the Local Liaison Committee that the UKAEA never intended to relinquish any power to local councils.

Linking these ideas more directly to recent work on the spatial histories of cities in the nuclear age, historian Jonathan Hogg suggests that we can analyse nuclear narratives in new ways to make sense of how certain regions "enable and constrain different constellations of power and knowledge."<sup>66</sup> In the American context, David Monteyne suggests the ways in which the Foucauldian concept of "biopower" can be applied to thinking about the logic of nuclear civil defence.<sup>67</sup> Monteyne argues that "Cold War civil defence was a discursive formation and spatial practice particularly well suited to representing the goals and powers of the welfare state," partly because it based its "power on an underlying reference to the established institutions of the disciplinary society."<sup>68</sup> The events and interactions post-1967 reveals that Local Liaison Committees were always intended to be vessels of dissemination for the official word of the UKAEA. As we shall see, the interactions between the Local Liaison Committee and authorities at Chapelcross serve as vital sources to understanding the intragovernmental nuclear culture within regional and county Scottish governments.

Mathew Grant<sup>69</sup> and Tracy Davis<sup>70</sup> explore the ways in which regional and county governments in the UK confronted the introduction of nuclear technology in Britain by

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<sup>65</sup> Jonathan Hogg, "Cultures of Nuclear Resistance in 1980s Liverpool," *Urban History*, 42, No.4, (November 15, 2015), 588.

<sup>66</sup> Hogg, "Cultures of Nuclear Resistance," 588.

<sup>67</sup> D. Monteyne, *Fallout Shelter: Designing for Civil Defense in the Cold War* (Minneapolis: University of Minnesota Press, 2011), xv, quoted in Hogg, "Cultures of Nuclear Resistance," 588.

<sup>68</sup> Monteyne, *Fallout Shelter*, xv.

<sup>69</sup> Mathew Grant, *After the Bomb: Civil Defense and Nuclear War in Britain, 1945-1968* (London: Palgrave MacMillan, 2010).

<sup>70</sup> Tracy C. Davis, *Stages of Emergency: Cold War Nuclear Civil Defense* (Durham, NC: Duke University Press Books: 2007).

means of the Civil Defense Corps. As Davis demonstrates, the existence of nuclear bombs gave rise to a new profession dedicated to planning for the aftermath of their use.<sup>71</sup> These professionals, and the public at large, acknowledged the hazards of living in the nuclear world by anticipating and rehearsing their responses. While Grant concludes that civil defense planning was a self-consciously futile exercise, he admits that, “although it was a sham and a façade, it was a rational and understandable sham, and in terms of government’s overall policy, a necessary façade.”<sup>72</sup> The question as to whether the responses and reactions of the Chapelcross Local Liaison Committee were a sham or a façade much like the Civil Defense Corps, is worth investigating further; however, where Davis and Grant exclusively focus on civil defense organizations and subsequently miss the opportunity to incorporate other channels through which local officials voiced and conducted their concerns and affairs, this chapter expands upon their examination of the CDC and highlights a transition in Civil Defense initiatives that was similar, but in important ways distinct, to the region of Dumfriesshire.

Before drawing any conclusions with respect to the Local Liaison Committee and County Councils and their interactions with officials for Chapelcross, this chapter first situates the role of local government in the form of both the Civil Defence Organization and the Local Liaison Committee within the context of events prior to and immediately after the fire at the Windscale nuclear facility in 1957. From there, it investigates the responses of the local officials to the arrival of Chapelcross as regional officials confronted the very real potential risks and benefits associated with the presence of a nuclear station in their community. The approach undertaken by local officials in the Chapelcross region was distinct from that in other parts of the UK. Local officials diverged from methods conducted in Civil Defense Organizations, whose primary focus was that of planning contingencies in the event of a nuclear attack. Instead, officials in the Chapelcross region developed local emergency schemes designed to address domestic concerns such as the potential radioactive contamination of regional farms and waterways. The latter section investigates the District Emergency Scheme generated from official meetings of the Local Liaison Committee, which serves as an example of the way regional officials in the Dumfriesshire region acted on questions of regional

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<sup>71</sup> Davis, *Stages of Emergency*, 3.

<sup>72</sup> Grant, *After the Bomb*, 193.

health and safety while dealing with the issue of Scottish autonomy versus subordination within the British Nuclear State.

### 3.1. Civil Defense in Dumfriesshire

In the four years after the end of the war, British planners and officials developed strategies to help protect Britain in the event of another conflict – policies, Grant argues, “to save lives and to ensure British fighting capacity could continue.”<sup>73</sup> In the Cold War, Davis states that nuclear attack was assumed to be a “nationwide or multinational catastrophe, jeopardizing not just liberty and the pursuit of happiness but life itself for millions or even billions of people simultaneously, as well as all who might come after them.”<sup>74</sup> Created in 1949, the Civil Defense Corps (CDC) was a civilian volunteer organisation tasked with making this scenario imaginable, manageable, and most of all, capable of being acted upon. Although the CDC operated under the authority of the Home Office with a centralised administrative establishment, every county in the UK was a CDC Authority, as were most county boroughs in England and Wales and large burghs in Scotland.

Prior to the plans for the construction of Chapelcross in 1955, regional and county Councillors in the region of Dumfriesshire used the Civil Defense Corps to confront the advent of nuclear technology and actively engaged in recruitment and safety initiatives in the region between 1950-1968. By 1952, there were eight control centres in Dumfries, including area control and sub-division control, with sub-divisions at Annan, Lockerbie, Sanquhar, Kirkcudbright, Newton-Stewart and Stranraer.<sup>75</sup> Qualified CDC instructors for these regions comprised of town clerks, regional constables, lawyers, and teachers, all of whom undertook leadership roles in the Dumfriesshire region and actively took on recruitment initiatives and training sessions. These early recruitment initiatives undertaken by the leadership of the Dumfriesshire CDC in 1952 exemplify Grant’s point that CDC schemes in the years 1949-1953 emphasized “military

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<sup>73</sup> Grant, *After the Bomb*, 13.

<sup>74</sup> Davis, *Stages of Emergency*, 3.

<sup>75</sup> “Civil Defense Corps: Destruction Power Limited,” *The Dumfries and Galloway Standard*, 27.9.1952.

and economic survival as much as civilian lifesaving.”<sup>76</sup> A recruitment pamphlet published in *the DGS* in 1952 titled, “Civil Defense Corps: Destruction Power Limited,” makes the stance taken by the DG CDC on military and economic survival abundantly clear. While the pamphlet highlights practical knowledge and information on topics such as gamma rays, radioactivity, heat flashes, and shelter building, passed on from the Home Office to regional CDC centers, at the core of the pamphlet was a message designed to ensure that civilian morale remained high in the event of a nuclear attack. The author of the pamphlet assured readers that “no enemy would lightly attack a country whose civilian morale is high; whose civilian defences are first-class,” and that, “outside the hardest hit area there will still be tens of thousands of lives which can be saved by shelter and strong Civil Defense services.”<sup>77</sup> The author justified these claims based on the two atomic bombs used by the Allies in 1945, and stated that “in Hiroshima, over half the people who were within a mile from the atomic explosion are still alive...and at Nagasaki nearly seven out of ten people within a mile from the bomb lived to tell their experiences.”<sup>78</sup> It is significant to note that in one of the first public instances in which the Dumfriesshire CDC addressed regional concerns over the potential destructive power of nuclear technology, regional officials chose to highlight actions which underscored the desire to maintain Britain as a war-making and economically-viable state. Conscious of it or not, these early actions underscored the development of a military-style culture within the CDC as they actively carried out the policies of the Home Office under the purview of their assigned roles.

While critics of the CDC suggest that such measures were designed to ensure the survival of Britain as a war-making and economically-viable state, often transcending or excluding other measures, Grant admits that to many within Whitehall, and to all those volunteers who took part in the CDC, civil defense was about one thing: saving lives in an enemy attack.<sup>79</sup> It was this desire to help one’s family, neighbours, and community which drove many members of the public to serve in the government’s civil defense services. To convince ordinary people that they, and the nation, could survive an atomic

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<sup>76</sup> Grant, *After the Bomb*, 36.

<sup>77</sup> “Civil Defense Corps: Destruction Power Limited,” *The Dumfries and Galloway Standard*, 27.9.1952.

<sup>78</sup> “Civil Defense Corps: Destruction Power Limited,” *The Dumfries and Galloway Standard*, 27.9.1952.

<sup>79</sup> Grant, *After the Bomb*, 58.

war required strong and public measures – measures, Davis insists, that drew directly upon the traditions and techniques of the stage. When describing civil defense exercises, Davis notes that CDC members often invoked performative language – rehearsal, ritual, socio-drama, play, and theater – as organizing metaphors for the preparations that constituted applied policy on civil defense in the event of a nuclear war.<sup>80</sup> Grant adds that these public exercises, shelters, evacuation drills, and civil defence volunteers were the visible signs of a successful civil defense policy and that the absence of any of them from the government plans would lead to criticism.

Shelters, evacuations, and volunteer services certainly underpinned the measures and initiatives undertaken by the Dumfriesshire CDC. For example, in 1955, the Dumfriesshire Civil Defense Corps participated in an Emergency Feeding Exercise in which field cookers were used to prepare meals of stew, potatoes, and carrots, as well as pudding, custard, tea, and biscuits.<sup>81</sup> Similarly, in 1957, about three hundred Civil Defense volunteers from Dumfries and Galloway participated in a large-scale exercise at the Heathhall aerodrome in which CDC members conducted a role playing exercise in which they acted out the subsequent events of an atom bomb attack.<sup>82</sup> Later that same year, sub-division teams from Berwickshire, Roxburghshire, Selkirkshire, Dumfries, and Sanquhar competed against each other in an exercise in which each team had 50 minutes to complete a test which included “the efficient running of post-control, reconnaissance, reporting, casualty handling and first aid, etc. as well as the good development of services, including rescue parties and ambulances.”<sup>83</sup> These exercises reinforce Davis’ claims that Cold War nuclear civil defense strategy was “an embodied mimetic methodology that was *inherently* and *crucially* theatrical.”<sup>84</sup> In the case of the Dumfriesshire CDC, these exercises not only showcased the region's capacity and readiness to contribute by means of carrying out orders handed down from Home Office, it also, contributed to a general sense amongst the community that regional authorities were fully prepared in the event of a nuclear attack. Moreover, the relative success of

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<sup>80</sup> Davis, *Stages of Emergency*, 2.

<sup>81</sup> “Emergency Feeding Exercise,” *The Dumfries and Galloway Standard*, 4.6.1955.

<sup>82</sup> “Preparing for that Bomb,” *The Dumfries and Galloway Standard*, 5.10.1957.

<sup>83</sup> “Civil Defense: Essential Part of National Preparedness,” *The Dumfries and Galloway Standard*, 18.10.1958.

<sup>84</sup> Davis, *Stages of Emergency*, 2.

these public measures undertaken by select members within the Dumfriesshire CDC contributed to the creation of fundamental measures and theories designed for confronting nuclear disaster – specifically, the utilization of public-military style performances.

Notwithstanding the importance government officials placed on the CDC, Grant notes that the mid-1950s were tumultuous years for civil defense policy. Indeed, the development and testing of thermonuclear weapons in 1954 sparked a global panic with respect to the destructive power of the bomb and its deadly legacy of radioactive contamination. While central government was drawing, tearing up, and re-drawing new civil defence plans, a battle was being fought to save the reputation of civil defence as critics attacked it as ineffective and wasteful. Furthermore, late in 1954, the British government convened a secret committee of civil servants to explore the implications of the hydrogen bomb for Britain in a nuclear war. Headed by William Strath, this small and secret cadre of experts considered the potential destruction that would follow a thermonuclear attack on the UK and released a document containing their findings and recommendations in a report that became known as The Strath Report.<sup>85</sup> Drawing on intelligence assessments, technical analysis, and economic predictions, historian Jeff Hughes argues that the committee's conclusions were profoundly pessimistic and that “its portrayal of widespread devastation and the likely collapse of civil society shocked politicians and government officials, and led not only to massive revisions in the UK's plans for war but to official attempts to suppress public discussion of thermonuclear weapons and civil defence.”<sup>86</sup> The two years following the Strath Report of 1955 saw fundamental change in civil defense. In 1956, civil defense budgets were cut, justified on the twin grounds that expensive ‘recovery’ measures could not be afforded, and that civil defense would not really save many lives if a thermonuclear weapon was detonated. The 1955-1956 period, then, saw civil defence reach a crisis point.

The Dumfriesshire CDC was not immune to such criticisms, nor to the eventual decline of membership and morale. The actions undertaken by Dumfriesshire CDC confirm Grant's view that public civil defence measures were being undertaken mostly to

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<sup>85</sup> For more on the Strath Report see, Jeff Hughes, “The Strath report: Britain confronts the H-Bomb, 1954–1955,” *History and Technology*, 19, no.3 (2003), 257.

<sup>86</sup> Hughes, “The Strath report: Britain confronts the H-Bomb, 1954–1955,” 257.

avoid political strife.<sup>87</sup> In 1956, Leslie T. Carnegie, county clerk of Dumfriesshire, confronted rumours of public apathy towards Civil Defence at a dinner held for volunteers of the CDC. In a proposed toast to the Voluntary Services, Carnegie acknowledged that not enough recognition was given to these volunteers and that if the public truly believed that nothing was being done, then they need only look to the high standard of work carried out in Dumfriesshire.<sup>88</sup> Support for the Civil Defence Corps was noticeably clear again in 1957 in a pamphlet published in the Dumfries and Galloway Standard in which a member for the CDC articulated that “many people know the kind of damage one H-bomb can do” but conceded that the efforts of the Civil Defence Corps in the aftermath of an event of this magnitude may be viewed as ridiculous and futile.<sup>89</sup> While the writer of the pamphlet stated that this was an “understandable reaction,” the author contended that this viewpoint was “entirely wrong.”<sup>90</sup> The writer of the pamphlet supported the CDC on the same grounds emphasized in 1952: that in the aftermath of a nuclear attack, the CDC was necessary to the survival of Britain as a war making, and economically-viable state. It is noteworthy that these examples of public support of the CDC, and all public exercises of the Dumfriesshire CDC afterwards, reveals an early culture of subservience and consensus formed within the ranks of the regional authorities tasked with making the nuclearization of their region imaginable, manageable, and capable of being acted upon. Whereas in other parts of the UK, as Grant notes, CDC membership gradually decreased, it is significant that in Dumfriesshire the CDC did not disappear but rather adapted to meet the requirements developed in Whitehall. While Grant indicates that the public exercises of the CDC continued in some fashion within the UK until its dissolution in 1968, he admits that CDC never fully recovered from the crisis created in these years. The question is then: why did the CDC remain prominent within Dumfriesshire following such a crucial period of crisis and decline in the history of Civil Defence in the UK?

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<sup>87</sup> Grant, *After the Bomb*, 123.

<sup>88</sup> “Civil Defense: Work in Dumfries and Galloway and Public Apathy Towards Service,” *The Dumfries and Galloway Standard* 11.4.1956.

<sup>89</sup> “Civil Defense: Essential Part of National Preparedness,” *The Dumfries and Galloway Standard* 18. 10. 1958.

<sup>90</sup> “Civil Defense: Essential Part of National Preparedness,” *The Dumfries and Galloway Standard* 18. 10. 1958.

Notwithstanding the conclusions made by Grant, the introduction of Chapelcross in 1955 created a distinct situation for local officials in Dumfriesshire - a situation missing in the work of both Grant and Davis. The narrative of civil defense and emergency preparedness in the Dumfriesshire region shifted from one focused on a potential threat from an external foreign force to one that emanated from a nuclear facility present within their own community. The fire at Windscale nuclear plant in Cumberland in 1957 underscored the shift as this incident resulted in a review of the accident in what is known as the Fleck Report of 1957.<sup>91</sup> Chapelcross opened in 1959, one year after the Fleck Report was passed in parliament, and it was the first station to work under the Fleck Report guidelines. In the years Grant marks as the decline and eventual disappearance of the CDC within the UK, civil defense in Dumfriesshire did not disappear entirely but took on a new face as councillors and clerks transitioned away from civil defense and sought involvement with the Chapelcross station. The creation of the Local Liaison Committees absorbed many of the functions and responsibilities previously undertaken by the CDC. However, the County Councillors' energy and sense of purpose devoted to CDC matters remained at the forefront of regional affairs with the announcement of Chapelcross in 1955 – specifically, the performative aspect of staged, military-style, drills and exercises designed to mitigate potential paralyzing fears and anxieties and provide a sense of comfort and preparedness within the community.

### **3.2. Chapelcross Local Liaison Committee and The District Emergency Scheme**

Weeks before the opening of Chapelcross in 1959, the newly formed Chapelcross Local Liaison Committee met for the first time. As noted by the Chairman of the Committee, the purpose of these local committees was “primarily to reassure local opinion on the hazards involved, to convey to the lay public the significance of any incident, and to create administrative machinery for the protection of the population in the event of a serious accident.”<sup>92</sup> He went on to state:

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<sup>91</sup> Dobson and Whitham, “Project Lamachus: The Cold War comes to Scotland - The Holy Loch U.S. Nuclear Submarine Base and Its Impact on Scotland, 1959-1974”, 176.

<sup>92</sup> Minutes of the First Meeting held in the Conference Room, Administration Building, Chapelcross Works, on Tuesday 21<sup>st</sup> April 1959.

that the responsibilities were therefore to set up an organization which would be effective if there should be an incident involving the general public, and also to serve as a link between the Works and the public so that there can be general reassurances that techniques and precautions laid down in the Works are such as to ensure that no undue hazards are created.<sup>93</sup>

Membership of the committee included members of the Works staff, public representatives drawn from local and county authorities in the vicinity of the Works, and government departments and national organizations involved in the protection of the public or the environment from toxic materials and effluents omitted by any organization or works. This meant that the Committee was formed from senior members of the Works staff together with representatives from the Cumberland County Council, the Dumfries County Council, the Royal Burgh of Annan, representatives of the Police, the Ministry of Agriculture, Department of Agriculture for Scotland, the Scottish Home Department, the Scottish Education Department, Trades Union Congress, and the National Farmers Union.<sup>94</sup> It was stated by the Chairman that initially meetings might be held every two months but would later be reduced to two or three per year.

The specific membership and functions of the committee reveals just how much the committee drew upon the foundations, resources, and volunteers of the Dumfriesshire CDC. For example, the decision to create another committee – a sub-committee consisting of representatives from the Dumfries County Council, the Dumfries and Galloway Constabulary, and the Department of Agriculture for Scotland, tasked with developing a scheme in the aftermath of a nuclear accident – suggests that, in part, authorities in Whitehall intended the Local Liaison Committees to mimic the functions, membership, and foundations established within the CDC. Nonetheless, the UKAEA was still the primary convener of the Committee. By giving local authorities a role in the development of the Emergency Scheme for Chapelcross and the Dumfriesshire region, it reinforced the notion that local officials within the Local Liaison Committee had a certain degree of autonomy and input with Chapelcross, particularly as it related to health and safety.

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<sup>93</sup> Minutes of the First Meeting held in the Conference Room, Administration Building, Chapelcross Works, on Tuesday 21<sup>st</sup> April 1959.

<sup>94</sup> Minutes of the First Meeting “United Kingdom Atomic Energy Authority, Industrial Group. Chapelcross Local Liaison Committee,” Tuesday 21<sup>st</sup> April 1959.

This is evident in the first meeting of the sub-committee which took place on May 7, 1959 where the members debated and drafted an Emergency Scheme Plan in the event of a nuclear accident at Chapelcross. Much like the discussions which took place in the planning and construction phase of Chapelcross, the members of the committee each expressed their concerns and presented matters that were of direct import to their department, group, or organization. Mr. Dunlop, Chief Constabulary for the Dumfries and Galloway Police, noted that the “Chief Constables of Dumfries and Galloway and Cumberland needed to be notified immediately in the event of an incident,”<sup>95</sup> and contended that “the best way of notifying people of a potential inhalation hazard following an accident was for the police to visit them personally.”<sup>96</sup> The County Clerk of Dumfriesshire, Leslie Carnegie, agreed that the Civil Defense Organization for the district needed to be involved, particularly in the measurement of gamma-radiation at previously determined points around the Works. Mr. Scott, the Area Agricultural Defense Officer, asked about the potential hazard from milk contamination with radio-iodine, and suggested that the emergency plan should envisage the possible need for milk sampling from selected dairy farms up to ten miles from Chapelcross. Mr. Graham pointed out that children who were in school and had to be taken home would present a special problem. From this and the subsequent meetings of the sub-committee in the latter half of 1959 one thing became abundantly clear: the foundations established within the CDC – that is the emphasis on large-scale, public, military-style, exercises – continued through the Local Liaison Committee’s plans for the District Emergency Scheme.

No time was wasted in implementing the District Emergency Scheme. The essence of its function and purpose, much like the CDC, required public involvement and attention, and thus required an immediate public exercise that involved most of the community. The Scheme was put to the test for the first time on September 17, 1960. Issued in the local press was a complete description and notification of the Scheme, which read:

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<sup>95</sup> Minutes of the First Meeting of the Chapelcross Local Liaison Sub-Committee on Thursday May 7<sup>th</sup>, 1959.

<sup>96</sup> Minutes of the First Meeting of the Chapelcross Local Liaison Sub-Committee on Thursday May 7<sup>th</sup>, 1959.

On Sunday morning, 18<sup>th</sup> September, the United Kingdom Energy Authority personnel from Chapelcross Works, working in close liaison with the police, civil defense and health organizations of the Dumfriesshire and Cumberland local authorities, will stage a district exercise to test arrangements to protect the population should a serious accident ever occur inside the Chapelcross Works. A control centre will be established in one of the two alternative positions within the Works and other sections of the protective organization will be alerted through the Dumfriesshire County Constabularies. Teams from the Works and the Civil Defense Organization will undertake surveys at pre-selected points in Dumfriesshire and Cumberland. A public enquiry information centre will be located in the Annan Town Hall and the Police will attend mock road blocks and warning signs as necessary.<sup>97</sup>

In the meeting prior to the exercise, the sub-committee agreed on these and several other key issues. It was decided that the code words to be used for alerting the Police before the exercise would be, "Chapelcross Harvest Amber"; the start of the exercise would be signalled by the codewords, "Chapelcross Harvest Red."<sup>98</sup> Within the District Emergency Scheme under the section, "*Participation by Dumfriesshire Authorities,*" the following points were agreed upon: road blocks would be manned and warning signs erected; milk samples would be obtained from all the farms in one sector; and Scientific Intelligence Officers of the Civil Defense group would be used to take measurements and would be alerted of the exercise.<sup>99</sup> As a final touch of excitement to the exercise, members from the Works staff invited and encouraged representatives of the Dumfriesshire County Council to visit the Works Control Room during the exercise and monitor its operation and efficiency. In the weeks following the exercise, the sub-committee discussed concerns and opinions regarding the exercise and ultimately considered that the exercise, as carried out, was of considerable value in testing communications. These arguments were further supported in a meeting of the full committee where it was agreed that the exercise had proved very successful and instructive, and several suggestions were made for future exercises to proceed accordingly.

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<sup>97</sup> Memo of the Local Liaison Exercise, August 1960.

<sup>98</sup> Minutes of the Fourth Meeting of the Chapelcross Local Liaison Sub-Committee, Friday July 8<sup>th</sup>, 1960.

<sup>99</sup> Minutes of the Fourth Meeting of the Chapelcross Local Liaison Sub-Committee, Friday July 8<sup>th</sup>, 1960.

Ultimately, the success of the Exercise and the Emergency Scheme developed by the local liaison sub-committee for Chapelcross reaffirmed the committee's capacity to contribute as both an autonomous–yet–integrated component of the British Nuclear State. Not only was the Exercise and Emergency Scheme developed to safeguard the community from potential health and safety hazards that could arise in the event of a reactor accident – something of direct import to the region and the nation– but it defined the type of collaborative relationship that needed to exist between the local authorities from the county of Dumfriesshire and the Atomic Energy Authority. Through the success of its first initiative and the development of the District Emergency Scheme, the Local Liaison Committee for Chapelcross came to understand the station as not only a safe and well-managed station but a station for which they believed that they had a considerable role when it came to maintaining high levels of safety for their community.

This optimism and cordiality was put to the test in 1967 when Reactor Two was shut down following a serious fuel element failure. According to a reporter for the *Annandale Observer*, on Friday, May 12, 1967, the “No. 2 Reactor at Chapelcross Atomic Station had been closed down due to a leak in one of the metal cans containing the uranium fuel.”<sup>100</sup> The reporter noted that this resulted in a “certain amount of radioactivity entering the gas carbon dioxide which circulates through the Reactor.”<sup>101</sup> Naturally, the press provided substantial coverage of the accident, relaying stories and images of melted uranium dripping into the Chapelcross reactors. Press reports included catch-bait headlines that tapped the fears of the local population over radioactive contamination and nuclear fallout. While the leak and subsequent shutdown of the reactor surely increased anxieties inside and outside of the Scottish Office and County departments, it is important to note that in what is largely considered to be Chapelcross' first real emergency not only was the District Emergency Scheme ignored but the Local Liaison Committee played a relatively minute role as the intermediary between the Works staff, the press, and the general public. Instead, it was the UKAEA that assumed the primary role of intermediary with the general public and the press.

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<sup>100</sup> “Chapelcross Reactor Shut Down: Assurance Given Regarding Radioactivity,” *The Annandale Observer*, May 19<sup>th</sup>, 1967.

<sup>101</sup> “Chapelcross Reactor Shut Down: Assurance Given Regarding Radioactivity,” *The Annandale Observer*, May 19<sup>th</sup>, 1967.

Early commentary in the press during this time period suggested that the emergency shutdown of Reactor Two was much worse than indicated by the chief members of the Chapelcross Works staff. For example, it was reported in the *Annandale Observer* in September of 1967 (almost four months after the clean up) that in a routine radiation check at Chapelcross, over forty workers experienced some type of radioactive contamination on their clothing because of their interaction with Reactor Two.<sup>102</sup> Consequently, over one hundred workers decided not to work in the faulty reactor until it was declared safe. Other stories in the press paid specific attention to David MacDougall, Deputy Superintendent of the station and to Dr. Jack Martin, Manager of the Health, Safety and Physics section of the station. These men had entered Reactor Two in pressurized P.V.C. suits to remove the exposed fuel elements.<sup>103</sup> One of the best descriptions of the actions by these two individuals appeared in the *Scottish Daily Mail* which stated: “Dr. Martin and Mr. MacDougall – both married men with families – had volunteered to go into the reactor when it was found that clearing of a faulty fuel channel, which had caused a shut down, could not be done in the normal way.”<sup>104</sup> The article celebrated the heroism of the men and explained in detail how the men entered the reactor with nothing but torches for light, a single pipe to the outside for air, a radio communication cord, and a nylon life-line belted to their waists. They [the two men] commented, “We never thought about any danger...we did feel a little like Moon men.”<sup>105</sup> The significance of these narratives in the press is that it illustrates a moment in which the UKAEA seized control of the narrative being presented to the public via the media and deliberately highlighted its own members as heroes in an otherwise unfortunate accident.

In the many rebuttals and responses made by the UKAEA to the press and the general public in relation to this event, representatives for the UKAEA maintained a firm line of defense with regards to the purported risks involved with both the incident and the

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<sup>102</sup> “Chapelcross – More Rigorous Check for Radiation,” *The Annandale Observer*, September 22, 1967.

<sup>103</sup> “Efficient Organization the Keynote at Chapelcross: Chapelcross Scientists First in Scotland to Enter a Reactor,” *The Annandale Observer*, May 26, 1967.

<sup>104</sup> Mr. Tuohy of the UKAEA, “Efficient Organization the Keynote at Chapelcross: Chapelcross Scientists First in Scotland to Enter a Reactor,” *The Annandale Observer*, May 26, 1967.

<sup>105</sup> Mr. Tuohy of the UKAEA, “Efficient Organization the Keynote at Chapelcross: Chapelcross Scientists First in Scotland to Enter a Reactor,” *The Annandale Observer*, May 26, 1967.

clean up and affirmed that there was no danger of a radiation leak into the atmosphere. Mr. Tuohy, Managing Director of the UKAEA, had his own views that some newspapers had the whole incident out of perspective. He stated in several interviews with the press that he did not consider there was any danger in someone entering the reactor, otherwise he would not have allowed it.<sup>106</sup> Although Tuohy emphasised that it was not dangerous for Chapelcross scientists to enter the Number Two Reactor, he frequently noted that it was a “unique operation,” being the first occasion in Scotland in which someone has gone past the biological shield.<sup>107</sup> While the technique for entering reactors first became necessary at Calder Hall after part of an inspection camera became detached from its bracket and fell into the Reactor in 1965, he noted the operation had never been carried out in Scotland. Again, Tuohy reframed the circumstances around this incident from that of a potential disaster to one in which the UKAEA had implemented innovative safety protocols and procedures intended to protect the general public.

The incident revealed to the Local Liaison Committee just how little influence or control they had over the station in the event of an emergency. The actions of the UKAEA in the aftermath of the meltdown in 1967 demonstrated that it was the UKAEA that served as the primary intermediary between the Works staff and the general public. Despite the Fleck Report recommendation that “local liaison committees served as the link between the Works and the general public,”<sup>108</sup> in this particular incident the UKAEA unilaterally assumed this role and did not engage the Local Liaison Committee in an official or meaningful capacity until December of 1967, nearly six months after the accident. In the meeting in December of 1967, Mr. MacDougall, one of the two men who entered the reactor, explained with the aid of slides and exhibits the events which led to the melting of fuel in a channel in Reactor Two and ensured that immediate steps had been taken to remove the radioactivity.<sup>109</sup> Dr. Martin, the second of the two men to

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<sup>106</sup> Mr. Tuohy of the UKAEA, “Chapelcross Scientists First in Scotland to Enter a Reactor,” *The Annandale Observer*, May 26, 1967.

<sup>107</sup> Mr. Tuohy of the UKAEA, “Chapelcross Scientists First in Scotland to Enter a Reactor,” *The Annandale Observer*, May 26, 1967.

<sup>108</sup> Minutes of the First Meeting held in the Conference Room, Administration Building, Chapelcross Works, on Tuesday 21<sup>st</sup> April 1959.

<sup>109</sup> Minutes of the 10<sup>th</sup> Meeting of the Chapelcross Local Liaison Committee on Friday, December 1<sup>st</sup>, 1967.

enter the reactor, discussed the Health and Safety aspects of the situation and emphasized that the possibility of radioactivity leaks had been restricted to the Reactor Two building and did not affect the rest of the site, let alone the surrounding district.<sup>110</sup> The GM of the station reported that in the process of the recovery operation there had been some very minor clothing contamination. He noted that this caused considerable unjustified and unnecessary media coverage and warned the committee members not to speak to the press without consulting the UKAEA in advance.<sup>111</sup> Ultimately, the meeting served as an opportunity for the UKAEA to downplay the significance of the incident, while also providing the committee with information that the UKAEA deemed relevant for sharing with the general public.

The fact that the Local Liaison Committee was unable to operate outside of the guidelines imposed by the UKAEA suggests that these committees hardly experienced a distinguished career. As Dobson and Whitham indicate, a letter from the Chairman of the UKAEA sent to Prime Minister Macmillan in 1957 made this abundantly clear. In November of 1957, the Chairman explained his experience with local liaison committees set up at civilian nuclear power stations in the aftermath of the accident at Windscale:

Their success [i.e., local liaison committees] and the co-operation of the various local interests depends on their being encouraged to believe that they have a significant measure of autonomy in matters within their terms of reference...While encouraging a sense of independence and local autonomy, the Authority representatives must ensure that local liaison committees do not undertake independent action publicly which could have embarrassing consequences for other Establishments, for the Authority as whole, or for the Government.<sup>112</sup>

Seen in the context of official thinking, the lack of communication and input from the local authorities at the end of 1967 looks, as Dobson and Whitham put it, suspiciously like a case of “if you don’t know, then you cannot be held responsible or

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<sup>110</sup> Minutes of the 10<sup>th</sup> Meeting of the Chapelcross Local Liaison Committee on Friday, December 1<sup>st</sup>, 1967.

<sup>111</sup> Minutes of the 10<sup>th</sup> Meeting of the Chapelcross Local Liaison Committee on Friday, December 1<sup>st</sup>, 1967.

<sup>112</sup> SRO, HH, 56/57, Admiralty Paper, Local Liaison Committee, undated, no signature, referring to the Nuclear Warships Safety Committee, NWSC/P18, United Kingdom Atomic Energy Authority Experience with Local Committees, Chairman of the Atomic Energy Authority to MacMillan, November 1957. Retrieved from Dobson and Whitham, 180.

called into account.”<sup>113</sup> The view that disclosure would panic the general population and only lead to distortions in the press was increasingly difficult to tolerate as the 1960s and 1970s progressed. As Dobson and Whitham suggest, the diminished role of the Local Liaison Committee was even more difficult to tolerate in a “general population that was beginning to awaken to a sense that the government in London was remote and not in Scottish best interests.”<sup>114</sup> At the very least, if such attitudes had to be tolerated it would be better if they were emanating from Edinburgh rather than from London.

While the district emergency scheme arose from the desire of the County Authorities and the Local Liaison Committee for greater inclusion and autonomy over certain policies for the station, it was undermined by the desire of the UKAEA representatives to handle all matters related to the station in the event of an emergency. Nonetheless, the Local Liaison Committee continued to draft and re-draft the District Emergency Scheme that remained in effect well into the 1970s and 1980s. While their role was minor, the Committee altered the political and cultural fabric of the County authorities of Dumfriesshire. In part, County authorities came to recognize their place in the hierarchy of the nuclear State and regarded their role, however minimal it appeared in the aftermath of the accident in 1967, as essential to the administrative machinery of the station.

The actions, methods, and stance taken by the Chapelcross Local Liaison Committee reinforces historian Jonathan Hogg’s argument that “designing and building Cold War infrastructure was part of an unquestioned faith in systems of government and thinking that were deemed necessary to preserve peace.”<sup>115</sup> Nonetheless, Hogg suggests that while sometimes viewed as engendering conformity and obedience within government, civil defence initiatives also created pockets of resistance within official circles. Similarly, Grant argues that up to 1968 civil defence was considered a ‘rational and understandable sham’, or a ‘necessary facade’ by government officials and that by the 1980s it was far more common to find examples of nuclear resistance within local government. Unique to the 1980s, Hogg argues, was the emergence of sustained criticism involved in “historicizing the production and accommodation of nuclear

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<sup>113</sup> Dobson and Whitham, 180.

<sup>114</sup> Dobson and Whitham, 180.

<sup>115</sup> Hogg, “Cultures of Nuclear Resistance,” 588.

hegemony, exposing its ambiguities and contradictions, restoring to public consciousness what it has repressed, providing alternative narratives of the nuclear future, and energizing democratic participation in nuclear policy-making.”<sup>116</sup> It is at this point in this story of Chapelcross that we now turn our attention to these cultures of nuclear resistance within Dumfriesshire, and Scotland more generally, in order to understand how, if at all, people within the region resisted the increasing authority of the UKAEA.

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<sup>116</sup> Hogg, “Cultures of Nuclear Resistance,” 587.

## Chapter 4.

### To Serve and Protest

Chapters One and Two left off in a moment of uncertainty over the purported closure of the Chapelcross Works nuclear station. Despite reports on productivity the station was out of date and required significant funds to keep it competitive into the 1970s. Concerns over the longevity of the Chapelcross station expressed by the Scottish Office, Dumfriesshire and Annan County Councils, the Works staff, and public alike, were, in part, quelled in 1976 when the UK Ministry of Defense issued a contract with the BNFL for the construction of a Tritium plant at Chapelcross.<sup>117</sup> While Chapters One and Two determined that government action and policies for the station stemmed from the intragovernmental nuclear culture which existed in the 1950s and 1960s, I argued that decisions made by London met minimal resistance from the Scottish Office, County Offices, Works staff, and the public, thereby contributing to the making of a political culture in Dumfriesshire that was ultimately subservient to the decisions made for the station by those in Westminster. This dynamic changed with the decision to construct a Tritium plant at Chapelcross in 1976 as the lack of Scottish influence, particularly over Scottish involvement in the nuclear arms race, became a contentious issue. Although the decision to build a Tritium plant at Chapelcross secured its future and appeased local concerns about the longevity of the station, this chapter argues that the anti-nuclear movement in Dumfriesshire in 1978 challenged the apparatus of the British Nuclear State of Westminster and attempted to take control of the local nuclear narrative and construct alternative and “open visions” of the nuclear present, and future, for the region.<sup>118</sup> Consequently, the actions undertaken by anti-nuclear activists in the Dumfriesshire region demonstrate that the cultures of nuclear resistance in Scotland were regionally distinct and cannot be conflated with the nationalist anti-nuclear movement based out of Glasgow and other major urban centers.

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<sup>117</sup> Tritium is a radioactive isotope of hydrogen and works as a fuel for nuclear fusion reactions with applications in energy generation and weapons. See *Nuclear Wastelands: A Global Guide to Nuclear Weapons Production and Its Health and Environmental Effects*, eds. Arjun Makhijani, Howard Hu, Katherine Yih (Cambridge, Massachusetts: The MIT Press: 1995), 419.

<sup>118</sup> Jonathan Hogg, “Cultures of Nuclear Resistance in 1980s Liverpool,” 585.

While historians of nuclear Scotland such as Christopher R. Hill claim that the anti-nuclear movement in Scotland assisted the emergence of a left-of-center nationalism in government circles, the extent to which this phenomenon occurred within regions of Scotland remains significantly underexplored. This chapter looks at how anti-nuclear activists within the Dumfriesshire region confronted the issues regarding constitutional and environmental sovereignty and policies developed for the Chapelcross Works nuclear station by both London and the Scottish Office between the years 1959-1979. More specifically, it examines the culture of nuclear resistance that re-emerged in Dumfriesshire in the late 1970s as a result, in part, of the decision to transition the Chapelcross site away from its commercial functions to one which ultimately served the military units of the British Nuclear State. Through an examination of letters, pamphlets, editorials, and newspaper articles, this chapter contributes to the debate on whether the issue of nuclear disarmament and the anti-nuclear movement within Scotland catalyzed a leftwards shift of Scottish political culture in this period. Hill argues that as Scottish anti-nuclear activists drew upon local cultures and traditions to imagine and construct civil societies free from the threat of the Cold War and nuclear weapons, they brought these societies into a national context that was rich in potential for nationalist parties and politics.<sup>119</sup>

Hogg suggests that localized forms of nuclear resistance throughout the UK can echo familiar types of nuclear activism undertaken by citizens throughout the nuclear age; however, their specific nature must be understood as a direct product of the unique cultural politics which existed in that particular place and time.<sup>120</sup> The cultures of nuclear resistance in Dumfriesshire in the late 1970s garnered support from the local community by using a platform of peace and nationalism similar to those developed by activists in Glasgow, Edinburgh, and other major Scottish cities. However, since much of the community in Dumfriesshire in the 1960s and 1970s understood nuclear power, and thereby the Chapelcross station, as the potential life blood for the region, it is necessary to consider how the platform for peace and autonomy was re-scaled and re-directed towards their community. This chapter examines specific demonstrations connected to Chapelcross and the region to better determine the extent to which the involvement of

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<sup>119</sup> Christopher R. Hill, "Nations of Peace: Nuclear Disarmament and the Making of National Identity in Scotland and Wales," *Twentieth Century British History*, 27, no.1 (2016), 26.

<sup>120</sup> Jonathan Hogg, "Cultures of Nuclear Resistance in 1980s Liverpool," 585.

the anti-nuclear movement in Dumfriesshire catalyzed a leftward shift in nationalist politics in the region in the late 1970s.

Distinguishing the cultures of nuclear resistance in Dumfriesshire from those located in other parts in Scotland will be accomplished by an examination of SCND activity within the region. This includes an analysis of their written materials including brochures, pamphlets, and leaflets published in the regional newspapers, *The Annandale Observer* and *The Dumfries and Galloway Standard*. The examination of these sources provides insight into the evolution of the culture of nuclear resistance in Dumfriesshire as these sources reflect the thoughts, sentiments and opinions of people of the region during this time. Continuing the historiographical debate as to whether the anti-nuclear movement in Scotland contributed to a leftward shift in nationalist politics at this time, this chapter concludes that despite the presence of the Tritium factory at Chapelcross the movement could not overcome the political culture in the region which supported and defended the nuclear agenda set in London. However, to make any judgements about the role and influence of the anti-nuclear movement in Dumfriesshire in the late 1970s, first requires that we examine the history of the anti-nuclear movement in Scotland from 1959 to 1976 and its influence on Scotland and the region of Dumfriesshire.

#### **4.1. Cultures of Nuclear Resistance in Dumfriesshire and Scotland: The Context prior to 1976**

The anti-nuclear movement in Scotland was a national phenomenon distinct from that of the rest of the UK with its origins and development rooted in the Scottish Campaign for Nuclear Disarmament (SCND). Prior to the organization's creation in 1958, opposition to nuclear weapons in Scotland came from socialist networks, women's organizations, Church groups, trade unions, and academic circles, each with competing ideologies and opinions for Scottish involvement within the British Nuclear State.<sup>121</sup> For example, one of the first to oppose the nuclear agenda in the Dumfriesshire region was the Church of Scotland which worked with pacifist organizations such as the World Peace Council (WPC). In 1959, Glen Gibson wrote an article for the Church of Scotland monthly newsletter in which he questioned the spiritual and moral fabric of the

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<sup>121</sup> Christopher R. Hill, "Nations of Peace," 32.

community for its acceptance of the proposed Chapelcross nuclear station. While Gibson was not a local resident of the region, Gibson was the assistant editor of the Church of Scotland magazine, *Life and Work*, which was widely distributed throughout the region. Gibson's initial comments reflect the mood and attitudes of quiet apprehension with the introduction of nuclear technology, tinged with the hope for the economic benefits that might accompany it. Gibson claimed that the "carpet-slipper" arrival of Uranium 235 held social and moral implications for Annan's 5000 residents and was concerned that these issues were not being addressed by the local populace.<sup>122</sup> He wrote:

If they have worries about the source of their new prosperity, or a muted, if unreasonable fear of radiation leaks, they do not show them. The message boys whistle their way along the main street as in any town, the pretty shop girls go about their hundred small tasks exchanging the day's news with comfortable looking housewives. Life is pretty good and pretty normal in Annan, the atom town.<sup>123</sup>

Despite misgivings, Gibson revealed himself to be a pragmatist as he also expressed the view that "all of us have apparently to live with the Bomb, and, if some of us have to live *by* it, then that is all very regrettable – but we must live."<sup>124</sup> Nonetheless his over-arching concern can best be summarized by his concluding remarks in which he stated that perhaps "U235" was a "carpet slipper revolution" and a "silent challenge to the Church to watch for a spiritual and moral 'fallout'" amongst the community.

The CND and SCND, respectively, drew upon the issues highlighted by individuals and groups such as Gibson and the Church of Scotland. The formation of the SCND was based on the English counterpart, the Campaign for Nuclear Disarmament (CND) which launched at a public meeting at Central Hall, Westminster, on 17 February 1958, attended by 5,000 people.<sup>125</sup> This meeting followed the moment in November 1957 when J. B. Priestley wrote an article for *the New Statesman* magazine, "Britain and the Nuclear Bombs," advocating unilateral nuclear

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<sup>122</sup> Glen Gibson, "Carpet-Slipper Revolution: Annan the Atom Town," *Life and Work: The Record of the Church of Scotland*, November 1959, 211.

<sup>123</sup> Gibson, "Carpet-Slipper Revolution," 212.

<sup>124</sup> Gibson, "Carpet-Slipper Revolution," 212.

<sup>125</sup> *The CND Story: The First 25 Years of CND in the Words of the People Involved*, eds. John Minnion and Philip Bolsover, (London: Allison & Busby Press, 1982).

disarmament by Britain. In it he said: "now that Britain has told the world she has the H-bomb she should announce as early as possible that she has done with it, that she proposes to reject, in all circumstances, nuclear warfare."<sup>126</sup> The Scottish campaign attempted to nationalize the movement and bring the competing affiliations in Scotland together under a common cause. The autonomous organisation which formed in Glasgow in 1958 was not a pacifist organisation in the sense that it did not oppose the possession of all weapons, but it was concerned with local issues that characterized the distinctly Scottish aspect of SCND. Although the strategies and aims of the SCND were linked to London and Britain, Hill argues that their ideals were also linked to a "utopian nationalism" through which ideological and activist networks were re-imagined and re-scaled in a manner more conducive to nationalism and the nationalist parties.<sup>127</sup> In utilizing these networks, the SCND contributed to the making of a civil society that was embedded in national institutions, distinctive from their English counterparts, and suspicious of London-rule. While not a smooth and steady development, the SCND grew to eight branches by 1960 with a platform linked to, but distinct from, their English counterparts.

It is significant to note that the Dumfriesshire branch of the CND, one of the eight initial branches, did not figure prominently in SCND and nationalist activity during this time frame, especially with regards to the Chapelcross station. Based on the actions of the Dumfriesshire CND at this time, the branch was more in line with its British counterparts, often adopting the British CND policies and agendas rather than national concerns. For example, the first reported opportunity for the branch to position Chapelcross and the Dumfriesshire region prominently within the anti-nuclear discourse occurred in 1963, when the Dumfries branch of the CND agreed at a meeting to march to the atomic energy plant at Chapelcross in protest of nuclear weapons. In an article written for *The Dumfries and Galloway Standard*, Mr. Iain Jordan, the president of the regional CND, stated that the demonstration was to coincide with a meeting of the world's major powers in furtherance of the British CND's agenda for unilateral disarmament of the UK and the world and Britain's withdrawal from NATO.<sup>128</sup> Despite

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<sup>126</sup> J. B. Priestley, "Britain and the Nuclear Bombs," *New Statesman*, November 1957, 158.

<sup>127</sup> Christopher R. Hill, "Nations of Peace," 28.

<sup>128</sup> "Demonstration at Chapelcross: Dumfries CND Branch Agree on Plan," *The Dumfries and Galloway Standard*, November 1962.

reports which suggest that the demonstration fell through when the branch did not fix a time or place for the demonstration, this moment is significant to understanding the culture of nuclear resistance in Dumfriesshire at this time as it illustrates that in what is demonstrably the first exposure of Chapelcross within anti-nuclear discourse that the group conscientiously highlighted a British and international agenda. They avoided any rhetoric which targeted the Chapelcross site and the members of the community directly. In similar fashion, the meltdown in Reactor Two at Chapelcross in 1967 presented a significant and unique opportunity for the local CND chapter in Dumfriesshire to launch a demonstration highlighting the immediate dangers nuclear facilities posed to their community and Scotland more generally. However, consistent with the earlier actions of the local anti-nuclear movement, the SCND as well as the Dumfriesshire chapter of the CND did not engage in the same level of protest undertaken by the anti-nuclear protest groups in other parts of Scotland. Indeed, it was the tendency to support the British CND agenda that set it apart from the anti-nuclear movement in other parts of Scotland in the 1960s.

The absence of a sustained resistance in the Dumfries area from SCND activists in the 1960s confirms historian Brian Jamison's point that after 1961, when the UK government agreed to the purchase and presence of the US Navy's Polaris fleet based in Scotland's Holy Loch, the SCND's concerns became directly focused on nuclear-powered ballistic submarines.<sup>129</sup> Indeed, as evidenced by demonstrations in 1962 and 1963, the presence and purpose of these nuclear-powered ballistic submarines in Holy Loch was the foundation upon which the SCND built their organization and platform. It was this momentous event which has led historians such as Hill to the conclusion that the nuclear culture of resistance in Scotland was conducive to nationalist parties' politics and networks of national institutions. While these protests at Holy Loch fed off existing organizational structures such as CND and the Committee of One Hundred, they also contributed something of their own, and they aroused a sense that the Scottish situation was primarily Scotland's concern. Dobson and Whitham go so far as to argue that "without Holy Loch, there would have been no demonstrations that raised the issues of Scottish needs for disarmament and Scottish democratic control over its own nuclear

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<sup>129</sup> Brian P. Jamison, "Will They Blow Us A' Tae Hell? Strategies and Obstacles for the Disarmament Movement in Scotland" in Brian P. Jamison, ed., *Scotland and the Cold War*, (Glasgow: Cualann Press, 2003), 115.

destiny in the way that those in Glasgow and at Holy Loch raised them.”<sup>130</sup> Clearly then, the culture of nuclear resistance in Scotland was nationalized and forged through these issues in Holy Loch in a way that it was not in the rest of Scotland. The question is then, why did the anti-nuclear movement in Dumfriesshire, a region with a nuclear station with both military and commercial applications based within its midst, not generate as significant an opposition as the one witnessed at Holy Loch?

Hill’s analysis of the SCND platform helps explain how and why the anti-nuclear movement in Scotland was nationalized and took root in regions such as Holy Loch but not in Dumfries. As he suggests, the nationalization of the anti-nuclear movement stemmed from one clear issue – the British state’s decision to place nuclear installations with obvious military applications within Scotland which would impede the environmental and constitutional sovereignty of Scottish institutions within UK Parliament. Consequently, the conceptualization of nuclear disarmament as a Scottish, rather than English, cause occurred through “manipulation and growing awareness of the dangers that nuclear weapons posed to Scotland directly.”<sup>131</sup> The anti-nuclear movement used local connections to Scottish land and culture to provoke the notion that these nuclear installations were an imposition upon Scotland and, in turn, overruled the constitutional and environmental sovereignty of Scottish institutions. Hence, above all, the anti-nuclear movement was nationalized through a platform of peace and national sovereignty – that is, the desire for peace and the sovereignty to initiate it, which until this point was dictated and controlled by political figures and institutions in Westminster. What is significant about these conclusions drawn by Hill is that it is precisely this platform for peace and national sovereignty, which had garnered much nationalist pride and sentiment within the Holy Loch region, that was absent in the Dumfriesshire region despite the physical presence of the Chapelcross Works nuclear station.

It is important to note that the emotive pull that came with the manipulation and growing awareness of the dangers nuclear weapons posed to the Scottish environment and institutions was often tempered or superseded by the economic opportunities that

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<sup>130</sup> Alan P. Dobson and Charlie Whitham, “Project Lamachus: The Cold War Comes to Scotland – the Holy Loch U.S. Nuclear Submarine Base and Its Impact on Scotland, 1959-1974,” in Jeffery A. Engel, ed., *Local Consequences of a Global Cold War* (Washington D.C: Woodrow Wilson Center Press, 2008), 188.

<sup>131</sup> Christopher R. Hill, “Nations of Peace,” 37.

military infrastructures had to offer. This is exactly the case for Dumfries as the economic importance of the station outweighed any concerns Scottish officials and the community had with respect to peace and nationalism at this time. As evidenced by the early adoption of opinions held by both national and local officials, the station was not viewed by the local population as an imposition or threat to the region. Given that Chapelcross contributed to both military as well as commercial functions, it presented a difficult and distinct challenge for the nationalist anti-nuclear movement and thus was not a symbol to unite or further the nationalist anti-nuclear cause. Furthermore, the Dumfries region had historical links to the military industrial complex due to their support and participation in weapons and arms production during the first and second world wars of the 20<sup>th</sup> century. This would then suggest that the region was tolerant than major urban centers such as Glasgow or Edinburgh of having a station with potential military applications and the possible associated risks within their midst. Even if it was viewed as a threat by some members of the community, the economic importance of the station for the politicians at the time outweighed any dissenting opinions. However, the issues of peace and autonomy generated through the efforts of the anti-nuclear movement in the 1950s and 1960s were not entirely absent. The late 1970s witnessed a revival of such ideas presented by the anti-nuclear movement as there was a growing awareness by Scots of the lack of influence/power within the Scottish Office and County Councils following a series of decisions to build additional nuclear installations within Scotland. Indeed, this was the case in Dumfriesshire as, notwithstanding the historical position of the Dumfries region on these issues, the status quo changed in 1976 when the Ministry of Defense announced plans to construct a Tritium factory at Chapelcross.

## **4.2. Into the Seventies**

The decision to use the Chapelcross station as a site for a Tritium factory contributed to the developing trends in Scottish political culture of increasing popular suspicion of the nuclear agenda set in Westminster. In the wider view, suspicions held by Scottish anti-nuclear activists in Scotland were largely due to the increased production and repair of nuclear installations that took place throughout Scotland in the mid 1970s. For instance, in 1976 UK and Scottish officials agreed to the construction and development of the Torness nuclear station located 50 km outside of Edinburgh, and in 1978 there were plans to update and re-new the Polaris and Poseidon missiles

located in Holy Loch with the Trident I missiles. Such plans in the late 1970s brought the issue of nuclear disarmament to the forefront of the nuclear debate and contributed to the resurgence and formation of anti-nuclear protest groups outside of the SCND. For example, in 1976 Pete Roche and a few other activists founded the Scottish Campaign to Resist the Atomic Menace (SCRAM) which aimed at protesting the construction of the Torness nuclear power station, as well as opposing nuclear power in general. SCRAM organized some of the largest anti-nuclear power demonstrations in the UK in the 1970s and 1980s and worked with the SCND on a series of 'Ban the Bomb' campaigns in 1978. The platform for peace and nationalism introduced and manipulated by SCND members throughout the 1960s found new support amongst many Scots irked by the lack of Scottish influence within the nuclear state, which by the late 1970s was demonstrably evident. Consequently, Scotland became a focal point for anti-nuclear activism in the UK at this time.

While Dumfriesshire had been immune to this type of activity in the past, in early September 1978 the Tritium plant at Chapelcross was the centre of a nationwide "ban the bomb" type campaign organized by the Dumfriesshire CND branch as well as SCRAM.<sup>132</sup> On September 1, over two-hundred CND supporters from all over the UK converged on Annan and Dumfries. Over the course of two days, the CND supporters distributed leaflets to every household in the two towns. Leading the supporters was the Secretary of the new Dumfriesshire CND branch, Andrew Patterson, a teacher from the Annan Academy. In a brief interview with *The Annandale Observer*, Patterson noted that this was, "the beginning of a longer-term campaign which would put the Chapelcross plant in the forefront of CND national activities and on par with the military establishments at Aldermaston and Holy Loch."<sup>133</sup> He said that at the regional level the leaflet exercise was primarily to inform local people of the facts about the plant that they may not have previously known and to allow them to "make up their own minds."<sup>134</sup> In contrast with the demonstrations in Dumfriesshire in the early 1960s, this moment is significant as the leaflet exercise reflects the changing nature of the culture of nuclear resistance taking place within the Dumfriesshire region at this time as activists from the

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<sup>132</sup> "CND Mount Tritium Protest," *The Annandale Observer*, August 25, 1978.

<sup>133</sup> Andrew Patterson interviewed in "CND Mount Tritium Protest," *The Annandale Observer*, August 25, 1978.

<sup>134</sup> Andrew Patterson interviewed in "CND Mount Tritium Protest," *The Annandale Observer*, August 25, 1978.

region attempted to incorporate the nationalist platform of peace and autonomy into regional events.

Initially, Patterson and members of the Dumfriesshire and Galloway (D&G) CND claimed the leaflet exercise a success, as they received many enquiries about membership of the new branch and recruited several new members. However, the D&G CND encountered opposition to their new agenda. For example, an editorial published in *The Annandale Observer* characterized the leaflet exercise as “scaremongering” and a “witch hunt.”<sup>135</sup> In response, Ian Davidson, Secretary of the SCND, complained about the editorial and affirmed that SCND was not making a personal attack on the management and workers at Chapelcross; rather, he claimed that he and the local members of the SCND represented the constituency within the local population which desired a better choice than either unemployment or nuclear weapons work.<sup>136</sup> Similarly, Freddy Crichton-Stuart, Scottish National Party (SNP) candidate for the Dumfries region, also took to the defensive, stating that “the protest [had] nothing to do with the Chapelcross Nuclear Power Station;”<sup>137</sup> it was solely aimed at the Tritium Plant under construction there, which was run by BNFL for the Ministry of Defense. He suggested that if money had to be spent on Defense, it should be used for the Annan area for better wages, working conditions, equipment services and attracting new industry to the town. It is clear from these responses by Davison and Stuart that the anti-nuclear movement in Dumfriesshire was in line with the broader doctrine of the SCND which placed at its forefront the issues of peace and national sovereignty. As such, Chapelcross itself was not considered to be the primary point of contention; rather, it was the Tritium plant and its associated military applications and the imposition of this technology by the BNFL and Ministry of Defense that galvanized the movement for the region.

The debate regarding the modification of Chapelcross to include the production of Tritium was carried on within the regional media such as *The Annandale Observer*. When asked by a reporter at that paper about the leaflet exercise and CND activity in Dumfries David MacDougall, Superintendent at Chapelcross Power Station, indicated

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<sup>135</sup> “Chapelcross Chief Slams CND Leaflet,” *The Annandale Observer*, September 8, 1978.

<sup>136</sup> Ian Davidson, “Letters to the Editor,” *The Annandale Observer*, September 8, 1978.

<sup>137</sup> F. Crichton Stuart, “Letters to the Editor,” *The Annandale Observer*, September 8, 1978.

that the leaflet was totally inaccurate and slanted to give a particular opinion. He stated that the country had “a defense policy which had been formulated by successive governments” and that the BNFL were “merely fulfilling a contract for the Ministry of Defense which was their function.”<sup>138</sup> Again, it was Dumfries SNP candidate, Freddy Crichton-Stuart, who took exception to MacDougall’s statement. In a letter to the editor of *The Annandale Observer*, he challenged MacDougall’s views and reaffirmed his position that nuclear technology, in the form of the Chapelcross nuclear station, was acceptable but the construction of a Tritium plant within the station was not. Stuart argued that the questions of nuclear-energy and the proliferation of nuclear weapons were difficult. In a subsequent editorial he stated, “whilst there can be no doubt that a nuclear-energy programme gives a country the materials for bomb-making (Chapelcross itself was originally built for that very purpose) I do not believe that nuclear-energy needs to lead to weapon proliferation.”<sup>139</sup> What is clear from Stuart’s comments is that the D&G CND protest activity stemmed from a similar platform to that of the SCND in the 1960s, wherein peace and national sovereignty were the core issues. However, this stance – of being supportive of nuclear power and the Chapelcross station yet opposed to the newly constructed Tritium plant located within the station - tempered the national anti-nuclear movement’s effectiveness within the region. Yes, it was a platform for peace and autonomy which propelled the resurgence of the anti-nuclear movement in the region. However, for many within the region of Dumfriesshire this resurgence of the anti-nuclear movement in 1978 was simply a passing thing. The extent to which this platform facilitated a major change in political culture for the region in the late 1970s, needs to be examined further.

### **4.3. A Clash of Interests**

While the 1978 ban the bomb campaign in Dumfriesshire inspired a change in attitudes toward nuclear resistance for select individuals within the region, it was not enough to sustain these changes over the long term or to catalyze an homogenous shift to a left-of-center nationalism within Scottish government. The SCND’s campaign in the region inspired people both within and outside of the community to participate in a

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<sup>138</sup> David MacDougall interviewed in “Chapelcross Chief Slams CND Leaflet,” *The Annandale Observer*, September 8, 1978.

<sup>139</sup> F. Crichton Stuart, “Letters to the Editor,” *The Annandale Observer*, September 8, 1978.

discourse that in the past had been restricted to the world of government officials and technical specialists. Consequently, participation within this discourse contributed to the evolving nature of the culture of nuclear resistance within the Dumfriesshire region. One such example that illustrates this change can be found through a series of articles published by *The Annandale Observer*. During the month of August, *The Annandale Observer* included a weekly feature entitled, “The Nuclear Question,” which planned to examine “the issues from all sides.” A key issue for the paper was whether or not nuclear technology and power could meet both the energy needs of the UK and the atomic weapons programmes of the major powers. In its introduction to these articles, the publishers of *The Annandale Observer* stated that “here in South West Scotland, arguments from all sides have a special relevance, as we have at Chapelcross, near Annan, one of Britain’s first atomic power stations and also the recent development of a plant manufacturing Tritium for the Nuclear Missile Programme.”<sup>140</sup> It was this particular type of open discussion with the public that was absent in the past two decades of the nuclear debate in the region.

The first story published in this series was from a survivor of the Hiroshima blast, Ms. Miyoko Nakamura, who was visiting the Dumfriesshire area that summer (1979) and agreed to be interviewed by a reporter for *The Annandale Observer*. In the interview, Nakamura spoke of the lingering effects of the blast, the psychological and physical toll it had on the people of the area, and her efforts in the peace campaign of the 1960s to raise awareness about the dangers inherent with the production and consumption of nuclear technology.<sup>141</sup> Nakamura was an anti-nuclear activist who joined the Women’s Peace Movement and was visiting as part of a “peace delegation” to Britain that was sponsored by the Japanese Council Against ‘A’ Bombs – an activist group similar to CND. Although she was bitterly opposed to the weaponization of nuclear technology, Nakamura conceded that nuclear power stations were necessary to support the basic energy needs of a county, especially in her home country of Japan.<sup>142</sup> She stated that a great deal of research still needed to be carried out in an effort to improve technology

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<sup>140</sup> “The Nuclear Question: What Hiroshima Meant to Me – a View of an A-Bomb Victim,” *The Annandale Observer*, August 3, 1979.

<sup>141</sup> “The Nuclear Question: What Hiroshima Meant to Me – a View of an A-Bomb Victim,” *The Annandale Observer*, August 3, 1979.

<sup>142</sup> “The Nuclear Question: What Hiroshima Meant to Me – a View of an A-Bomb Victim,” *The Annandale Observer*, August 3, 1979.

and make the industry safe, so it could be used purely for the benefit of mankind. Nakamura's story served as the impetus for a more inclusive and transparent discourse on the use and effects of nuclear technology in the Dumfries area; however, her comments reaffirm that the culture of nuclear resistance, both within the community and outside it, could not escape the reality that nuclear stations were seen to provide positive benefits to the region in the form of energy supplied to the national grid. These comments echo those which were emphasized in 1978 by Scottish activists such as Patterson and Stuart and are important to understanding the change in the regional culture of nuclear resistance because they demonstrate that some in Dumfriesshire region questioned the involvement of the Chapelcross station in producing nuclear weapons. However, there was no consensus on this issue.

As evidenced in the four newspaper issues that followed, Nakamura's story provoked a frank debate by members of the local community about Tritium and the Chapelcross station's intended functions within the nuclear industry. The following week in "The Nuclear Question," *The Annandale Observer* published the personal views of Reverend Bill Ferguson, a local Minister of the Annan Old Parish who had many BNFL employees among his congregation. Ferguson claimed that when the plan for the Tritium plant was unveiled he was in the forefront of local opposition to the plant. What sparked his immediate concerns with the plans to modify Chapelcross, he noted, had to do with the fact that "an important ingredient for nuclear warheads [was] being manufactured by a handful of our fellow-citizens."<sup>143</sup> He further stated that the involvement of the Works staff in nuclear arms production "in no way makes them any more guilty than the rest of us, for we, collectively as a nation, have sanctioned the work in which they are involved...mankind is actually living on a nuclear powder keg big enough to wipe out the human species many times over – and the tritium plant at Chapelcross will be adding its weight to that grim statistic."<sup>144</sup> In a subsequent edition of *The Annandale Observer*, Ken Williamson from Dumbretton Cottage, Annan, expressed his appreciation to the editors for their decision to publish "plausible news concerning nuclear power" and was convinced that this "controversial publication" rekindled the

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<sup>143</sup> "The Nuclear Question: Why I Risk Being Branded a Crank! Annan Minster Speaks Out," *The Annandale Observer*, August 10, 1979.

<sup>144</sup> "The Nuclear Question: Why I Risk Being Branded a Crank! Annan Minster Speaks Out," *The Annandale Observer*, August 10, 1979.

feelings the community had toward the production of nuclear weapons.<sup>145</sup> Williamson stated that he was a pacifist and that he was particularly intrigued by Miss Nakamura's interview. He noted that Nakamura recited his thoughts exactly when she asked, "is the possible destruction of mankind worth fifty jobs?"<sup>146</sup> Both Williamson's and Reverend Ferguson's comments reflect the prevalent culture of nuclear resistance in Dumfriesshire at this time: nuclear technology used for military applications was disastrous, immoral, and life threatening, but nuclear technology used for commercial functions was a necessary reality for much of the region. All three responses in some way take issue with the station's military applications but acknowledged the value that Chapelcross brought to the community from a strictly economic and commercial perspective.

Local commentary about the issue of the storage and disposal of nuclear waste also points to a change in the culture of nuclear resistance within the region at this time. For example, Alexander Davidson, a local resident of the area, saw the plans to dispose and store nuclear waste in Scotland as an infringement upon Scottish constitutional sovereignty. While he noted that he was aware of scientific reasoning that the rock in Scotland was one of the most geologically suitable repositories for nuclear waste on the planet, he questioned why the clay around London, or the deep chalk of Kent and Sussex, both materials that were also scientifically proven to withstand the repository process, were not chosen.<sup>147</sup> In the article, he accused London of manipulating the Scottish people and taking advantage of the sparse population in Scotland from which, he speculated, there could be little opposition capable of challenging London policy-makers at the ballot box.<sup>148</sup> From opinions such as Davidson's it is clear that people in Dumfriesshire were growing more aware of the impact that decisions and policies dictated by Westminster for Chapelcross had on the Scottish environment and Scottish sovereignty.

Just as the voices of dissent used the debate in *The Annandale Observer* to highlight their concerns, voices of consent were quick to defend; these voices also

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<sup>145</sup> Ken Williamson, "Chapelcross – an Ugly Scar," *The Annandale Observer*, August 31, 1979.

<sup>146</sup> Ken Williamson, "Chapelcross – an Ugly Scar," *The Annandale Observer*, August 31, 1979.

<sup>147</sup> "The Nuclear Question: Scientists Can Make Errors in Judgment," *The Annandale Observer*, August 31, 1979.

<sup>148</sup> "The Nuclear Question: Scientists Can Make Errors in Judgment," *The Annandale Observer*, August 31, 1979.

contributed to a shift in the culture of nuclear resistance in Dumfriesshire at this time. In the second issue of "The Nuclear Question" a veteran and ex-POW from WWII offered his opinion on topics such as nuclear weapons, Hiroshima, and Nakamura's story. He stated that the headline used for Nakamura's story "what Hiroshima meant to Me" could and should be applied to the many POWS held by the Japanese in Burma, Chinghai, Hong Kong, and Japan during the war. To them, he stated, Hiroshima meant "freedom from hunger, torture, beri beri, dysentery, and slow death from malnutrition."<sup>149</sup> Although Nakamura was only thirteen years old at the time, he asked, "was she one of the thousands who lined the streets to laugh at the plight of those diseased, emaciated, lice-ridden prisoners paraded as a war prize by their victorious captors?"<sup>150</sup> He stated further that "as for nuclear power, Chapelcross has been pushing power into the Grid for approximately twenty years and employs some 600 personnel."<sup>151</sup> As evidenced from his comments, the author of the editorial discussed a more pragmatic view that the plant would not only provide 50 jobs, but likely save 600.

The perspective voiced by the anonymous Ex-POW was reinforced through subsequent articles in the series. For example, Jim Cootes, the manager of Health, Physics, and Safety at Chapelcross, took issue with the concerns people had with regards to potential radioactive contamination in the event of a serious accident at the station. Among his remarks, which attempted to reassure the public that Chapelcross was well above safety standards for the industry, he reminded local readers that they were fully consulted in the process by means of the Local Liaison Committee. In the article which followed Cootes' comments, *The Annandale Observer* published the views of Mr. MacDougall, manager of the station. MacDougall boasted that with 620 employees Chapelcross was one of the Annan area's largest employers and that much of the town's prosperity depended on the station continuing to provide jobs. MacDougall aggressively defended the station and stated that "Chapelcross tops the Central Electricity Generating Board league table for the most productive power stations and run

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<sup>149</sup> "The Nuclear Question: What Hiroshima Meant to Me – a View of an Ex-Jap P.O.W.," *The Annandale Observer*, August 10, 1979.

<sup>150</sup> "The Nuclear Question: What Hiroshima Meant to Me – a View of an Ex-Jap P.O.W.," *The Annandale Observer*, August 10, 1979.

<sup>151</sup> "The Nuclear Question: What Hiroshima Meant to Me – a View of an Ex-Jap P.O.W.," *The Annandale Observer*, August 10, 1979.

at full capacity for ninety-percent of the year.”<sup>152</sup> He stated further that “Chapelcross had had a reasonably untroubled history and is recognized as being one of the most reliable in the country.”<sup>153</sup> Arguably, the comments made by Cootes and MacDougall represent the efforts of the pro-nuclear lobby to quell anxieties that erupted, in part, as a result of the decision to expand the Chapelcross site to include a Tritium factory. In contrast with the views expressed by Nakamura, Ferguson, and Williamson, the perspectives expressed by Cootes and MacDougall prevailed in this particular debate and outweighed the emerging concerns presented by the opposition. This is evident by the various pro-nuclear responses that followed the views from the likes of Cootes and MacDougall. While these activists took issue with a Scottish role in the weaponization of nuclear technology, Cootes and MacDougall avoided commentary on the military applications of the nuclear technology at Chapelcross station and focused on its commercial applications as well as its role in research and development within the nuclear industry. Once again, it became evident that the pragmatic reality of the economic value represented by Chapelcross transcended for much of the community the concerns that select individuals held with respect to role of the station in developing nuclear weapons.

Collectively, these various points of view included in *The Annandale Observer* series demonstrated the transparent and inclusive nature of the nuclear debate which took place in Dumfriesshire after 1978. These debates followed the efforts of the anti-nuclear campaign in 1978 and, to some extent, contributed to the leftward and nationalist shift in the Scottish culture of nuclear resistance identified by Christopher Hill’s analysis of the SCND. Individuals such as Patterson, Stuart, Ferguson, and Williamson, clearly represent many salient aspects of the nationalist view and, by extension, established a foundation upon which to challenge the political apparatus of the British Nuclear State. However, this was the limit of that shift in the culture of nuclear resistance for the region. Progress beyond this point was stymied by the historical roots of the political culture that existed within this region at this time. It was further stifled by the contradictory stance taken by local activists in that they openly advocated against the weaponization of nuclear technology at Chapelcross, but at the

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<sup>152</sup> “The Nuclear Question: Chapelcross – Two Decades of Power,” *The Annandale Observer*, August 24, 1979.

<sup>153</sup> “The Nuclear Question: Chapelcross – Two Decades of Power,” *The Annandale Observer*, August 24, 1979.

same time they embraced the commercial applications the station provided. Consequently, given the seemingly contradictory positions adopted by the nationalist anti-nuclear movement within the region, the prevailing political culture that was in support of Chapelcross station and the nuclear industry took precedence.

As evidenced through the existing historiography on the nationalist anti-nuclear movement in Scotland, the culture of nuclear resistance within certain major urban centers of Scotland, such as Glasgow and Edinburgh, was nationalized through the platform of peace and Scottish autonomy as nuclear technology was interpreted as a distinct threat to Scottish people and Scottish land. However, based on the available sources on the anti-nuclear movement's presence in and involvement with the Dumfriesshire region and with Chapelcross, it is clear that the region was far from the apex of these nationalist anti-nuclear networks within Scotland and did not figure prominently in their activity in the 1960s. Nonetheless, the series of decisions made by both Pro-Union Scottish officials as well as officials in London in the mid 1970s, resulted in an increase of nuclear installations in Scotland. Consequently, by 1978, the platform for peace and Scottish autonomy found new and old supporters within Scotland who felt irked by the decline of Scottish influence with respect to these decisions.

Specifically, the decision to construct a Tritium factory at Chapelcross re-ignited the platform for peace and Scottish autonomy in the region and resulted in a debate with respect to the long-term impact of the Chapelcross Works nuclear station. The debate raised awareness of the potential impacts that the construction of a Tritium factory at Chapelcross (and other proposed enhancements to nuclear projects in Scotland) would have on the Scottish environment and political institutions. The debate was instrumental in the evolution of the culture of nuclear resistance in the Dumfriesshire region as it revealed the complicated nature that the presence of a dual purpose nuclear facility posed for the people of the region. As robust as this debate was, it could not overcome the historical political culture tied to economics and the nuclear agenda set in London. While activists in this area created a foundation upon which to challenge the long-standing opinions held by people in the region, the critical SCND movement in Dumfriesshire was mitigated by the contradictory stance taken by local activists in that they openly advocated against the weaponization of nuclear technology at Chapelcross, but at the same time, embraced the commercial applications the station the provided. Consequently, Chapelcross survived and Tritium continued to be produced well into the

21<sup>st</sup> century. Nonetheless, despite the success of the Chapelcross station and support by individual Scots for the nuclear agenda set in London, the movement did succeed in planting the seeds for future debates, of which peace and Scottish autonomy remained core issues.

## Chapter 5.

### Conclusion

The development and deployment of nuclear weapons by the Allies at the end of WWII altered the political and technical landscape of the era to come. Nation-states that possessed the technical expertise and knowledge to manufacture nuclear weapons became leaders on the world stage and consequently had a significant impact on the political agendas and events that unfolded during this era. With the accelerated manufacturing and testing of nuclear weapons by the USA and USSR in the 1950s, the British were insistent on keeping pace technically, thereby preserving their status politically as one of the world powers. Between the years 1955-1979, UK Ministries and the personnel within them focused on the development and construction of key nuclear sites for military and commercial purposes across the UK. The development of these nuclear sites throughout regions of the UK brought with it a variety of responses from a range of people, including politicians, scientific experts, anti-nuclear activists, and government officials, all of whom had strong opinions on how to best utilize this modern technology. In Britain at this time, opinions towards nuclear technology tended to be divided between those who believed that the technology provided Britain with geopolitical independence and a deterrent to war and those who saw it as the “destroyer of worlds.”<sup>154</sup> British politicians, government officials, scientific experts and anti-nuclear activists used discussion of this technology to further political goals and objectives. It is within this context that Chapelcross must be understood.

Following the opening of the Chapelcross station in 1959, Scottish officials became engaged with the British Nuclear State and sought opportunities to further their technopolitical agenda – that being, the pursuit of autonomy and integration within the British Nuclear State. For select members of the Scottish office and regional and county councils, the pursuit of integration meant the acceptance of the broader agenda of the British Nuclear State as set out by members of the British parliament and officials of the UKAEA and later BNFL. In general, the pursuit of integration by Scottish officials and councillors manifested itself through their willingness and acceptance of the policies put

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<sup>154</sup> Robert Oppenheimer, *The Decision to Drop the Bomb*, produced by Fred Free (NBC White Paper, 1965).

forth by Westminster. This meant an acceptance of the dual use nature of nuclear technology, both in the production of military grade plutonium and tritium, as well as energy supplied to the national grid. Autonomy was equally as important as Scottish officials, local councils, and organizations pursued efforts to develop and enforce policies and procedures designed to safeguard certain environmental health and safety concerns of importance to their region and community. The goal for both autonomy and integration took many forms and was visible at the national and local levels.

The Scottish Office was one of the key agents of the Scottish technopolitical pursuit of autonomy and integration. For some officials in the Scottish Office, such as Chief Chemical Inspector Birse, Scottish autonomy was the focal point of their agenda, specifically in the realm of environmental sovereignty and regional health and safety. During his tenure in this position, Birse monitored and enforced rules and regulations for the disposal of liquid and gaseous effluent into the surrounding Scottish waterways and ecosystems. In so doing, he carved out a degree of Scottish autonomy in this domain and created policies, procedures and regulations that differed, and often challenged, the UK stance on these issues set out by officials from Westminster. At the peak of this pursuit of autonomy in the early to mid 1960s, his policies and procedures became the industry's standard and received national and international acclaim. Other members within the Scottish Office demonstrated their willingness to integrate with the British nuclear agenda through an acceptance of UK governance and control of the nuclear industry and all its components within Scotland. Their actions thereby contributed to the making of a culture of nuclear consensus within the ranks of the Scottish Office wherein British authority superseded all other forms of governance and management of Chapelcross by 1979.

The regional and county councils of Dumfriesshire were another central component of the Scottish technopolitical pursuit of autonomy and integration. The creation of the local liaison committee at Chapelcross and their development of the District Emergency Scheme for the station was ostensibly intended to provide the regional and local officials a platform to voice their opinions and concerns related to the health and safety requirements for their community. Nonetheless, the pursuit of autonomous decision making on the part of the local liaison committee was significantly impeded by the overarching acceptance held by the local liaison committee with respect to British governance and control regarding the Chapelcross station. At no other time

was this more apparent than in 1967 when the Chapelcross station experienced a meltdown in Reactor Two after which the UKAEA took primacy with little to no resistance or input from the local liaison committee. By the early 1970s a culture of consensus had evolved within the ranks of the county councils and the local liaison committee through which the pursuit of integration outweighed that of autonomy.

While the pursuit of integration took precedence over autonomy within the ranks of the Scottish Office and county councils, not all Scottish people favored this goal. Unfolding in parallel with the technopolitical agenda set out by Scottish officials and county councils were the actions of Scottish anti-nuclear activists from groups such as the SCND and SCRAM. The culture of nuclear resistance in Scotland was distinct from other forms of anti nuclear activism across the UK. Scottish activists sought to highlight the unique nature of the situation in which they found themselves – in which UK requirements for the nuclear industry were imposed upon Scottish institutions, land, and people with little regard for their health and safety. What developed from this distinct culture of nuclear resistance was a specific platform for the movement which emphasized their desire for peace, disarmament, and Scottish autonomy. Though that may have been the prevailing pattern among Scottish activists nation-wide, anti-nuclear activists in the Dumfriesshire region, while supportive of this stance, remained sympathetic to the original purpose of Chapelcross and the use of nuclear technology for purely commercial applications such as supplying electricity to the national power grid. Consequently, this stance taken by local activists in the Dumfriesshire region may have had the potential to contribute to the growth of a left-of-center nationalism within Scotland but not to the same degree it did in other parts of Scotland.

Despite an initial life expectancy of twenty-five years, Chapelcross remained open for an additional twenty-five years. In that later period responses from Scottish political institutions became increasingly polarized. On the one hand, the cultures of consensus that existed within the ranks of the Scottish office and local town Councils maintained the pursuit of integration within British Nuclear State at the cost of autonomy. On the other hand, the cultures of dissent demonstrated by various individuals, groups, and Scottish entities emboldened others within Scotland to challenge the existing relationship between them and Westminster. However, there is still much left to be discovered. It is noteworthy that until its closure in 2005, Chapelcross remained a significant site of struggle in which the changing nature of collaboration between Scottish

and UK officials had consequences for people with reverberations beyond the time period we have considered in this thesis. Chapelcross is just one piece of the historical context that shapes current-day Scottish policy of a nuclear free Scotland.

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